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Original Article

IAV Engineers' Perception Towards the Use of AI Tools in their Language Learning: A Case Study

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Abstract - The concept of education has been revolutionized by many factors, such as Artificial Intelligence (AI), cloud computing, robotics, and blended learning. These factors, especially AI tools, have significantly impacted teaching and learning. Today, many questions have been raised by researchers, educators, parents, and students as well about the excessive use of AI tools and their conveniences (blessings) and inconveniences (curses) on students' learning careers. These questions leave much to be investigated to fill the gap related to AI in language learning. Therefore, this research tries to focus on how AI is reshaping students' learning processes. The study's objectives are twofold: the first is to know how students perceive the use of AI in their learning and what factors influence their attitudes toward it. The second objective is to emphasize the ethical considerations that must be considered while utilizing AI to improve students' academic performance, as well as how to handle these concerns effectively. A quantitative approach was adopted to analyze and interpret the results of the study. Eighty-six engineering students from the Hassan II Institute of Agronomy and Veterinary Medicine in Rabat participated in the study. The results indicated that most students are moderately familiar with AI tools, and a smaller group is highly familiar. ChatGPT is the most popular AI tool among students, and most students believe it can hurt their productivity if they use it too much. The results also bring significant contributions to students, educators, and parents as well.

Keywords - Artificial Intelligence, Customized learning, Ethical considerations, Students' perceptions, Teaching tools.

1. Introduction

Today, the utilization of AI tools in education is a promising avenue for exploring both the notable advantages and obstacles faced by students. The rapid growth of technology has inevitably brought hot debates and discussions among opponents and proponents of the excessive use of AI tools by students. Many experts recommend and ask for more attention towards the excessive use of AI tools, especially by students, to benefit from the opportunities that these tools offer to improve and facilitate the learning process. This research will try to explain the impact this revolution has had on learning by elucidating how students perceive the use of AI in their studies and what factors influence their attitudes towards it. Finally, the research reveals some ethical considerations that need to be taken when students use AI for the sake of enhancing their academic achievement. The next section will review the relevant literature related to the study's objectives.

2. Literature Review

2.1. Human and Artificial Intelligence

Human and artificial intelligence are not the same thing. In the context of Human and Artificial Intelligence, it is crucial to remember that the aspects we humans consider effortless or natural play a vital role in our intelligence within a world where AI is present. According to Zhang [14], "Intelligence is the intellectual capacity of humans, including perception, memory reasoning, behavior, and language", while AI refers to "the intelligence that is implemented manually on machines (including computers) or that people use machines to simulate the intelligence of humans and other organisms" Jai [3]. Surprisingly, these elements are significantly more challenging to automate. Human intelligence refers to the cognitive capabilities that humans have such as learning, perception, and solving problems. It is also shaped by our genetics or experiences and by our cultural influences. On the other hand, artificial intelligence refers to the intelligence done by machines based on algorithms and databases designed to mimic or help humans. "It is also believed that cognition occurs not only in our minds but also via the process of interaction between humans and tools" Shengquan Yu [15]. To state it simply, this AI means the capacity of machines to carry out cognitive functions, including reasoning, thinking, learning, problem-solving, and decision-making. It is worth to mention there are many types of AI based on their capabilities and functionalities such as narrow AI, general AI, machine learning, deep learning, reinforcement learning, and natural language processing. All these types differ, as it is mentioned in their functions and domains. The concept of AI has been discussed and defined widely by numerous researchers, scientists, and experts in many fields such as education, agriculture, medicine, military and how we can deal with the opportunities and the challenges it brings.

2.2. Is our Educational System Ready for AI?

The concept of intelligent education has been put forward to use AI technology to accelerate the reform of education, including changes in the talent development model and teaching methods to build a new intelligent education system. Answering this question, especially in our Moroccan educational system, will depend on many factors, for instance, the readiness of education for this revolution of AI, the human capital and his readiness, the availability of many conditions and criteria such as resources and infrastructure (internet connectivity, computers with reasonable prices, students' competencies…), developing new curriculum by rethinking to integrate and teach AI skills and concepts and finally ethical consideration. Woolf, Lane, Chaudhri, & Kolodner [10] proposed five vital challenges that AI in education needs to address:

1. Providing each learner with virtual mentors;
2. Helping learners to master twenty-first-century skills and support self-monitoring and self-assessment;
3. Analyzing interaction data to support learning;
4. Creating universal access to global classrooms to foster global connection; and
5. Promoting lifelong and life-wide learning.

According to UNESCO, AI in education is expected to be worth USD 6 billion by 2024 and is a significant tool for developing Sustainable Development Goals 4 (SDG4). We can say that the implementation of AI in our educational system is a gradual process that requires deliberate and thoughtful planning, piloting, and decisions that meet the required needs of education in the area of AI. Therefore, the use of AI tools in education will bring a new concept of education, that is called "intelligent or smart education", to pave the way to speed up educational reform, such as new teaching and learning methods and techniques to form a new education system.

2.3. The Future of Education in the AI Area

The use of AI or machine learning is significantly changing educational tools, students' way of learning, institutions, or even the entire education (learning analytics, needs analysis, evaluation, grading.) therefore, to fill needs gaps in learning. The rational implementation of AI in education will serve as a crucial catalyst for

collaboration between teachers, students, and AI systems to foster a conducive environment, particularly for students who are predominantly digital natives.

There is no doubt that today's students will work in the future, where AI will inevitably be used and dominated. The author points out that AI will noticeably change and customize education by making learning easier and better for students to have access to any information, research, and data efficiently and in a fraction of a second (personal learning experiences). Additionally, with the use of AI, students will gain deep knowledge of any topic or issue (languages, Maths, Designs, Software, grading). Also, students will be able to answer any emails professionally or do any assignments in a few minutes. Lastly, AI identifies students' weaknesses and strengths. For example, according to Reiss [6], a handful of schools in England, both independent and state, are using an AI tool that is designed to predict self-harm, drug abuse, and eating disorders. In the same way, in China, Xie [12], to enter your dormitory, you need to get through scanners, and in class, facial recognition cameras above the boards keep an eye on you and your fellow students' attentiveness. Furthermore, these cameras are being implemented to accurately identify the emotional state of each student in real-time, including sadness, happiness, disappointment, fear, anger, surprise, or neutrality.

In brief, AI is anticipated to be the primary driving force behind education in the future, according to experts. It is assumed that AI will have a profound impact on education by changing and personalizing it, as well as transforming teaching tools, learning methods, and access to information.

Despite the mentioned leverages of AI tools in education, the next section will focus on ethical considerations that need to be taken by students through the use of AI in language learning.

2.4. AI and Students' Productivity

While AI has numerous advantages, as it is mentioned above, it is crucial to take into account its possible downsides. AI tools have significantly revolutionized several areas in education for both teachers and students, such as amplifying efficiency, facilitating tailored education, automating monotonous duties, and delivering inventive resolutions across numerous sectors. Despite these benefits, some major concerns and issues need to be addressed to make sure that AI is used responsibly and effectively. For example, a study by Seo, K., Tang, J., Roll, I. et al. [8] found that AI has the potential to improve communication and provide assistance. However, it can also make people feel worried and uneasy, as seen with AI proctoring systems like Proctorio. This means that while AI tools can be useful, they must be carefully integrated to avoid negative effects on student welfare and performance.

In the same direction, Zouhair [14]suggested that AI has the potential to greatly improve learning outcomes through the provision of tailored feedback and assistance, consequently boosting student productivity. Nevertheless, the study also emphasizes the importance of maintaining a balance between AI integration and human connection to guarantee comprehensive educational growth.

Despite its many positive effects, integrating AI into education also has some drawbacks. An important issue to consider is the possibility of reduced student involvement as a result of over-dependence on AI tools, which may result in a decline in skills. As AI takes over tasks such as problem-solving and essay writing, students may experience a decline in their proficiency in critical thinking and manual problem-solving abilities.

To conclude, the limited capacity of AI to comprehend complexities, in contrast to human teachers, can lead to less effective assistance for students, particularly in intricate or delicate circumstances. These problems emphasize the necessity of using AI in a balanced manner to protect the well-being of students and preserve crucial human aspects in education.

2.5. AI and Ethical Considerations

The use of AI in education has many significant benefits. However, principles for AI in education have not been adequately investigated and discussed in global and national guidelines. Therefore, there appear to be some ethical considerations that need to be taken due to this shift from traditional learning to intelligent one. The use of AI offers the potential to enhance and customize education. However, there is concern that it may lead to a decline in social interaction and a decrease in students' productivity.

In an interview with BBC, Hawking [2] claimed that "Success in creating AI would be the biggest event in human history. Unfortunately, it might also be the last unless we learn how to avoid the risks." AI will surely play a vital role in what will be named the non-teaching aspects of education. In the same way, Reiss [6] admitted that "there is a danger that AI education systems will focus on a narrow conceptualization of education in which the acquisition of knowledge or a narrow set of skills come to dominate". As humans, we always try to simplify our tasks whenever possible. Students often interact with AI tools that ask for or reveal their data, such as fairness, privacy, data security, transparency, and informed consent, among others.

It is worth mentioning that there is a need to distinguish between doing things ethically and doing them ethically. A study conducted by Holmes et al. [4] examined the ethical implications of AI in education and revealed that researchers lack the necessary training to address developing ethical concerns. Their analysis determined that there is currently no established framework, agreed-upon norms, defined rules, or adopted regulations to specifically address the ethical concerns that arise from the use of AI in education. (Holmes et al. [4] Similarly, these ethics have attracted many experts and organizations (UNESCO [9]; European Union [1]; the UK's House of Lords [5] and the World Economic Forum [11]) who focused on the data we, as users, share with AI tools and the how these data are analyzed, interpreted and exploited by these tools. Experts have called for the immediate implementation of programmatic policies, sometimes known as ethical guidelines, to both encourage and regulate the use of AI. A conference on "trustworthy AI" took place in China in July 2021. The conference focused on ethical considerations in AI tools, including the reliability of algorithms, the ability to explain analytical results, the preservation of privacy in huge data, and ensuring equality across diverse user groups Tao [8].

To conclude, protecting students' rights and activating their autonomy and subjectivity are among the fundamental principles that need to be protected in the age of intelligence.

3. Methodology

Current debates related to the use of AI in education address the following issues: the implementation of AI tools in education, how these tools will customize or personalize teaching and learning and the creation of a smart education within the area of AI. A quantitative approach was adopted to analyze and interpret the results of the study. Therefore, the purpose of the presented study is to address the following research objectives:

3.1. Research Questions

1. How do students perceive the use of AI in their learning, and what factors influence their attitudes towards it?
2. What ethical considerations need to be taken into account when using AI to enhance students' academic achievements, and how can these be addressed?

3.2. Participants and Instruments

Eighty-six engineering students from Hassan II Institute of Agronomy and Veterinary Medicine in Rabat participated in the current research. Most of them are agronomy students; 90% and 10% are fishery students; they were in the first and second engineering cycles, respectively. Females represent 78%, while males represent 22%; their ages range between 19 and 20. Their levels of English are upper-intermediate and advanced. A questionnaire

was designed to analyze students' perceptions about AI in language learning. All the instructions were written in English, and the test was distributed during the last session of the semester.

3.3. Data Collection Procedures and Analysis

The researcher gathered data about students' familiarity with AI tools and their usage patterns during the 2023 academic year. Descriptive statistics were subsequently employed to analyze the dataset, offering insights into the participants' levels of familiarity, patterns of usage, and perceptions regarding AI tools in language learning.

4. Results and Discussion

The results reveal that the respondents have varying levels of knowledge of AI tools. The majority, accounting for 44% of the participants, had a moderate degree of knowledge. This indicates that a significant percentage of students have a considerable level of knowledge and familiarity with AI tools. This substantial proportion indicates an increasing pattern of AI proficiency among students, which may be influenced by the greater use of AI technologies in educational curricula and personal applications.

In addition, 34% of participants indicated a moderate level of familiarity with AI tools, suggesting limited exposure or usage. This group comprises students who may have had restricted opportunity or inclination to participate in AI technology beyond a superficial comprehension actively. This distribution emphasizes the necessity for more comprehensive AI education activities to enhance the familiarity and proficiency of these pupils.

In contrast, 12% of participants indicated a lack of knowledge of AI tools, except ChatGPT. ChatGPT is the main platform for students to interact with AI. It also indicates possible obstacles to obtaining or utilizing a wider variety of AI technologies, which may be attributed to reasons such as limited resources, lack of understanding, or perceived intricacy.

In addition, a small portion, accounting for 10% of the participants, demonstrated a significant level of knowledge of several AI tools. These students are highly likely to have significant involvement with AI technologies, possibly through pursuing advanced studies or initiatives in the subject. Their extensive familiarity could be useful for peer learning and collaborative initiatives, promoting a conducive climate for sharing knowledge.

By incorporating the given statistics into the analysis, the distribution of familiarity levels among the respondents is further strengthened. That is to say, the mean familiarity level is 1.52, indicating a moderate level of familiarity. Higher values on the scale imply greater familiarity, and the median familiarity level is 1.5, suggesting that the majority of the data falls close to the mean and highlighting the prevalence of moderate familiarity. Also, the modal familiarity level is 44%, with the majority of responders falling into the moderate category. This highlights the significant prevalence of this familiarity level. The sd. is 0.77, indicating a modest degree of dispersion around the mean. This suggests that there is diversity in the familiarity levels across students, but it is not extremely high.

Also, students primarily used ChatGPT 3.5. The statistical analysis provides more clarity on the scope of usage trends among students. Only 6% of participants were classified as strong users, heavily depending on ChatGPT for all of their daily tasks. The total percentage of respondents who display occasional or moderate usage patterns is 28%, which is the sum of non-moderate users (16%) and rare users (12%). This combination suggests a significant degree of ChatGPT usage among the student body. The statistical results offered, specifically the mean of 0.62, median of 1.5, and mode of 16%, effectively support the distribution of usage patterns. These results emphasize that a significant number of participants have modest usage levels while also acknowledging the variety within the dataset. Moreover, the study uncovers valuable information on how students utilize ChatGPT. Specifically, 80% of

students prefer to directly copy and paste the answers they receive from ChatGPT, while 15% choose to make modifications, and only 5% choose to paraphrase the offered answers.

Additionally, 89% of students believe that AI tools have improved their language learning, especially speaking and writing, due to many factors such as easy and free access (save time and effort), fresh knowledge and data, to do their homework, research, especially complex one and presentation. At the same time, 12% of them have not noticed any change or improvement or are not sure. It is worth mentioning that only 22% of the students reported that Chat GPT motivates them in language learning, while about half of them (46%) indicated that it somehow motivates them, with the remainder expressing no motivational impact.

It is important to mention that all students reported that they use AI tools because of the advantages they offer, such as AI personalizing their learning (language platforms), immediate interactions, and feedback on their pronunciation, correction, grammar, and vocabulary usage, among others.

Further, the results for the second research question showed that a considerable portion of participants (76%) use AI without using or even being aware of critical thinking abilities, demonstrating a lack of knowledge of the ethical issues surrounding AI. For instance, only a small percentage of students (24%) show awareness of these ethical issues, especially concerning security, privacy, openness, and the explainability of AI algorithms.

A substantial percentage of students acknowledge the possible detrimental effects of excessive use of AI on their productivity. The research revealed that 38% of students agree that excessive dependence on AI can impede their productivity, whereas 32% have a contrary view, and 30% express ambivalence on the subject. This implies that a significant proportion of students acknowledge the possible disadvantages of excessively depending on AI and harbor doubts regarding its influence on their efficiency. This 38% represents a critical awareness among students, indicating a conscious reflection on the balance between technology use and personal efficiency.

However, a significant number of students still express uncertainty or disagreement, highlighting the necessity for additional research on the influence of AI on productivity. The 32% of students who hold an opposing viewpoint have probably seen AI as a valuable instrument that amplifies their efficiency, potentially by automating mundane assignments, providing instant access to knowledge, or facilitating individualized learning encounters. The perspective of this group emphasizes the diverse and varied influence of AI, which might differ greatly depending on certain use cases and contexts.

AI tools can impair or inhibit students' language learning productivity in many ways. For example, students who depend too much on AI-powered language translation technologies may not be as involved in the process of learning the language because they will not be actively using the language. Furthermore, students may find it challenging to comprehend flawless sentences generated by AI-powered writing tools, which could discourage them from engaging with the language and prevent them from fully grasping its subtleties. Furthermore, because they might only rely on AI-generated voices rather than honing their speaking abilities, students using AI-powered speaking tools may find it more difficult to practice speaking and listening. In the end, depending too much on AI technologies may lead to a lack of language competency and a failure to robust the necessary critical thinking skills required for effective language learning.

The question is not how human beings versus AI, but how AI enhances human beings. To my knowledge, the role of AI is to expand or increase what is to be human. AI tools have the potential to enhance the teaching and learning experience for teachers, students, and future generations.

Teachers may not be able to cater to each student's needs, especially when we have a large number of students, as in our case. By implementing AI tools in our education, we will be able to attain and diagnose students' strengths and weaknesses. Many AI platforms are available for free and any time for students and teachers to be exploited, therefore, to fill in this gap and propose solutions and recommendations to overcome this challenge (skills and areas that need more practice).

5. Recommendations

The use of AI will inevitably personalize our education in the short or medium term. Thus, the results of the presented research came out with the following recommendations:

- Students are encouraged to target their learning objectives when using AI tools (self-determination). Therefore, to advocate for them to be more responsible for their learning (autonomous).
- AI tools will have a profound impact on teaching and learning strategies.
- The use of AI in education is a priority for teachers and students. Thus, the maintenance of students' security and privacy when using AI needs to be taken as a primary concern.
- More control should be emphasized when students are given assignments at home. Most participants are over-reliance on AI tools in their learning, therefore their academic performance can deteriorate.
- Learning analytics is a fundamental step that needs to be taken by both students and educators. For the former, learning analytics helps students to gain self-awareness about their learning patterns, knowing their strengths and weaknesses, and tracking their academic progress and performance. For the latter, using learning analytics will help educators to mentor their student's progress and tailor their teaching strategies to their needs, therefore to design successful instructional approaches.
- AI trustworthiness can be achieved when respecting and ensuring the following requirements: data privacy, safety, transparency, fairness, societal well-being, and accountability.

6. Conclusion

The key point, in conclusion, is that the ubiquitous use of AI among students will eventually customize education in the near-to-medium-term future and complement the work of teachers (but cannot substitute for them). The results indicate that a considerable proportion of students possess a moderate level of familiarity with AI tools, while a smaller percentage exhibit a high level of familiarity. Moreover, the study reveals that ChatGPT is the most widely used AI tool among students, with a significant percentage of respondents utilizing it occasionally or moderately. Notably, the majority of students acknowledge the potential negative impact of excessive AI use on their productivity, indicating a need for further investigation into the matter. However, the study also reveals that over-reliance on AI tools can lead to a lack of language proficiency and a failure to develop the critical thinking skills necessary for effective language learning. In conclusion, the study emphasizes the importance of striking a balance between the benefits and drawbacks of AI tools in language learning. By acknowledging the potential benefits of AI tools while also addressing the concerns surrounding their overuse, educators and researchers can work towards creating effective and engaging learning experiences for students.

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