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## **THE IMPACT OF ARTIFICIAL INTELLIGENCE ON ENGLISH LANGUAGE TEACHING IN THE CONTEXT OF FORMAL AND INFORMAL HIGHER EDUCATION**

**Abstract:** This article considers the impact of artificial intelligence on the process of teaching English in formal and informal higher education. The authors study the use of various artificial intelligence technologies, such as machine learning, neural networks and automated speech analysis systems, to improve the effectiveness of teaching English to students, analyze the advantages and disadvantages of using artificial intelligence in teaching English, and offer recommendations for optimizing this process. The authors presented research of the influence of artificial intelligence on the process of teaching English through a theoretical review of foreign experience and a questionnaire survey, the purpose of which was to study the opinions and views of students on the influence of artificial intelligence on the process of teaching English. The results of the research may be useful for teachers and students planning to introduce artificial intelligence into English language teaching.

**Keywords:** artificial intelligence, formal and informal higher education, the process of teaching English, questionnaire survey, data analysis

### **Introduction**

In recent years, artificial intelligence (AI) has played an increasingly important role and is becoming more widespread and influential in various areas of our lives. One of the areas where artificial intelligence can have a significant impact is English language teaching, especially in the context of formal and informal higher education. Historically, learning foreign languages can be quite a challenging process which require a lot of time and effort. However, thanks to artificial intelligence new opportunities emerge for improving and making the process of teaching English more effective, since in the process of using artificial intelligence, the basic principles of the communicative approach are implemented: communication, situationality, functionality, co-study of language and culture, authenticity, dialogue of cultures.

In formal higher education, artificial intelligence can be used to create adaptive learning programs that can personalize teaching material according to the individual needs and knowledge level of students. By analyzing data from the learning process, artificial intelligence can identify student weaknesses and suggest additional materials or exercises to improve them. This helps students study more effectively and achieve better results.

In addition, artificial intelligence can also be used to develop automatic student assessment systems. Such systems can analyze written work and oral answers of students, evaluate their grammar, vocabulary, punctuation and other aspects. This allows teachers to more objectively evaluate students and provide them with feedback, which contributes to their further development and improvement.

In informal higher education, such as online courses and English learning apps, artificial intelligence can play a huge role in improving the user experience. For example, AI-based speech recognition systems can correct students' pronunciation errors. This is especially useful for learning English, where correct pronunciation is one of the key aspects. Moreover, artificial

intelligence can offer personalized recommendations for studying material based on an analysis of each student's preferences and achievements.

One of the main capabilities that artificial intelligence provides is access to a huge database with various language materials. This allows each student to choose individually the most suitable and convenient way of learning English. Thanks to artificial intelligence, one can get access to various online courses, training materials, video lessons and tests. All this information can be structured and presented in a convenient and understandable form, which significantly simplifies and accelerates the learning process.

### **Literature review**

The integration of artificial intelligence into education, and specifically language learning, has gained increasing attention over the past two decades. Researchers have explored the various ways AI can enhance the learning experience by providing personalized, adaptive, and interactive environments. In the literature review, we examined the key contributions of AI to English language teaching, focusing on personalized learning, feedback mechanisms, AI-based assessments, and the role of AI in informal education settings.

One of the most significant contributions of AI to education is the ability to personalize learning experiences. In their seminal work on AI, Russell and Norvig (2016), emphasize that AI systems can adapt to individual learning needs by analyzing a student's progress and adjusting the difficulty level and type of content presented. In language learning, this can mean tailoring vocabulary exercises, grammar lessons, or even pronunciation drills based on a learner's proficiency level.

The study of Li and Zhao (2018) explore this further, noting that AI-driven applications like Duolingo and Babbel use machine learning algorithms to track learners' performance and suggest areas for improvement. This kind of adaptability enables learners to work at their own pace, which is particularly beneficial in language learning where individual differences in acquisition speed are common. The ability of AI systems to provide instant feedback based on individual performance makes it a powerful tool in addressing diverse learner needs.

Real-time feedback is crucial in language learning, as it allows learners to correct mistakes and refine their skills immediately. Traditional classroom settings may not always allow for timely or individualized feedback, but AI systems bridge this gap. Chapelle (2001) discusses the role of computer-assisted language learning (CALL) systems in providing instant feedback, particularly in grammar and writing exercises. AI-based systems can analyze a learner's written text for grammatical errors, syntax issues, and vocabulary use, providing corrections and explanations in real time.

Moreover, AI's ability to provide speech analysis has been transformative. Systems like Google's speech recognition or Apple's Siri can evaluate pronunciation accuracy, offering learners immediate feedback on their spoken English. This capability is vital for learners in informal settings who may lack access to native speakers or qualified instructors. Reinders and White (2016) highlight how AI-driven pronunciation tools like these help non-native speakers improve their phonetic accuracy through constant practice and feedback.

Automated assessment systems powered by AI provide an objective way to evaluate language proficiency. Traditional assessments, such as written exams and oral interviews, often suffer from subjectivity and inconsistencies. AI systems, on the other hand, can assess students' performance in a more standardized and objective manner. Warschauer and Healey (1998) were among the first to recognize the potential of AI in language testing, particularly in automating grading for written compositions. Today, AI tools can evaluate not just grammar and vocabulary but also more complex linguistic elements like coherence, argument structure, and overall fluency.

In addition, adaptive testing is becoming a powerful AI-driven feature in language learning platforms. Such tests adjust their difficulty based on the learner's performance in real time, offering a more accurate measure of a learner's true ability. Brown (2007) noted that adaptive testing provides more reliable results than traditional static tests because it responds to each learner's proficiency level dynamically, making the process more efficient and reducing learner frustration.

AI's role in informal education settings, such as online platforms and language learning apps, is growing rapidly. Many learners now turn to AI-based tools outside traditional classrooms to practice English. Reinders and Wattana (2014) examined the use of AI in digital games and simulations, finding that such environments encourage language interaction in a low-pressure setting, increasing learners' willingness to communicate in English. These games, often powered by AI, provide immediate feedback and adapt to the learner's skill level, creating an engaging and effective learning experience.

Applications like Duolingo, Memrise, and Rosetta Stone offer AI-driven lessons that adapt to users' progress and learning preferences. These tools make use of gamification to motivate learners, making the process of language acquisition enjoyable and accessible. Lee (2013) points out that these platforms use corpus-based analysis and natural language processing (NLP) to generate exercises that are contextually relevant, which is key in helping learners apply language skills in real-world situations.

While the literature highlights many benefits, it also points out limitations in the use of AI for language learning. One of the major concerns is the lack of human interaction. Tleuzhanova et al. (2019) emphasize that while AI provides valuable support in terms of personalization and feedback, it cannot replace the human elements of teaching, such as empathy, encouragement, and cultural understanding. Language learning is not just a cognitive process but also a social one, and human interaction plays a crucial role in building communicative competence.

Another limitation is the risk of over-reliance on AI tools, which can hinder learners from developing critical thinking and problem-solving skills. Warschauer and Healey (1998) warn against using AI as a one-size-fits-all solution, arguing that while AI can automate certain aspects of learning, it is essential to combine it with human-led instruction to achieve the best results.

The existing body of research demonstrates the transformative potential of AI in English language teaching, particularly through personalized learning, automated feedback, and assessment. AI's role in both formal and informal education settings is growing, with more students and teachers leveraging these technologies to enhance language acquisition. However, the limitations of AI, particularly its inability to replace human interaction and the risk of over-reliance, must be considered when integrating AI into the learning process. Future research should explore the balance between AI and traditional teaching methods to ensure that learners receive a holistic education experience.

### **Methodology**

This study employs a mixed-methods approach to investigate the impact of artificial intelligence on English language teaching within both formal and informal higher education contexts. A survey was administered to 150 students from two universities, using a Likert scale to assess the frequency of AI use, perceived effectiveness, and advantages/disadvantages of AI tools. Open-ended survey questions and semi-structured interviews were conducted to gain deeper insights into students' experiences with AI in English learning. The interviews included questions on how AI tools impacted their learning experience, highlighting areas such as feedback quality and personalized learning. The quantitative analysis involved descriptive statistics to summarize survey data, while thematic analysis was used for the qualitative

responses. This approach allowed for an exploration of both general trends and specific experiences with AI.

Data collection involved a comprehensive survey administered to students across various institutions, aiming to capture diverse perspectives on AI tools and their integration into language curricula. The survey included quantitative metrics regarding the frequency and effectiveness of AI applications, alongside qualitative open-ended questions to gather nuanced insights into user experiences and pedagogical transformations. The study's findings aim to inform best practices and guidelines for effectively integrating AI technologies in the teaching of English, catering to the evolving needs of both instructors and learners in an increasingly digital academic landscape.

### **Results and discussion**

Modern technological developments and breakthroughs in the field of artificial intelligence directly relate to everyday life and education. English language teaching, in particular, is not the exception. The rapid development of artificial intelligence and its implementation in educational processes no longer seems impossible. They represent enormous potential for creating effective and innovative methods of teaching English.

During our research, we conducted a questionnaire survey among students of Karaganda Buketov University and Abylkas Saginov Karaganda Technical University, which helped to identify how artificial intelligence affects the learning process. 150 students took part in the survey, 67.3% were first-year students, 4% were second-year students, 28% were third-year students and 0.7% were fourth-year students. This sample was chosen to represent a broad cross-section of students within formal education settings. The majority of participants were first-year students, which reflects the current trend of increased technology use among younger learners. The inclusion of students from different years also provided insights into how AI adoption varies with experience. This range was deemed sufficient to explore diverse attitudes and usage patterns of AI in English learning.

The research has several limitations:

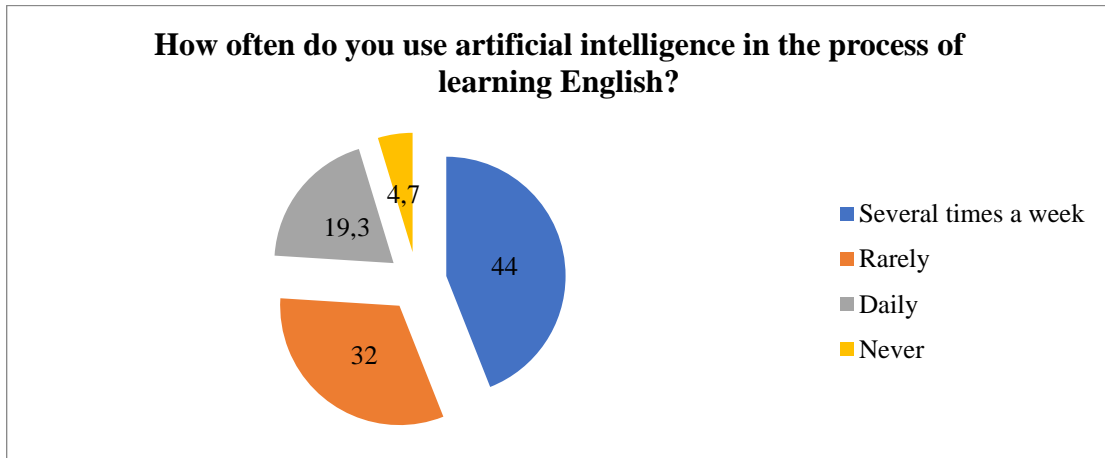
The sample was restricted to two institutions, limiting the generalizability of the results to a broader population. The data are based on self-reported responses, which may not accurately reflect actual usage or effectiveness of AI tools. Although the study includes informal settings, the majority of the sample comes from formal education environments, potentially skewing the results toward traditional educational perspectives.

The purpose of this questionnaire was to study the opinions and views of students on the impact of artificial intelligence on the process of teaching English. In addition, the survey showed which technologies and applications using artificial intelligence students use to learn English, and what advantages and disadvantages they see in using such technologies.

On the question "How often do you use artificial intelligence in the process of learning English?" slightly less than half of respondents (44.6%) answered that they use artificial intelligence in the process of learning English several times a week, 32.4% of respondents answered that they rarely use AI in the process of learning English, 18% of respondents answered that they daily use AI in the process of learning English, the remaining 5% responded that they never use AI in the process of learning English. The low rate of use of artificial intelligence in English language learning may be caused by several factors, such as a lack of available educational resources, limited awareness of AI technologies, or simply a preference for traditional teaching methods.

**Figure 1**

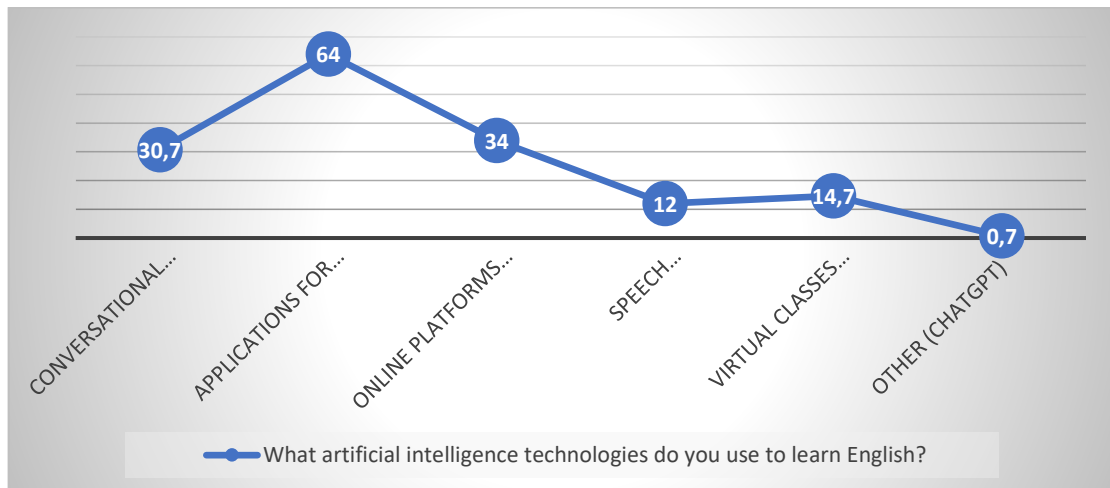
*“How often do you use artificial intelligence in the process of learning English?”*



Regarding the question “What artificial intelligence technologies do you use to learn English?” respondents most often indicated the following answers: conversational robots/assistants (for example, Siri or Alexa) – 46 (30.7%), applications for mobile devices – 96 (64%), online platforms and courses – 51 (34%), speech recognition technologies – 18 (12%), virtual classes and lessons – 22 (14.7%). In addition, some students noted that they use ChatGPT to learn English.

**Figure 2**

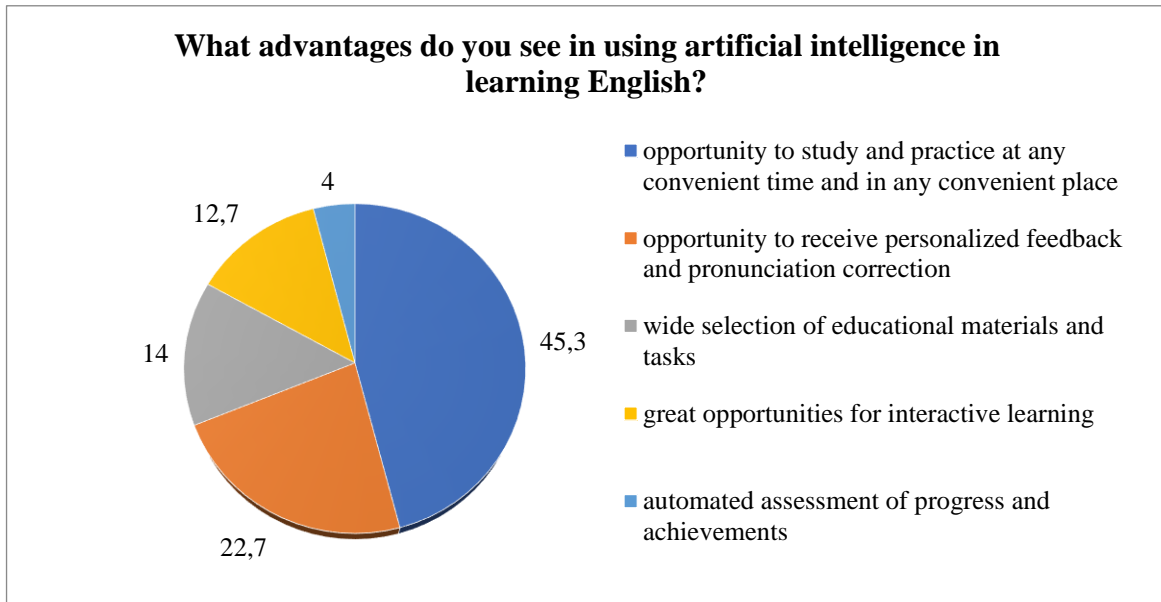
*“What artificial intelligence technologies do you use to learn English?”*



For the question “What advantages do you see in using artificial intelligence in learning English?” slightly less than half of the respondents (45.3%) answered that they considered as the main advantage the opportunity to study and practice at any convenient time and in any convenient place, 22.7% of respondents answered that the main advantage is the opportunity to receive personalized feedback and pronunciation correction, 14% of respondents believe that a wide selection of educational materials and tasks is an advantage in the use of artificial intelligence in learning English, 12.7% responded that the advantage is great opportunities for interactive learning, the remainder of respondents (4%) consider automated assessment of progress and achievements as an advantage in using artificial intelligence in learning English.

**Figure 3**

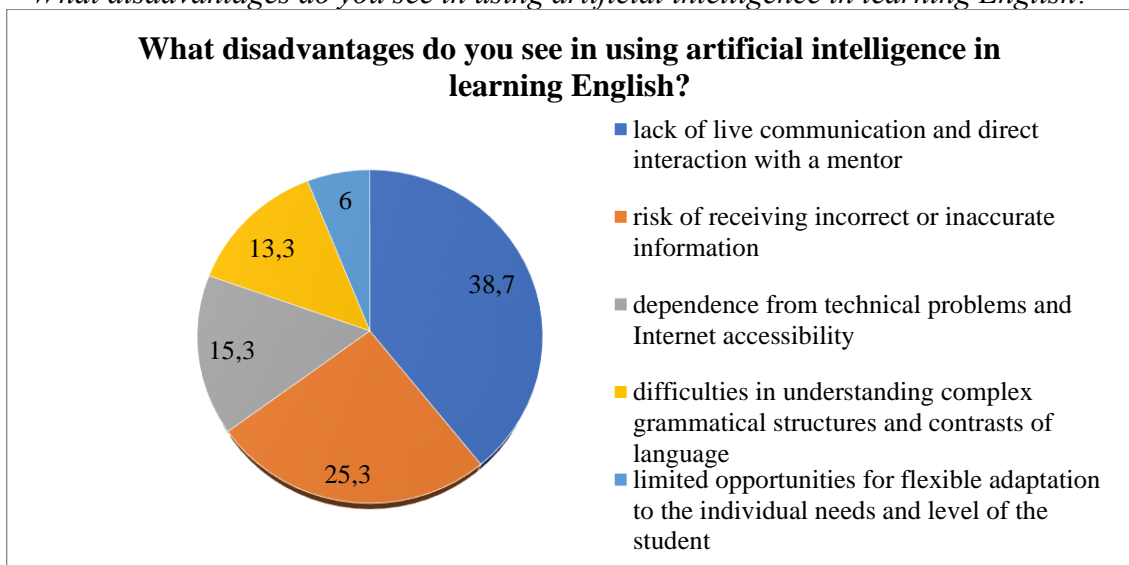
*“What advantages do you see in using artificial intelligence in learning English?”*



Regarding the question “What disadvantages do you see in using artificial intelligence in learning English?” 38.7% of respondents answered that the main disadvantage is the lack of live communication and direct interaction with a mentor, 25.3% consider the risk of receiving incorrect or inaccurate information as a disadvantage in using artificial intelligence in learning English, 15.3% of respondents answered that dependence from technical problems and Internet accessibility is a disadvantage in using artificial intelligence in learning English, 13.3% of respondents believe that difficulties in understanding complex grammatical structures and contrasts of language are a disadvantage in using artificial intelligence in learning English, the remaining 6% believe that that limited opportunities for flexible adaptation to the individual needs and level of the student are a disadvantage in the use of artificial intelligence.

**Figure 4**

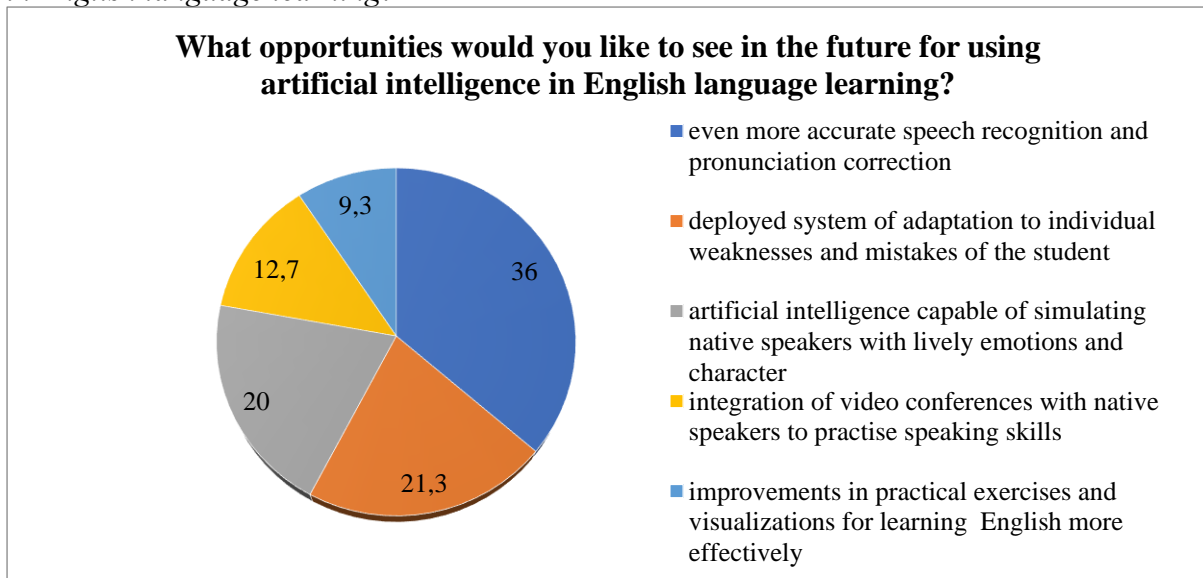
*“What disadvantages do you see in using artificial intelligence in learning English?”*



For the question “What opportunities would you like to see in the future for using artificial intelligence in English language learning?” 36% of respondents answered that they would like to see in the future even more accurate speech recognition and pronunciation correction for the use of artificial intelligence in learning English, 21.3% of respondents would like to see in the future a deployed system of adaptation to individual weaknesses and mistakes of the student as an opportunity for using artificial intelligence in learning English, 20% of respondents would like to have an opportunity to use artificial intelligence capable of simulating native speakers with lively emotions and character in the process of learning English, 12.7% would like to have an opportunity to integrate video conferences with native speakers to practise speaking skills in the process of learning English, the remaining 9.3% of respondents would like to see in the future improvements in practical exercises and visualizations for learning English more effectively.

**Figure 5**

*“What opportunities would you like to see in the future for using artificial intelligence in English language learning?”*



The survey also asked respondents to answer the question, “If you could improve one aspect of the use of artificial intelligence in English language learning, what would it be?” The following suggestions were made by the respondents: Simulation of pronunciation and practice of English with a native speaker; a unique curriculum, taking into account the student’s level of knowledge and learning rate; individualization of learning, namely the development of systems that analyze the strengths and weaknesses of each student more accurately and offer adapted lessons and assignments that correspond to their level and learning style.

### **Conclusion**

A survey conducted among English language learners helps understand the impact of artificial intelligence on the teaching process. The survey results reflect the emotional and practical attitude of students towards the use of artificial intelligence in learning English. Most respondents expressed their belief that artificial intelligence has significant potential to improve the efficiency and intensity of learning.

Artificial intelligence could solve a number of problems that students face in the process of learning English. For example, artificial intelligence can provide personalized recommendations and feedback to each student based on their individual weaknesses and

needs. Moreover, artificial intelligence can be connected to online platforms that will allow students to access quality educational materials as well as conduct various types of assessments on their knowledge and skills [9].

However, despite all the advantages, some students have also expressed concerns about the impact of artificial intelligence on English language learning. They are worried that the use of artificial intelligence could replace teacher and reduce the quality of education. The emergence of such concerns indicates the need to balance between the role of artificial intelligence and the presence of the teacher in the educational process.

Overall, the survey results indicate the potential of artificial intelligence in English language teaching. Obtained data shows that the majority of students welcome the idea of using artificial intelligence to improve and optimize their learning process. However, despite this positive feedback it is important to find the right balance to ensure that artificial intelligence becomes a support for teachers and not a replacement. As a result, the survey is an important step towards better understanding artificial intelligence and its impact on English language teaching.

Thus, artificial intelligence has a significant impact on English language teaching making it more accessible, effective and individual. It provides wide access to materials and resources, helps to improve comprehension, speaking, writing and reading skills. Thanks to artificial intelligence, the learning process becomes more interactive, based on the individual needs of each student and allows to achieve the better results. Up to the present, artificial intelligence continues to evolve and its impact on English language teaching will only increase, opening new horizons for everyone who wants to acquire this important international language.

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#### **Conflict of Interest Statement**

The authors declare no potential conflicts of interest regarding the research, authorship, or publication of this article.

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