Using Artificial Intelligence in Algerian Higher Education: Opportunities and Challenges from Teachers' Perspectives

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Abstract

Using Artificial Intelligence in education is gaining momentum in most educational systems worldwide. Yet, despite its acknowledged benefits in tailoring students' learning, its use in Algerian higher education classes comes with inherent challenges and ethical dilemmas as teachers often express concerns about students' actual use when engaged in tasks' completion. In this context, this study examines the reality of AI employment by teachers from eleven (11) universities, including a purposive sample of forty-one (41) participants who answered an online semi-structured questionnaire. The questionnaire contained twenty (20) items which targeted the teachers' AI use practices and perceptions, by focusing on the perceived opportunities it offers, the challenges it poses, and the reasons for the use or non-use of AI in class. The results revealed that teachers are concerned about the unethical use of AI and its impact on teacher-student trust and relationships. A clear need for comprehensive teacher training on effective AI use was identified, with a significant lack of motivation among educators to integrate AI into their teaching. The teachers' reluctance toward technology use has become real and a successful integration should start by changing teachers' viewpoints on this matter.

Keywords: Algerian higher education, Artificial intelligence, AI use challenges, Artificial intelligence use, AI in education, Teachers' perceptions

ملخص

استخدام الذكاء الاصطناعي في التعليم يكتسب زخماً في معظم الأنظمة التعليمية في جميع أنحاء العالم. ومع ذلك، رغم الفوائد المعترف بها في تخصيص تعلم الطلاب، فإن استخدامه في الفصول الدراسية في التعليم العالي الجزائري يأتي مع تحديات متأصلة ومعضلات أخلاقية حيث غالبًا ما يعبر المعلمون عن مخاوفهم بشأن استخدام الطلاب الفعلي للذكاء الاصطناعي عند الانخراط في إنجاز المهام. في هذا السياق، تبحث هذه الدراسة في واقع استخدام الذكاء الاصطناعي من قبل معلمي اللغة الإنجليزية كلغة أجنبية من إحدى عشرة (11) جامعة، بما في ذلك عينة قصديّة لواحد وأربعون (41) مشاركًا أجابوا على استبيان شبه منظم عبر الإنترنت. تضمن الاستبيان عشرين (20) بندًا استهدفت ممارسات المعلمين في استخدام الذكاء الاصطناعي ووجهات نظرهم، من خلال التركيز على الفرص المتصورة التي يقدمها، والتحديات التي يطرحها، والأسباب وراء استخدام أو عدم استخدام الذكاء الاصطناعي في الفصل. أظهرت النتائج مخاوف المعلمين بشأن الاستخدام غير الأخلاقي للذكاء الاصطناعي الذي يؤثر على الثقة والعلاقة بين المعلم والطالب. كما تم التعبير عن حاجة معترف بها لتدريب شامل للمعلمين على الاستخدام الفعال للذكاء الاصطناعي، إلى جانب نقص كبير في الدافع من جانب المعلمين لدمج الذكاء الاصطناعي في التدريس.

الكلمات المفتاحية: التعليم العالي الجزائري؛ الذكاء الاصطناعي؛ تحديات استخدام الذكاء الاصطناعي؛ استخدام الذكاء الاصطناعي في التعليم؛ تصورات المعلمين

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Introduction

The rapid spread and evolution of digital ubiquity and the disparities it causes make Artificial Intelligence (AI) play an influential role in restructuring various fields, like education. Indeed, AI offers many opportunities to improve teaching and learning processes. Its possible effects can be seen at the educational level, where AI improves administrative work, assists teachers in course design and student assessment, and offers students creative ways of learning, among other options. However, with these advantages, AI integration in higher education echoes challenges and ethical concerns that prevent most teachers from embracing the technology, despite its acknowledged benefits worldwide.

The topic of teachers' attitudes toward artificial intelligence use in education has gained particular attention among several scholars (Karaca & Kılcan, 2023; J. Kim & K. Kim, 2022; Karakose et al., 2023; Chounta et al., 2021; Polak et al., 2022; Uygun, 2024; Moura & Carvalho, 2024; Kamoun et al., 2024) who believe that maximizing AI benefits in education should begin by understanding teachers' concerns, experiences, and perceptions. Being at the forefront of educational processes, teachers can offer valuable insights into the practical implications of AI integration, and help build a comprehensive view of the benefits and drawbacks of AI in educational settings. This view is fundamental as it helps inform educators, administrators, and policymakers about teachers' challenges in effectively integrating AI into their teaching practices, which might result in more informed and nuanced decisions.

This paper aims to contribute to the ongoing debate on AI integration in education by shedding light on Algerian university teachers' perceived opportunities and challenges of AI use in their classes. Studying how AI is perceived and applied in Algerian universities is highly significant for understanding the way artificial intelligence affects teaching and learning practices in a locality with dissimilar technological infrastructure and educational resources compared to more advanced countries. In terms of investigating the perceptions and challenges encountered by teachers, this research advances not only the worldwide discourse on AI in education but also provides useful ideas for improving the quality of education, policy-making guidelines, career development programs, and the future application of AI tools within Algerian universities. To that end, the study intends to answer two main research questions:

1. How do Algerian university teachers perceive the use of AI technology?
2. What challenges do they face when implementing AI in their teaching?

Literature Review

Teachers Perceptions about AI Integration in Learning and Teaching Processes

According to Karaca and Kılcan (2023), Artificial Intelligence (AI) has triggered a change in higher education during an age of technological inventions. Indeed, it has been a subject of much interest for many researchers in education. For instance, Karakose et al., (2023) argued that investigating teachers' attitudes toward the use of AI in educational settings is highly needed. Some studies have addressed this issue, including Polak et al. (2022), who surveyed the use of AI in education. They used a focus group and a survey to gather their data. The results demonstrated that teachers showed a favorable attitude toward implementing AI and its integration, in the educational context, even if their skills were restricted in this area.

In the same year, Chounta et al. (2021) examined Estonian K–12 educators' perceptions of AI and its relevance within the framework of fairness, accountability, transparency, and ethics. They collected data from a survey distributed to 140 educators. The outcomes revealed that even though they do not know much about artificial intelligence, instructors still perceive it as a valuable teaching instrument that facilitates their access to and use of multilingual content. Additionally, teachers' views of an AI-enhanced STEM scaffolding system were scrutinized by J. Kim and K. Kim (2022). The findings reported that mainstream STEM educators claimed that AI could develop scaffolding support. However, concerns were raised about how the role of teachers is changing in the classroom and transparency in AI decision-making.

Lin et al.'s (2022) study complements earlier research, providing additional insights into the context of AI in instruction and teachers' views. This study examined the opinions of 18 experienced teachers on teaching AI and found practical methods to support AI instruction. They gathered their data from semi-structured interviews, action research, classroom observations, and post-lesson discussions to analyze the instructors' perspectives on teaching AI. The scholars used grounded theory to explain in detail how teachers perceive the pedagogical challenges associated with AI instruction and the evolving solutions. The results demonstrated that adequate AI teaching design should include five key elements: (1) barriers to and supports for teaching AI; (2) interactive design thinking processes; (3) teachers' knowledge about teaching AI; (4) orienting AI knowledge for social good; and (5) a holistic and comprehensive understanding of teaching AI. Additionally, the study recommends ideas for future professional development activities related to AI for teachers.

In more recent work, Uygun (2024) explored teachers' perspectives on artificial intelligence in education. He used the opinion scale on artificial intelligence in education to obtain insightful data from a sample of 74 educators. The outcomes displayed that, while most teachers hold favorable opinions of AI in education, there are still serious disputes over ethics and privacy. In the same year, Moura and Carvalho (2024) studied teachers' perceptions of the use of artificial intelligence in the classroom. The study examined how teachers' perceptions of AI learning resources, such as generative natural language tools, changed after they participated in a training course. Essentially, they explained how the training course was designed, implemented, and developed. A mixed-method design was used to collect data from the participants in the training course. They provided information through online surveys and semi-structured interviews. Based on the data collected, most of the participants expressed the need for more comprehensive and detailed training on the application of AI in classroom practices.

In another noteworthy research paper, Kamoun et al. (2024) investigated students' and faculty members' perceptions of AI. The study aimed to assess how prepared the faculty are to handle the difficulties and take advantage of the technological opportunities. The researchers used a cross-sectional survey design to collect the data. They distributed questionnaires to 145 faculty members and 855 undergraduate students at the ESPRIT School of Engineering and School of Business. The results confirmed that faculty members are more proficient in ChatGPT than students. Besides, the findings also revealed that 40% of the lecturers and learners trusted ChatGPT's answers, a standpoint that is not reliable in reality. Unlikely, faculty members were careful about ChatGPT incorporation. They exhibited a variety of skeptical and controlled opinions. Furthermore, the findings demonstrated that most faculty members stated that they lacked the necessary tools and training to integrate ChatGPT into their instructional methods.

Similarly, Ampong (2024) conducted a similar research work that investigated lecturers' perceptions and recognition of AI. He incorporated sophisticated statistical analysis procedures like SPSS and SmartPLS, which improved the quality of research over previous studies. A cross-sectional design was adopted using an online survey. The results displayed that over two-thirds (84%) of lecturers expressed their eagerness and approval to admit AI into their classes, while 16% expressed their rejection. Undoubtedly, years of teaching experience, institutional support for AI use, and attitudes toward AI are crucial factors that positively impact AI recognition. In addition, obvious educational incomes, structural policies, perceived complexity, simplicity of usage, and the sociocultural context are noteworthy features influencing institutions' agreement with AI for their learners.

The Importance and Challenges of AI Integration in Educational Settings

Nowadays, AI is widely used in educational settings due to developments in computing and information processing. Some studies highlighted the importance of artificial intelligence in education as a means to address current and future challenges, helping students to be better prepared (Beghetto, 2016; Ilgaz & Eskici, 2022; Mangion & Riebel, 2023). Following the same

line of ideas, Lee (2018) stated that AI in education can be applied in four settings: classroom teaching, homework, exercises or exams, and grading and customized lessons. These scenarios lay the ground for AI-based education by promoting personalized teaching content, adequate resources, and materials that fit each student's preferences, styles, and learning abilities.

Moreover, AI can assess students' performance by examining their production and providing immediate feedback, which enables teachers to detect their errors and pinpoint the areas where students need more assistance and support (J. Kim & K. Kim, 2022). AI can be used in data analysis. Schools and universities can use AI to examine massive datasets, such as student attendance and grade records. In addition, AI can be applied in an educational setting to detect patterns that enhance student performance. To this end, teachers must receive initial and ongoing AI training to help students improve AI skills and equip them for a labor market that relies on these technologies.

The significance of AI in education has been further underscored by the studies of Gawate (2019), Vera (2023), and Luo and Cheng (2020). Their inquiries delve into the role of artificial intelligence in learning English as a foreign language. Gawate (2019) claimed that AI is crucial for improving English language proficiency. It was argued by Junaidi et al. (2020) that AI is a vital pillar of the digital revolution that can be used to improve the speaking skills of English as a foreign language. Alkinani (2021) highlighted the role of AI in developing pronunciation, and Nazari et al. (2021) supported the role of AI in writing skills.

In comparison, while studies on AI's use and importance in teaching and learning are significantly growing in Western countries, exceptionally little research is completed in the Algerian context. To fill this research gap, the present survey explores teachers' perceived importance and challenges of AI's implementation in Algerian higher education, on the one hand, and it contributes to the ongoing debate about AI's role in enhancing teaching and learning in Algeria and worldwide, on the other hand.

AI Integration Research in the Algerian Context

Artificial intelligence integration across various sectors has generated significant global interest, and Algeria is no exception. Recent research has delved into the possibilities of AI in Algerian higher education, EFL learning, customs management, scientific research, digital marketing, and digital translation. Concerning the field of higher education, Belgaid and Larbi (2022) identified several obstacles to integrating AI into scientific research at Algerian universities from a socio-economic perspective. Their study revealed that although there could be many advantages to integrating AI, most Algerian universities do not have the necessary technological infrastructure.

The needs of students and the possible benefits of AI use in an academic setting were also researched by Aliouche and Mezghich (2022), who highlighted the scarcity of research on AI applications in Algerian EFL contexts. By adopting a needs analysis questionnaire with 41 third-year students from the Department of English at Barika University Center, the survey found that AI can improve educational outcomes by providing practice opportunities, enhancing linguistic skills, and personalizing the teaching and learning experience, among other learning opportunities.

The use of AI goes beyond the academic circles. For instance, Rouzlani et al. (2024) demonstrated how supervised machine learning algorithms are efficient in managing customs risk at Algerian customs by improving decision-making and speeding up the shipping process Another study conducted by M. Zerouati and W. Zerouati (2024) investigated the use of ChatGPT for scientific research purposes. Their sample survey, which included 61 respondents, revealed that ChatGPT enhances creativity by providing new ideas. However, it might also lead to derivative work, potentially obstructing originality and inhibiting creative thinking.

Hocine (2022) studied AI's impact on digital marketing in the business sector. In addition, she emphasized that it helps improve productivity enhancement in firms involved in product promotion and sales. Meanwhile, Benbada and Benaouda (2023) contributed to the

field of machine translation by comparing human translations with those generated using AI tools, such as Google Translate and Reverso Context. The findings revealed that machine translation remains incomplete as it still requires improvement efforts to be done upon it.

These studies collectively underscore the potential benefits of AI integration in Algeria, while highlighting the scarcity of research on AI implementation's opportunities and challenges in higher education. This study seeks to bridge this gap by investigating teachers' perceptions and challenges across various universities in Algeria.

Methods and Materials

The study opted for an exploratory/quantitative method that examined the reality of AI employment by forty-one (41) teachers from eleven (11) universities, including Boumerdes, Algiers, Tizi-Ouzou, Setif, Batna, Oum el Bouaghi, Mascara, Djelfa, Annaba, Tebessa, and Bechar. The data collection phase, which took place from March 24th to June 6th, 2024, involved using a semi-structured questionnaire administered via Google Forms. The questionnaire contains twenty (20) items, ranging from multiple-choice and yes/no questions to semi-open questions that allow participants to express themselves in the comments box freely. The questions focus on teachers' AI use practices and perceptions, specifically addressing the perceived opportunities AI offers, the challenges it poses, and the reasons for its use or non-use in the classroom. The results are presented in graphs, pie charts, and tables that show the frequency and percentages of the answers.

Participants

The study data were collected from a purposive sample of forty-one (41) Algerian teachers across eleven universities: Boumerdes (11), Tizi-Ouzou (7), Batna (4), Setif (3), Algiers (4), Djelfa (4), Tebessa (2), Mascara (3), Annaba (2), Oum el Bouaghi (1), and Bachar (1). This research was conducted during the academic year 2023-2024, involving Linguistics, Literature, and Translation teachers aged between 25 and 55 years old (Mean = 40). The participants were from the English (31 teachers), French (6 teachers), and Arabic (4 teachers) departments. By assuring the ethical principles of voluntary participation and informed consent, participants answered the questionnaire shared via email sent to personal contacts and colleagues around Algeria.

Research Instruments

Questionnaires are frequently chosen as a research tool in the humanities due to their ability to gather data from many participants across various settings. Their efficiency, cost-effectiveness, and ease of use make them particularly appealing (Bell, 1988; Nunan, 1997; Flick, 2015; Walliman, 2006). Moreover, structured, semi-structured, and unstructured questionnaires allow respondents to provide honest answers without the potential influence of researchers or other external factors. For some scholars, a carefully crafted questionnaire can yield precise information, useful for both qualitative and quantitative research, as participants can contemplate and revise their reactions during the completion process (Bell, 1988; Walliman, 2006).

Building on the consensual arguments on the significance of questionnaires' use in research, the suggested one is structured online. Its main objective is threefold: first, it seeks to account for teachers` AI use, practices, and views. Second, it looks into their perceived AI benefits and challenges in education. Third, it aims to identify the participants' skills and reasons for using or not using AI in teaching. The questionnaire contains 20 items divided into six distinct sections. The form starts with an identification section which accounts for the participants' age, university, department, and speciality. The section is followed by a part labeled *AI use*, which comprises three questions seeking to account for the respondents' AI employment frequency and field of use. Section three, titled "AI Use Skills," contains three items that examine teachers' competencies in using and accepting AI technology. Section four, entitled "AI Perceived Benefits in Three Questions," explores the participants' views on the advantages of using AI in teaching, both from the perspectives of learners and teachers. The fifth section, titled "AI and Ethics," examines teachers' ethical considerations and their impact

on their openness or reluctance regarding AI adoption through three questions. The sixth and final section, titled "AI Implementation in Algerian Higher Education," contains four questions aimed at investigating teachers' difficulties and views on the capacity of higher education institutions to implement AI technology effectively.

To move past ambiguity and irrelevance in the formulation of the questions, a piloting phase was initiated to ensure their validity. During this phase, the questionnaire was revised and evaluated by four colleagues who were solicited for their feedback. Eliciting feedback from the teachers on the questionnaire's length, questions' difficulty, clarity, and completion time was very insightful as it helped to reshape, correct, and improve the final version of the questionnaire.

Research Procedures

An exploratory/quantitative approach was employed to investigate AI use in an Algerian academic setting. The research involved 41 linguistics, literature, and translation teachers aged 25 to 55 from 11 universities. Data collection was completed between March 24th and June 6th, 2024. The online semi-structured questionnaire, carefully designed and piloted, consisted of 20 items across six sections, covering topics such as AI use practices, skills, perceived benefits, ethical considerations, and implementation challenges in Algerian higher education. Through the selected methodology and tool, the study aimed to provide insights into the current state of AI use in an Algerian academic setting, exploring teachers' perceptions, competencies, and the potential impact of AI on education in this context.

Results

As previously indicated, the questionnaire is divided into six sections, each covering a different theme. Since the answers to the first section, which pertains to teachers' identification, are provided at the outset, the results discussed below cover the five remaining sections in a stepwise way that follows each section's answers, with their corresponding figures and percentages as follows:

Section 2. AI use
Q1. I use AI more in

Table 1. *Teachers` AI use*

Field of use	Number of teachers	Percentage
Research	21	51.2 %
Education	17	41.5 %
Translation	11	26.8 %
Entertainment and communication	7	17.1 %
Don`t use AI	6	14.5 %

As shown above, AI is preponderantly used by the participants when engaged in scientific research (51.2%) and enhancing educational activities (41.5%). Besides, 26.8% of teachers use AI in translation, showing its role in facilitating the move from one language to another, mainly in academic tasks and communication. Lower percentages are highlighted, including 17.1% for applications in entertainment and communication and 14.5% for those who do not use AI at all. This might reflect a possible reluctance to adopt AI due to ethical concerns, a lack of knowledge about the best ways to use the technology or limited internet access. Teachers' initial use of AI indicates a trend toward employing it for academic purposes, primarily to improve research outcomes and pedagogical practices.
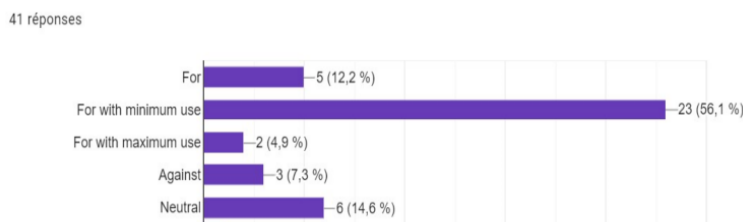
Q2. Are you for or against the use of AI in class?

Figure 1. For or against using AI in class

According to the chart, most respondents (56.1%) favor minimal AI implementation in classrooms, indicating a nuanced perspective on teachers' attitudes toward AI. Additionally, 12.2% of teachers support AI use in general, and 4.9% advocate for maximum AI use. Together, these pro-AI attitudes account for 73.2% of responses supporting AI in education. With small portions, 14.6% of respondents stay neutral, and only 7.3% are explicitly against AI employment. Teachers` general acceptance of AI is displayed, yet with degrees of caution that suggest a minimized approach to its integration.

Q3. How often do you use AI in your classes?
        The question also addresses how frequently AI is used in the classroom, revealing a varied usage pattern among teachers. Most of the participants (34.1%) never use AI, while some of them (31.7%) use it sometimes. In addition, rare use is expressed by 26.8% of the participants, while 4.9% of them use it often, pointing to a small group of frequent users who adopt AI technology. Last, constant and frequent use of AI scored 0% among the participants, indicating the absence of extensive AI integration, and their ambivalent acceptance of AI technology.

Section 2. AI use skills
Q1. Have you received specific training related to integrating AI into your teaching?
        Considering the results, the percentages reveal a significant gap between most respondents (87.8%) who have not received specific training related to integrating AI into their teaching practice, and the 9.8% of teachers who have received such training. The apparent disparity in percentages indicates that teachers may not be fully informed about the benefits of AI technology in education. In this case, adequate training might help reinforce teachers` confidence and competencies to incorporate AI tools into their teaching effectively.

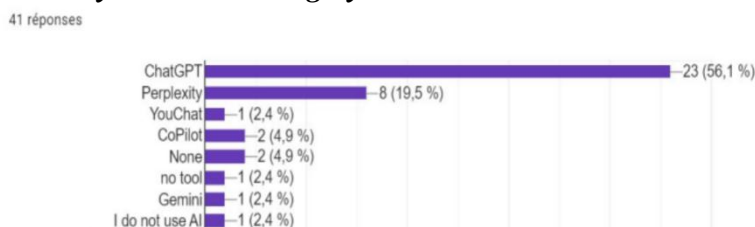*Q2. Which AI tools have you used to design your course content?*

Figure 2. AI tools used in class

As shown in the bar chart, ChatGPT is identified as the most favored tool among teachers, with 56.1% reporting it as their primary tool. The second option, Perplexity, is adopted by 19.5% of the respondents. Following this are CoPilot and "none," which account for 4.9% of the responses. The remaining responses are each represented individually at 2.4%. These include a mix of AI tools such as YouChat, and Gemini, and a "no" response.

Q3. Have you explored AI-driven language platforms for your own professional development?

Regarding the teachers` attempts to develop themselves at the educational level through AI-driven language learning platforms, the survey shows that most respondents (61%) never explored such platforms. Only a small portion (24.4%) indicate the occasional use of the platforms, and only 17.1% are positive about using these AI-driven platforms for professional growth. The discriminating No answers could point out the lack of awareness or a diminished perceived value of the tools among professionals. The teachers who sometimes navigate AI platforms could see occasional value but inconsistently rely on them. Teachers` adoption of AI for professional growth appears to be slow within this sample.

Section 3. AI perceived benefits in education

Q 1. Do you believe that AI technologies have the potential to enhance the quality of education in classes?

41 réponses

Figure 3. AI technologies and quality education

Regarding teachers` perceptions regarding the positive impact of AI technologies on the quality of education, a significant majority of the respondents (61%) believe that AI can enhance the quality of instruction in classes, while only 2.4% do not. Moreover, 36.6% of the respondents are uncertain about the positive effect AI can have. The overall optimistic perceptions of AI's contribution to classrooms, despite significant uncertainty, suggest a need for open discussions about the benefits and drawbacks of using AI safely. This dialogue could help convince those who are undecided to adopt these technologies favorably.

Q 2. Do you think AI can negatively impact the role of teachers in education?

The generally positive views on AI's role in classrooms, despite notable uncertainty, indicate a need for open discussions about the benefits and risks of using AI safely. Such conversations could help persuade those who are undecided to adopt these technologies more positively. Besides, 11 respondents (26.8%) are unsure about the potential negative impact of AI on teachers` tasks and roles. This division in responses informs about the controversial perspective on the influence of AI in class. While some respondents recognize AI's potential drawbacks, others seem open to technology. Meanwhile, some individuals remain uncertain, indicating a possible need for more information, training, and evidence to form a definitive opinion on the topic.

Q3. AI meets students` needs better as it offers a more personalized way of learning.

Exploring teachers' perceptions about AI's impact on students' education is presented here by suggesting its role in offering a more personalized way of learning. The results show a mixed view, with 48.8% of the respondents answering Not sure, indicating uncertainty about A's benefits. 39% of the respondents agree on the favorable effect of AI and its contribution to meeting students' needs. The least supported answer is No, with only 12.2% disagreeing with the statement. The provided responses show how teachers' views are divided, with some

supporting AI's positive impact on students' personalized learning and a large group of educators expressing their uncertainty.

Section 4. AI and Ethics
Q 1. Do you have concerns about the use of AI in education?
The respondents` answers on whether they had concerns over the use of AI in education show the majority (85.4%) expressing their ethical concerns. In comparison, the minority (17.1%) viewed the opposite. The responses reveal most educators' critical view of AI use in contexts, suggesting a need for serious discussions on this topic to overcome these ethical challenges effectively.

Q 2. What are your concerns regarding integrating AI in language education for learners?

41 réponses

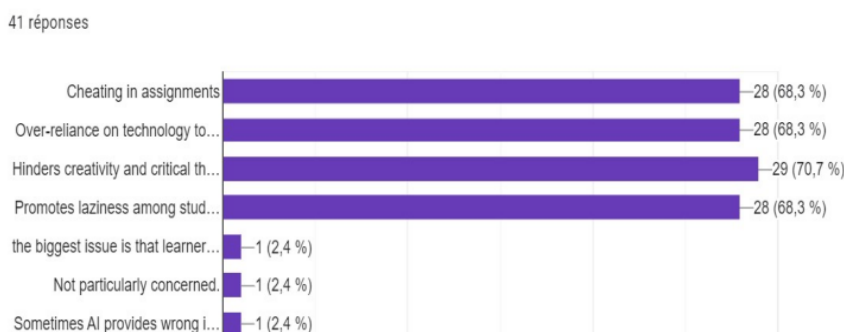|	
Cheating in assignments	28 (68,3 %)
Over-reliance on technology to...	28 (68,3 %)
Hinders creativity and critical th...	29 (70,7 %)
Promotes laziness among stud...	28 (68,3 %)
the biggest issue is that learner...	1 (2,4 %)
Not particularly concerned.	1 (2,4 %)
Sometimes AI provides wrong i...	1 (2,4 %)

Figure 4. Teachers` concerns

Examining teachers' reasons for indecisive adoption of AI shows their belief in AI`s capacity to hinder creativity and critical thinking as the most prevalent concern among 70.7% of the respondents. The three other reasons reported by 68.3% of the respondents refer to "Cheating on assignments," "Over-reliance on technology," and "Promoting laziness among students." Lower percentages (2.4% of respondents) reveal the teachers' concerns over the inaccurate information provided by AI tools, on the one hand, and some teachers' indifference about technology use and its impact, on the other hand. The reservations about AI in education reflect teachers' concerns about the potential negative impact AI might have on student outcomes and academic integrity.

Q 3. Do these concerns prevent you from using AI with students?
As indicated by the survey`s results, nearly half of the respondents (48.8%) suggest that the mentioned concerns prevent them from using AI with students, while a substantive 41.5% continue to use AI despite reservations. Here again, the observed disagreement highlights the controversial nature of integrating AI into education. A small portion of respondents provided different views by considering uncertainty, lack of proper training, and indifference to AI use in learning environments.

Section 5. AI implementation in Algerian higher education
Q 1. Do you face challenges in integrating AI into your classes?

41 réponses

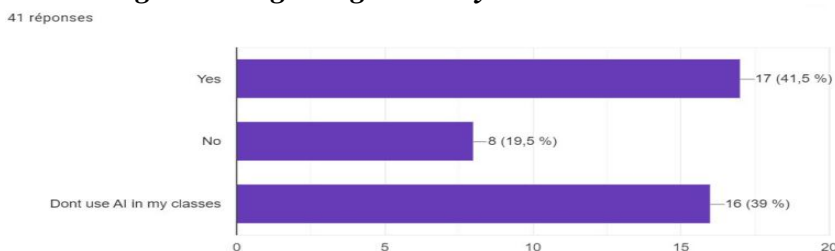|	
Yes	17 (41,5 %)
No	8 (19,5 %)
Dont use AI in my classes	16 (39 %)

Figure 5. Teachers` challenges in integrating AI

On the question of whether the teachers face challenges in integrating AI in class, 41.5% of the respondents confirm the statement. However, 19.5% of the participants report that they do not

encounter any challenges. Further, 39% of the participants do not employ AI in their classes. The overall percentages reveal that a large portion of teachers face challenges with AI, while nearly an equal portion do not use AI in their teaching. Yet, relatively few (19.5%) indicate that successful AI users are still a minority among educators.

Q 2. Algerian universities are not technically equipped to effectively implement AI in class.

As reported by the questionnaire, the technological readiness of Algerian universities to implement AI in classrooms reveals a predominant consensus. A large number (87.8%) of respondents agree that these institutions are not technically equipped for effective AI implementation, and only 4.9% of the participants disagree with this assessment. A few respondents provided additional insights, citing a lack of basic infrastructure such as chairs, projectors, and screens. The overall results highlight the technological difficulties faced by Algerian higher education institutions in the digital era. The sample indicates a significant need for substantial investment in infrastructure and equipment.

Q3. Do you think that teachers are open to the use of AI in their classes?

Regarding the degree of openness to AI use in class, most teachers express their hesitation with 63.4% answering Maybe. Only 12.2% answered Yes, suggesting a minority are open to AI implementation and use. A relevant number of participants (26.8%) gave a definite No, which corresponds to a significant number of respondents opposing AI use in their classes. Clearly, interest in AI among teachers is significantly expressed with considerable hesitation and resistance.

Q4. Do you think that teachers should receive specialized training or support to effectively utilize AI in their teaching?

According to the results, 82.9% of teachers feel special training and support are essential to effectively use AI- they answer with a definite Yes. This is a significant proportion which indicates that teachers are aware of the need for the intentional and practical application of AI tools. The No represents only a tiny fraction (14.6%) who disagreed with AI's use in teaching or those who did not feel there was any need for such preparation. However, the preponderance of affirmative answers underscores the importance of training teachers on how to use AI tools during their classes.

Discussion

As stated at the outset, the present study raised two main questions: the first related to how teachers perceive the integration of AI technology, and the second concerning the challenges they encounter when implementing AI into their teaching. By examining the findings in the context of existing literature, a clearer picture emerges of how these perceptions and challenges compare to those in other educational settings.

As regards the first research inquiry, the data analysis foregrounds that AI has stimulated a blend of concerns and mixed perceptions concerning AI adoption among the participants. Most Algerian university teachers have an optimistic outlook on AI in education. This is consistent with Polak et al.'s (2022) and Belgaid and Larbi's (2022) research, which also found that some teachers were favorable toward AI even though they acknowledged having some infrastructural limitations. In addition, Uygun (2024) mentioned that most teachers showed favorable attitudes about AI, which agrees with the findings observed in this study.

Moreover, Algerian teachers' enthusiasm for AI reflects a more significant trend where educators worldwide see AI's potential in improving teaching and learning. Ampong (2024) claimed that many teachers nowadays are interested in including AI in their classrooms, showing that AI is seen as valuable by most educators from different backgrounds. Nevertheless, this positive attitude is often accompanied by concerns about whether there are sufficient skills and understanding to use AI effectively in teaching. This research also contributes to the ongoing discussion about how prepared teachers are for adopting AI.

Algerian educators recognize the pressing need for a more targeted approach to professional development to close these gaps. This finding supports Chounta et al.'s (2021) and J. Kim and K. Kim's (2022) findings, which also showed that while teachers appreciate the benefits of AI, they are not yet ready to adopt its use fully.

Considering the second research question on the challenges teachers face when implementing AI into their teaching, the findings stressed the participants` indecision to embrace the technology for three reasons. The first dealt with the educators` lack of training, which makes them unsure about how to incorporate AI into teaching, with nearly half feeling undecided about its potential benefits—the second reason referred to the poor infrastructure. For most teachers, Algerian universities are not adequately equipped to effectively adopt AI technologies. The third and final motive highlighted teachers' ethical considerations; indeed, up to 85.4% expressed reservations about applying artificial intelligence to instruction. These problems of lack of training resources, ethical issues, and possible resistance to embracing AI were also identified by Lin et al. (2022). For instance, Lin et al., (2022 identified barriers to teaching AI, indicating an urgent requirement for training programs that thoroughly prepare teachers and moral grounds that act as a compass for responsible use of AI.

The challenges noted in this study reflect issues that teachers around the world typically worry about when incorporating AI into their teaching. Algerian teachers' skepticism and caution observed in this study are similar to Kamoun et al.'s (2024) discovery that faculty members were often resistant to fully embracing AI because they had no tools or training. This skepticism is emphasized by other studies where Uygun (2024) and Lin et al. (2022) expressed similar concerns on ethical grounds. Therefore, tailored training programs need to be developed to address the specific challenges faced by Algerian teachers based on these findings.

In summary, this research gives invaluable insights into the perception of AI implementation and its challenges in Algerian higher education. The findings suggest that most university lecturers in Algeria have an optimistic attitude toward the value of AI; however, there are still obstacles impeding its optimal use in class. This problem is not unique to Algeria but has emerged as a typical pattern in global literature. Based on the discussed findings, this study underscores the necessity for comprehensive training programs and adequate learning and teaching environments to promote a reflective approach to AI integration despite concerns and avoidance. Only by doing so can educators in Algeria or anywhere else fully exploit AI for enhanced teaching and learning.

Pedagogical Implications

The implications of the present study for educators, administrators, and policymakers are significant. First, an all-encompassing professional development program is needed, as there are currently no workshops specifically focused on AI integration in education. This goal can be achieved through seminars, useful lessons, or by providing internet resources. In particular, these programs should cover not only the technical aspects of how AI tools work but also offer useful guidance on integrating these tools into language instruction strategies.

Furthermore, there is a need for empirical research and practical examples demonstrating how AI can enhance personalized learning and student engagement, given the diverse opinions on the topic. Teachers might need practical models to help them grasp how to employ AI effectively that maintain high educational standards. Besides, to reduce the reported ethical concerns, institutional guidelines and frameworks that set rules and criteria for responsible utilization of AI in settings should be considered. These criteria should deal with issues like fostering creativity and critical thinking, maintaining academic integrity, and balancing technological advancement with conventional language teaching methods.

Finally, a gap exists among teachers who use AI tools in their instruction, suggesting that a comprehensive approach is needed for integrating AI. This could include a phased approach where educators trial various AI tools and assess their effects. Ultimately, the

findings indicate that digital literacy and critical thinking skills should be developed among both teachers and learners. This will enable them to effectively navigate an AI-enhanced learning environment, taking advantage of its benefits while acknowledging its potential drawbacks.

Conclusion

This research investigating Algerian teachers` perceptions and challenges of using artificial intelligence reveals an intricate and dynamic situation. The study shows that AI has the potential to change teaching and learning, but many educators face significant obstacles before its implementation can be successful. The results reveal that many teachers are becoming increasingly interested in AI due to its usefulness in research work, educational activities, and language translation, among other possibilities. However, ethical concerns, poor educational infrastructures, and lack of training on its application display a significant gap between interest and adoption.

In closing, these findings inform us about the necessity for comprehensive training programs to promote a reflective approach to AI integration despite concerns and resistance. Moreover, educational institutions, policymakers, and EdTech developers must address teachers' concerns by creating more specialized learning tools, providing universities with technological resources, and establishing ethical guidelines for AI use. These steps are essential for enhancing digital literacy among both teachers and learners.

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Declaration of AI Refined
This research paper has undergone language correction using the AI-powered tools Grammarly and Scholar AI Chat to address grammatical, spelling, and stylistic errors. It is acknowledged that the use of such tools may introduce standardised patterns typical of AI-generated content. Consequently, a certain percentage of content may reflect AI-generated language structures. Yet, the intellectual content and the analysis remain entirely the work of the authors.

Statement of Absence of Conflict of Interest
The authors mentioned above hereby solemnly declare that they are not and shall not be in any situation that could give rise to a conflict of interest in what concerns the findings and recommendations contained in this academic article.

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Appendices
Appendix A
Teachers' Questionnaire
Section 1. Identification questions

1. Teacher specialty *
Literature and Civilization
Linguistics
Translation
Other:

2. University *
 Boumerdes
 Algiers
 Bouira
 Setif
 Other :
3. Department *
 English
 French
 Arabic
 Other :
4. Age *
 25-30
 30-40
 40-50
 50 and more

<center>**Section 2. AI use**</center>

1. I use AI more in: *
 Education
 Research
 Translation
 Daily organisation
 Entertainment and communication
 Other :
2. Are you for or against the use of AI in class?
For
For with minimal use
For with maximal use
Against
Neutral
3. How often do you use AI in your classes *
 Always
 Often
 Sometimes
 Rarely
 Never
 Other :

<center>**Section 3. AI use skills**</center>

1. Have you received specific training related to integrating AI into your teaching practice?
 Yes
 No
 Other :
2. If yes, which AI tools have you used to design your course content?
 ChatGPT
 Perplexity
 YouChat
 CoPilot
 Other :
3. Have you explored AI-driven language learning platforms for your own professional development?
 Yes
 No
 Sometimes

<center>**Section 4. AI perceived benefits**</center>

1. Do you believe that AI technologies have the potential to enhance the quality of education in classes?
Yes

No
Not sure

2. Do you think AI can negatively impact the roles of teachers in education?
 Yes
 No
 Not sure

3. AI meets students` needs better as it offers a more personalized way of learning.
Yes
 No
 Not sure

Section 5. AI and Ethics

1. Do you have concerns about the ethical implications of using AI in education?
 Yes
 No
 No idea

2. What are your concerns, if any, regarding the integration of AI in language education for learners?
 Cheating in assignments
 Over-reliance on technology to do some tasks
 Hinder creativity and critical thinking
 Promotes laziness among students
 Other :

3. Do these concerns prevent you from using AI with students?
Yes
No
Other:

Section 6. AI implementation in Algerian Higher education

1. Do you face challenges in integrating AI into your classes? *
 Yes
 No
 Don`t use AI in my classes

2. Algerian universities are not equipped to effectively implement AI in class?
 Yes
 No
 Other:

3. Do you think that teachers are open to the use of AI in their classes? *
 Yes
 No
 Maybe

4. Do you think that teachers should receive specialized training or support to effectively utilize AI in their teaching?
 Yes
 No
Other :

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