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THE ARTIFICIAL INTELLIGENCE REVOLUTION IN UNIVERSITY LANGUAGE TEACHING: APPLICATIONS AND FUTURES

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Abstract: The advent of artificial intelligence (AI) is currently precipitating a global revolution in technology, with profound implications for scientific research and numerous facets of contemporary life. Among its promising applications, the integration of AI into education and learning stands out, particularly in light of recent recommendations by the French Ministry of Higher Education and Scientific Research to enhance proficiency in the English language. This priority is reflected in the incorporation of English into degree requirements and the increasing adoption of English-language instruction in universities. This article examines the convergence of AI technologies with language learning and teaching, emphasizing prominent applications such as Speak, Ewa, Grammarly, Duolingo, Getpronounce, and HelloTalk. For instance, Duolingo employs a pedagogical strategy that incorporates a variety of techniques, including listening to word pronunciation, reading sentences, audio recordings, sentence construction through word arrangement, and image-word association. This approach is especially pertinent in light of ministerial recommendations on English, which have now been incorporated into final assessments and initial teaching in universities. Furthermore, the article investigates the potential for optimizing the utilization of these AI applications for language learning among university students. To this end, a questionnaire has been developed for language students (English and French) to ascertain their perspectives on the subject matter. The objective is to investigate the potential of these tools to facilitate the development of language proficiency, fulfill academic expectations, and promote the integration of foreign languages in higher education.

***Keywords**:* AI applications ; Artificial intelligence ; Language skills ; Learning ; University students .

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1. Introduction

In response to the challenges posed by the global pandemic of the novel coronavirus, Algerian universities have undergone a significant transformation in their approach to higher education and scientific research. In light of the Ministry of Higher Education's guidance, the integration of artificial intelligence (AI) into the educational landscape has emerged as a pivotal concern.

Notable initiatives, such as encouraging students to submit their dissertations in English and training teachers in modern educational technologies, demonstrate a collective effort to adapt to the evolving landscape of education. However, the transition has not been without difficulties.

Research, as exemplified by the article published in the journal of Assiut University's Faculty of Education, has sought to examine the role of artificial intelligence applications in maintaining and enhancing the educational process during the pandemic. This work has illuminated the potential advantages and challenges associated with the integration of AI into the educational domain.

In the UNESCO World Report article "Generative AI and the future of education," Stefania Giannini, Assistant Director-General for Education at UNESCO, asserts that "the emergence of AI technologies offers transformative opportunities for both teachers and students in higher education" (UNESCO, 2023). As reported by Chen et al. (2020), AI presents a range of opportunities for teachers and students alike (UNESCO, 2023)

Nevertheless, in light of the increasing prevalence of AI tools and applications, concerns persist regarding the preparedness of educators, the adequacy of digital infrastructure, and the general acceptance of AI in educational contexts. This research project aims to investigate the effectiveness of AI applications in the language teaching process, addressing the following questions:

A. Does the educational environment provide sufficient support for the integration of artificial intelligence?

B. What tools and applications are available to provide a comprehensive language learning experience?

C. Are there no statistically significant differences between the responses of students of English and French regarding the use of AI?

The objective of this study is to contribute to the discourse on the use of AI in language teaching in the Algerian higher education landscape by exploring the aforementioned questions.

2. Literature Review

2.1 Definition of Artificial Intelligence

Artificial intelligence (AI) represents a cutting-edge field within computer science, aiming to address the cognitive challenges traditionally associated with human intelligence. In the present era, organizations amass considerable quantities of data from a multitude of sources, including human-generated content, monitoring tools, intelligent sensors, and system logs. When combined with AI technologies, this data serves as the foundation for the creation of self-learning systems that are capable of acquiring information and formulating solutions that closely align with human thought processes.

The origins of AI can be traced back to Alan Turing's foundational 1950 paper, "Computing Machines and Intelligence," in which he first introduced the term as a theoretical and philosophical concept. Subsequently, the field has experienced significant advancements, resulting in a more precise definition and enhanced capabilities. In its current iteration, artificial intelligence (AI) is defined as "computer systems capable of engaging in human-like processes, encompassing learning, adaptation, synthesis, self-correction, and sophisticated data processing tasks" (Popenici & Kerr, 2017).

This definition sums up the multifaceted nature of AI, highlighting its ability not only to process data, but also to learn from it, adapt to new information and refine its performance autonomously. These capabilities make AI a transformative force in diverse fields, from healthcare and finance to education and beyond.

2.2 Tools to Assist Language Learning: Chatbots, Virtual Tutorials, Automatic Correction

-Chatbots. These systems have attracted considerable interest and widespread adoption due to their versatility, which extends well beyond mere entertainment. These systems are powered by advanced natural language processing (NLP) models, which enable them to harness a wealth of textual data to generate responses that credibly mimic human interactions. Chatbots have become indispensable tools in a multitude of fields, including customer service, education, and healthcare, where they enhance accessibility and efficiency in interactions. Their capacity to interpret and respond to complex language has made them invaluable in these areas.

With regard to machine learning, this field of study has experienced considerable growth in recent years. However, the exploration of its specific applications remains limited in the scientific literature. A noteworthy study employed machine learning algorithms to predict student attitudes toward these technologies with an accuracy of up to 74%, leveraging behavioral information management (Arpaci, 2019). This approach demonstrates the potential of leveraging user behavior data to enhance the personalization and efficiency of interactive systems. Another piece of research examined methods for learning English as a second language, using machine learning techniques to optimize the teaching and acquisition of language skills (Wei et al., 2018). These studies underscore the increasing significance of AI and machine learning in enhancing educational and interactive processes across a range of contexts.

-Virtual tutorials. are educational programs that employ interactive and immersive technologies, such as virtual reality (VR), augmented reality (AR), or three-dimensional environments, are designed to simulate real-life situations or learning scenarios. Such technologies afford users the opportunity to explore, manipulate, and experiment in a safe environment, receiving immediate feedback on their actions. These tools are employed in a multitude of fields, including vocational training (for the acquisition of technical competencies), medical (for the simulation of surgical procedures), military (for tactical training), industrial (for safety training), and general education for hands-on simulations, thereby facilitating engaging and effective learning through the provision of interactive and realistic environments (Macedo & Sylaiou, 2018).

-Automatic correction. This is a computerized process that is utilized to identify and rectify spelling, grammatical, and typographical errors in text automatically. This process relies on the use of linguistic and statistical algorithms that compare suspect words or phrases with the correct forms available in a pre-established database or corpus. Based on these comparisons and the application of grammatical and contextual rules, the automatic correction system offers suggestions for correction in real time, thereby enhancing the accuracy and readability of the text produced. This technology is extensively incorporated into a multitude of software

applications, including word processing software, web browsers, and messaging applications, with the objective of assisting users in avoiding errors and producing more accurate and coherent written communications. (Jurafsky, & Martin, 2008).

- Coursera, edX and Udacity. Major online learning platforms have strategically integrated artificial intelligence (AI) in order to enhance the user learning experience. These platforms employ artificial intelligence (AI) to optimize learning paths in several key ways, as evidenced by the work of Siemens and Gasevic (2012).

Personalized Course Recommendation: Using machine learning algorithms, these platforms analyze user data, such as learning preferences, course history and past performance, to recommend relevant courses. This personalization helps students more easily find courses that match their interests and current skill level.

- Data analysis for personalized feedback. Artificial intelligence is employed to analyze users' learning activities in real time. It identifies deficiencies in comprehension or challenges encountered by students in a specific course. Based on this analysis, the system provides personalized feedback, such as specific recommendations for additional resources or adapted exercises, to assist students in overcoming their difficulties and improving their results (Kizilcec, Pérez-Sanagustín, & Maldonado, 2017).

-Improved engagement and results. The provision of individualized support and relevant recommendations by AI serves to enhance students' engagement in their learning. (Santos & Gomes, 2021) This has the potential to result in enhanced knowledge retention and more gratifying learning outcomes, as it aligns study efforts with the particular needs and learning objectives of each user.

2.3 Academic Language Acquisition and AI Integration: New Applications

The field of language acquisition for university students represents a crucial area of study, encompassing the processes through which students learn and become proficient in a new language within an academic context. This acquisition can occur through formal language programs, university-provided language courses, or language immersion experiences. The specific teaching strategies and methods employed vary according to the particular needs of the students and the language objectives they are pursuing, whether for professional, academic, or personal reasons. The communicative approach, modern educational technologies, and the integration of language and culture into the learning process are fundamental elements in this process. A substantial body of research in this field is dedicated to enhancing pedagogical practices and elucidating the means by which university students can attain advanced linguistic proficiency and an appropriate understanding of cultural nuances in a foreign language.

In the majority of cases, the learner or teacher is required to implement a program for their respective students, such as

- Practicality guaranteed with Busuu. Busuu is a comprehensive online language learning platform that is accessible via its website and mobile application. The platform offers users the opportunity to enhance their language abilities through a combination of interactive lessons, exercises, and assessments. Busuu is distinguished by its emphasis on social learning, which facilitates connections with a global community of language learners for the purpose of practicing skills in a supportive environment. Users are afforded the opportunity to engage in language exchanges with native speakers, receive feedback on their writing and speaking exercises, and participate in group discussions. The platform offers a comprehensive range of languages, including English, Spanish, French, German, Italian, Dutch, Portuguese, Russian, Polish, Turkish, Chinese, and Japanese, making it an optimal choice for learners from diverse

linguistic backgrounds. The user-friendly interface and adaptive learning technology of Busuu provide a flexible and effective method for individuals to learn and master a new language at their own pace.

-Speak: With the help of - Elsa Speak -. Elsa Speak is an innovative language learning application that places an emphasis on the enhancement of pronunciation and oral expression. The application employs speech recognition technology to analyze users' pronunciation and provide immediate feedback, thereby assisting them in refining their speaking abilities in a foreign language. Elsa Speak provides instruction in a variety of languages, including English, Spanish, French, and German. Users may select their target language and proficiency level in order to access lessons that are customized to their specific requirements. The application incorporates interactive exercises that are specifically designed to address the prevalent pronunciation challenges encountered by learners. Regular practice with Elsa Speak facilitates improvement in pronunciation, intonation, and fluency, thereby enhancing overall communication skills in the target language.

-Listen: With - EWA. EWA appears to be a comprehensive language learning platform that employs a variety of engaging methods to facilitate the effective improvement of users' language skills. By integrating a variety of engaging media, including interactive lessons, games, and multimedia content such as films and TV shows, EWA provides a dynamic and immersive learning experience. The incorporation of bilingual translations and audiobooks facilitates comprehension and memorization while providing exposure to authentic language usage. This approach facilitates not only vocabulary acquisition but also the development of oral skills and confidence in the target language. In conclusion, EWA appears to provide a well-balanced and appealing language learning experience for those learning English, Spanish, French, and potentially other languages.

The EWA language learning app offers a number of notable features and benefits. The platform offers a variety of interactive lessons and games. EWA provides interactive lessons and games that are designed to make the process of language learning an attractive and enjoyable experience for the learner. These activities encompass a range of language acquisition components, including vocabulary, grammar, listening, and speaking. (Smith, J. (2020).

-A vast library of books. The application offers users access to an extensive library of books, including bilingual translations and audio-books. This feature enables users to engage with authentic linguistic documents, thereby enhancing their reading and listening comprehension skills.

-Learning from films and TV series. EWA employs a cinematic and televisual lexicon to facilitate the acquisition of new vocabulary and idiomatic expressions in an authentic contextual framework. The incorporation of multimedia content into the learning experience allows users to acquire the language in a natural manner, while also being exposed to authentic conversations and expressions.

-Developing speaking skills. One of the primary objectives of EWA is to enhance speaking abilities and self-assurance in the target language. Through the implementation of interactive speaking exercises and practice sessions, users are able to develop and refine their pronunciation, intonation, and language skills.

-Personalized learning experience. The application offers a personalized learning experience, tailored to each user's skill level, interests and learning objectives. This adaptive approach ensures that users receive relevant and stimulating content and exercises, maximizing learning outcomes.

-Progress tracking and feedback. EWA furnishes users with the requisite tools to monitor their progress and obtain feedback regarding their performance. This functionality allows learners to monitor their progress over time and identify areas requiring improvement.

-Correct writing errors with – Grammarly. Grammarly is a sophisticated tool that employs artificial intelligence to assist users in developing their writing skills in a multitude of contexts. A more detailed examination of this subject is now in order.

The software is capable of comprehensive error detection. Grammarly employs a meticulous examination of texts for a comprehensive range of errors, encompassing grammar, punctuation, spelling, and stylistic inconsistencies. This comprehensive analysis facilitates the delivery of detailed feedback, thereby enabling users to enhance the overall quality of their writing.

-Real-time suggestions. As users input text, the Grammarly software offers immediate suggestions and corrections directly within the text editing interface. The provision of real-time advice allows writers to promptly rectify errors and maintain a seamless and uninterrupted writing process.

-Improving clarity. In addition to rectifying technical inaccuracies, Grammarly furnishes guidance on enhancing the lucidity and cohesion of written discourse. It identifies sentences that are overly complex, expressions that are superfluous, and constructions that are awkward, and offers suggestions for conveying ideas in a more effective manner

-Stylistic guidelines. Grammarly assists users in adhering to established stylistic conventions that are appropriate to the specific writing context. In the context of formal emails, academic articles, and creative content, Grammarly provides tailored suggestions that align with the desired tone and audience expectations.

-Cross-platform accessibility. Grammarly is accessible on a wide range of platforms and devices, thereby ensuring seamless integration into users' workflows, regardless of their preferred writing environment. Regardless of whether users employ a web browser, desktop application, or mobile device, they can depend on Grammarly to provide assistance wherever they engage in writing. (Hu, & Sadowski, 2020).

-Educational resources. Grammarly's functionality extends beyond the mere correction of errors, as it also furnishes users with educational resources designed to facilitate the enhancement of their writing abilities. These resources include grammatical tutorials, writing tips, and explanations of common errors, which collectively enable users to enhance their writing abilities over time.

- The product boasts a plethora of alluring attributes. The "Get Pronounce" website offers users the ability to receive feedback on their pronunciation skills. The platform offers a variety of features designed to enhance the learning experience, including immediate feedback on pronunciation accuracy, personalized exercises to address individual learning needs, and an extensive collection of phonetic sounds for targeted practice sessions. By leveraging these capabilities, "Get Pronounce" aims to make pronunciation practice not only effective but also engaging, thereby enabling users to achieve greater fluency and enhance their confidence in the language they wish to learn.

-Talking to strangers via HelloTalk. HelloTalk is a versatile language exchange platform that facilitates language learning and cultural exchanges. One of the key features of HelloTalk is its ability to connect users with native speakers of a variety of languages. HelloTalk facilitates connections between users and native speakers from diverse global locations, thereby enabling authentic language practice and cultural immersion.

A variety of communication modes are available. Users may engage in language exchanges through a variety of communication modalities, including text chats, voice messages, and even voice or video calls. This flexibility in communication allows users to adapt to their own learning preferences.

Peer review and feedback are integral components of the learning process. Learners are afforded the chance to rectify errors committed by their fellow learners and to receive constructive feedback from native speakers. This fosters a positive learning environment and encourages continuous improvement.

-Language Learning Tools: HelloTalk offers a range of language learning tools to enhance the learning experience, including translation tools to understand unfamiliar words or phrases, pronunciation guides to improve spoken language skills, and language learning games for interactive and fun practice.

Cultural exchange: In addition to facilitating language acquisition, HelloTalk fosters cross-cultural understanding by enabling users to engage in discourse with native speakers from diverse cultural backgrounds. This enables users to gain insights into different cultural perspectives while simultaneously developing their language abilities.

Community engagement: HelloTalk boasts a vibrant and active community of language learners and native speakers, offering opportunities for social interaction, mutual support and collaborative learning initiatives.

2.4 Emerging AI Trends in Language Learning: Revolution in Traditional Methods and Future Psychological Perspectives

The advent of artificial intelligence in language learning represents a significant shift in traditional educational methodologies. The advent of technologies such as chatbots for conversational practice and automatic language proficiency assessment systems is transforming the landscape of language education and learning. These developments permit unparalleled personalization of the learning experience, enabling adaptation to the specific requirements of each learner. (Grimshaw, & Dungworth, 2021). From a psychological perspective, these developments present intriguing new avenues for exploration. The provision of more interactive and accessible learning environments through the use of AI technologies has the potential to positively influence student motivation. The provision of instant and personalized feedback facilitates the delivery of continuous and tailored support, which in turn serves to reinforce learners' commitment and confidence in their language skills. Additionally, it can assist in mitigating the stress often associated with language learning by providing a more lenient and encouraging approach. In order to gain insight into the long-term impact of these technological advances on the emotional experience of learners, further investigation is required. (García Laborda, & Caballé Serrano, 2020). The implications extend beyond the mere acquisition of language skills; they have the potential to influence the overall development of learners, promoting greater autonomy, enhanced linguistic self-efficacy, and increased personal satisfaction. Therefore, the ongoing refinement of these tools to address not only linguistic requirements but also emotional and motivational needs of learners represents a crucial challenge and opportunity.

3 Methodology

The present study was conducted with the objective of examining the utilization of artificial intelligence applications for the purpose of language learning among university students. The primary objective is to evaluate the perceptions and utilization of these tools by students, as well as their influence on their language proficiency and learning experience. The questionnaire comprises structured questions addressing various aspects of application usage,

including Speak, Ewa, Grammarly, Duolingo, Getpronounce, and HelloTalk. The responses collected will facilitate a more comprehensive understanding of the potential for these technologies to address academic needs and contribute to a more effective integration of foreign languages in higher education.

3.1 Participants

The selection of participants was based on a random sampling technique among students of the second-year specialization in languages (English and French) at the University of Laghouat. The total number of students selected was 60.

3.2 Procedures

The questionnaire was designed with the objective of enhancing our research and, in essence, either corroborating or refuting our preliminary assumptions. The questionnaire was distributed to students at the University of Laghouat in both English and French. It consisted of 16 closed questions, and was developed as part of a study on the use of artificial intelligence applications for language learning by university students. The survey was conducted in March 2024.

4 Results and Discussion

The educational environment is conducive to the integration of artificial intelligence and its applications, which facilitate language learning. Two French and English majors, who utilize these applications, have reported that they have benefited from this integration at the university.

Tests of Normality: This includes the results of the Kolmogorov-Smirnov test and the Shapiro-Wilk test

Table 1. Tests de normality

Prepared by the researcher based on SPSS outputs Results of regression

	Klomgove-Smirnov[a]			Shapiro-Wilk		
	Statistics	dll	Sig	Statistic	dll	Sig
The impact of intelligence techniques on language teaching	**,128**	**40**	**,095**	**,951**	**40**	**,085**

The p-value in the **Table 1** is more than 0.05, the null hypothesis that the data is normally distributed is accepted.

Table 2. Cofficients

Prepared by the researcher based on SPSS outputs Results of regression

COFFICIENTS [a]					
	Unstandardized coefficients		**Standardized coefficients**		
Model	**B**	**standard error**	**Beta**	**t**	**Sig.**
1 (Constant)	**,081**	**,053**		**1,536**	**,127**
Smart	**,877**	**,039**	**,900**	**22,405**	**0,000**

Note that the value of Sig = 0.000, which is less than = 0.05, and the calculated T-value is greater than the table T-value for the Intelligence Techniques variable. So there is a statistically significant effect for intelligence techniques and language learning level among students at The significance level is 5%, noting that the beta coefficient reaches (900), indicating that the role of the independent variable's effect on the dependent variable is positive, with a high percentage of influence estimated at 90%, and the remaining value is due to other factors.

With regard to the findings presented in Table 1, it can be observed that the educational environment is conducive to the integration of artificial intelligence (AI), with these applications proving instrumental in facilitating language learning and effecting a transformative change in the education sector. This is achieved through the provision of personalized learning experiences and the optimization of administrative tasks. Such programs employ the capabilities of AI to examine student learning patterns and offer recommendations for tailored academic pathways. It can be argued that AI has the potential to be a transformative force that is more profound than electricity or fire. Indeed, integrating AI into education has the potential to fundamentally transform the way students engage with tasks such as grading and programming. These programs allow educators to focus more on individualized teaching and mentoring, which is a significant advantage in an increasingly diverse and complex educational landscape. Furthermore, AI-powered teaching tools provide students with the ability to access learning materials at any time and from any location, thereby fostering a more inclusive and accessible learning environment. Consequently, the integration of AI-powered applications not only enhances academic performance but also influences the trajectory of learning.

H3: There are no statistically significant differences between the responses of English- and French-language students regarding the utilization of these novel applications.

Test the second main hypothesis:

To confirm the validity and confirmation of the second main hypothesis, which is that there is a difference in the level of learning among the respondents by specialty (French, English) at a significant level ($a \leq 0.05$), test –T was used to test this hypothesis and Table No. (3) shows the results:

Null hypothesis: there are no significant differences in the averages of respondents ' answers about the level of learning attributable to the specialization variable at a significant level a≤ (.0.05)

Table 3.

Prepared by the researcher based on SPSS outputs Results of regression

Independent Samples Test				
	Levene's Test for Equality of Variances		t-test for Equality of Means	
	F	Sig.	t	ddl
Assumption of Equal Variances	0,092	0,762	-0,196	118
Assumption of Unequal Variances			-0,196	116,046

Table 4. Independent Samples Test

Prepared by the researcher based on SPSS outputs Results of regression

Independent Samples Test			
		t-test for Equality of Means	
		95% Confidence Interval of the Difference	
		Lower	Upper
Learning	Equal variances assumed	-0,13870	0,11370
	Unequal variances assumed	-0,13872	0,11372

Table 5. Independent Samples Test

Prepared by the researcher based on SPSS outputs Results of regression

		t-test for Equality of Means		
		Sig. (2-tailed)	Mean Difference	Standard Error Difference
Learning	Equal variances assumed	0,845	-0,01250	0,06373
	Unequal variances assumed	0,845	-0,01250	0,06373

Existence hypothesis: there are significant differences in the averages of the sample individuals ' answers about the level of learning attributable to the specialization variable at a significant level (a≤.0.05)

These three tables are actually one table as shown in the image below..

In this part, try to remind the reader of the strengths of your main argument(s) via restating the research main conclusions. Make sure that your conclusion is not simply a repetitive summary of the findings, rather try to include your reflections on the research issue investigated to increase the impact of the argument(s) developed throughout the study.

Table 6. T-test for equality of means

Prepared by the researcher based on SPSS outputs Results of regression

		Levene's test for equality of variances		**T-test for equality of means**					**95% confidence interval of the difference**	
		F	Sig	t	ddl	Sig (bilateral)	Average difference	Difference standard error	Lower	superior
EDUC	Equal variance assumptions	0,092	0,762	-0,196	118	0,845	-0,01250	0,06373	-0,13870	0,11370
	Hypotheses of unequal variances			-0,196	116,046	0,845	-0,01250	0,06373	-0,13872	0,11372

The table shows whether there are statistically significant differences between students in terms of specialization French or English in terms of learning languages or do they have the same answers, as the value of F Livni test for homogeneity is equal to 0.092, which measures the extent to which the variance between the two groups is statistically significant, that is, the sig is greater than 0.05, and this indicates that the community is homogeneous and we take the first line of the.

The T test value in the first row is not significant at the 0.05 significance level, where it was 0.84, indicating that there are no statistically significant differences between the responses of English-language students and French-language students regarding the use of artificial intelligence applications mentioned in the theoretical part for language learning.

5 Conclusion

The integration of artificial intelligence (AI) into language education is supported by the educational environment, as evidenced by research findings. Artificial intelligence (AI) tools and applications play a pivotal role in facilitating a comprehensive language learning experience for students. Furthermore, it is notable that there are no statistically significant differences between the responses of English and French language students regarding the use of these applications. This indicates a shared approach and perception of their effectiveness in language learning.

The incorporation of artificial intelligence (AI) into language education holds considerable promise for addressing the difficulties encountered by university students in acquiring foreign languages. The collective impact of tools such as Speak, Ewa, Grammarly, Busuu, Getpronounce, and HelloTalk has been to enhance various aspects of language learning, including linguistic proficiency, motivation, and learner autonomy.

Artificial intelligence (AI) has the potential to revolutionize language learning by offering personalized experiences tailored to individual student needs. By analyzing learners' strengths and weaknesses, sophisticated algorithms can provide targeted exercises and feedback to optimize learning outcomes.

Furthermore, these applications provide immersive and interactive experiences that engage students and support their motivation. For example, applications such as HelloTalk facilitate real-time linguistic interactions with native speakers, thereby promoting authentic language practice and cultural exchanges that markedly enhance learner engagement.

Moreover, AI-powered language learning platforms facilitate learner autonomy by providing real-time feedback and self-paced learning modules. Nevertheless, the integration of AI into language education presents certain challenges, particularly in regard to the protection of user privacy in the context of the collection and analysis of large amounts of data.

In conclusion, while current AI tools offer promising prospects for improving language learning, it is imperative that the educational environment effectively support this integration. This necessitates the resolution of challenges and the realization of potential benefits for students and educators alike, while ensuring the rigorous protection of personal data.

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