



The impact of artificial intelligence on the development of students listening and speaking skills (A Case of Secondary Schools in Georgia)

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Abstract

The research investigates the influence of artificial intelligence (AI) on the enhancement of students' listening and speaking skills within the context of secondary schools in Georgia. With the rapid advancements in technology, AI-based applications have emerged as potential tools for language learning and teaching. The aim of this study was to explore the effects of AI interventions on students' listening and speaking proficiency, as well as to identify the factors that contribute to their effectiveness. The research methodology involves a mixed-methods approach, combining quantitative and qualitative data collection. Additionally, the study aimed at identifying the potential challenges and limitations of implementing AI technologies in language education. This research contributes to the existing literature on the integration of AI in education, particularly within the domain of language learning. The findings inform educators, curriculum developers, and policymakers about the potential benefits and considerations associated with adopting AI-based tools for fostering students' listening and speaking skills. The results also shed light on the future directions of AI integration in language education and offer recommendations for optimizing its implementation to ensure maximum benefits for students in higher education institutions.

Keywords: artificial intelligence, speaking skills, listening skills

1. Introduction

Artificial intelligence is evolving quickly in today's digital world. Digital tools and new software are continually being developed, giving users speedy results. Digital marketers have historically treated Artificial Intelligence (AI) with mistrust, as they do with all advances. According to Holmes et al. (2019), artificial intelligence is a technique for teaching a computer, a robot operated by a computer, or software to think critically and creatively like a human mind. AI is achieved by examining the cognitive process and researching the patterns of the human brain.

The phrase 'artificial intelligence' was originally coined by the American physicist John McCarthy in 1955. He described the latter as a program or computer that has human-like reasoning capabilities. McCarthy (2007), defines artificial intelligence as an opportunity to:

1. think and understand rather than act instinctively or automatically;
2. easily understand a new situation and learn by experience;
3. act on your environment through knowledge to achieve a goal and to think abstractly;

4. acquire, understand, use knowledge, and establish cause-and-effect relationships.

Here, the groundwork for a brand-new field was built, one with enormous development potential and the potential to profoundly advance civilization. Without artificial intelligence, the world as it is today is unimaginable. Along with the development of the world, the capabilities of artificial intelligence are also improving. It is much smarter now than it was a few years ago. The models of human contact with technology are changing as a result of applications based on artificial intelligence: as AI systems grow more capable of adapting to the unique traits and objectives of individuals, human engagement with machines becomes easier and more natural.

According to Chen et al. (2020), artificial intelligence makes one think of a supercomputer, a machine with enormous processing power, adaptive behavior, such as the use of sensors, and other capabilities that allow the supercomputer to have human-like cognitive and functional abilities and improve its interaction with people.

In November 2022, a project was launched into the digital world, the impact of which has not yet been estimated. This is a product that turned the field of AI on its head. It can be said



that it is not just an artificial intelligence, but a 'person' whom you can ask any question at any time. Its name is ChatGPT. On the other hand, Generative Pre-trained Transformer (GPT) models use a large amount of publicly available digital content data (natural language processing [NLP]) to read and produce human-like texts in several languages and can exhibit creativity in writing from a paragraph to full research article convincingly (or near-convincingly) on almost any topics.

According to Chan and Zary (2019 as cited by Chih-Ming and Ying-You, (2020), AI-enhanced digital technology has played an essential role in our daily life, with its great power of changing the way we think, act, and interact. Ever since its emergence, AI has developed with prosperity and flourishing, in particular with the emergence of Artificial Neural Networks (ANN) and Deep Learning (DL). The models of information transmission and communication used by modern humans are progressively evolving as a result of the rapid development of information and communication technologies (ICTs). The number of easy communication channels that enable information to be transmitted via computer-mediated communication (CMC) media, as opposed to just traditional face-to-face, is also fast increasing.

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There have been numerous studies on the use of AI and its enormous potential in various spheres of life, such as technology and medicine, however, there have been few studies on its role in the development of speaking and listening skills and how AI can change the inspiration and ability to develop receptive language skills. The goal of the current article is to try to cover this gap for the school environment in Georgia.

2. Literature review

Artificial intelligence (AI) has the potential to transform the way teaching and learning take place in schools. Specifically, AI can be an effective tool for improving students' speaking and listening skills. This literature review will explore the current research on the importance of AI in education for this purpose.

2.1. Artificial Intelligence in language teaching

Artificial intelligence (AI) has emerged as a powerful tool in the field of language teaching, transforming the way educators and learners interact with language learning materials and resources. One of the key roles of AI in language teaching is personalized learning. AI-powered language learning platforms can tailor instruction and content to individual learners' needs, abilities, and preferences. By collecting data on learners' performance, AI algorithms can identify areas of weakness and provide targeted exercises and materials to address those specific areas. This personalized approach enhances the learning experience, allowing learners to

progress at their own pace and focus on areas that require more attention. Furthermore, according to Vincent-Lancrin and Vlies (2020), "AI features such as speech recognition and analysis, pronunciation correction, help supplement teachers in the teaching of foreign languages" (p.9). AI can facilitate language learning through natural language processing (NLP) techniques. NLP enables AI systems to understand and generate human language, making it possible for learners to engage in interactive conversations and receive instant feedback. Virtual language tutors powered by AI can simulate real-life language interactions, providing learners with opportunities to practice their speaking and writing skills in a supportive environment.

AI can also enhance language teaching through intelligent content creation and adaptation. According to Liu (2023), language learning materials can be generated or adapted by AI algorithms to suit the needs of different learners. AI can generate exercises, quizzes, or language games that align with specific learning objectives and cater to different proficiency levels. Additionally, AI can analyze learners' performance data to dynamically adjust the difficulty level of tasks, ensuring an optimal learning experience that challenges learners appropriately. Moreover, AI-powered language teaching platforms can provide valuable insights to both learners and educators. By analyzing learner data, AI algorithms can generate detailed progress reports, highlighting areas of improvement and suggesting strategies for further development. Educators can use this data to monitor individual and group performance, identify common challenges, and make informed instructional decisions. Learners, on the other hand, can track their progress, set goals, and receive personalized recommendations for improvement.

Liu (2023) also argues that AI holds great promise for language teaching, but it is important to recognize its limitations. AI systems may struggle with the nuances of language, such as humor, irony, or cultural context, which can affect their ability to provide accurate feedback. Additionally, the role of human teachers remains crucial in providing guidance, motivation, and a deeper understanding of the cultural aspects of language learning.

The main prospects for the use of artificial intelligence in the field of education are related to personalized, interactive, and differentiated learning, the benefits of which educational researchers (Kokku et al., 2018; Murtaza et al., 2020) have been talking about for several decades, and the practical implementation of which is very difficult in a typical classroom. Obviously, high-quality education will always require human intervention, but the development of artificial intelligence promises to improve the field of education on many levels. There are already more or less successful applications for learning science, mathematics, and languages at the basic level (Martin, 2006). According to Tiryakioglu and Erzurum (2011), social networking sites can be successfully integrated into educational processes. Schools are increasingly using resources like blogs, wikis, social

networking sites, and video-sharing platforms for instruction and learning.

A study conducted by Deng and Huang (2004) found that the majority of speech recognizers currently take a long time and effort to fix errors. That phrase typically lowers the users' motivation to use voice recognition, particularly when the same mistakes are made and are not properly addressed a second time. Students' pronunciation and intonation can be improved with quick feedback provided by AI-powered speech recognition technology. The technology accurately detected errors in students' pronunciation and provided tailored feedback, resulting in significant improvement in students' speaking skills over time.

According to VanLehn (2011), the Artificial Intelligence in Education (AIED) community has been primarily focused on developing systems that are just as successful as one-on-one tutoring from humans in order to solve the two-sigma challenge. AI-powered language translation technology is also emerging as a promising tool for helping students develop their speaking and listening skills. In a study by Sijing and Wang (2018), students who used the technology to communicate with native speakers of the target language demonstrated significant improvement in their listening and comprehension skills. Additionally, the technology provided students with opportunities to interact with people from different cultures and languages, supporting cross-cultural communication. Artificial intelligence is playing an increasingly significant role in language teaching. Through personalized learning, natural language processing, intelligent content creation, and data-driven insights, AI has the potential to enhance the effectiveness and efficiency of language education. By combining the strengths of AI and human instruction, educators can create engaging and adaptive learning experiences that empower learners to develop their language skills more effectively.

2.2. The influence of AI on the development of speaking skills

Artificial intelligence (AI) has a profound influence on the development of speaking skills in language learners. With its advanced natural language processing (NLP) capabilities and interactive conversational features, AI-powered tools and applications provide learners with unique opportunities to practice and improve their speaking abilities. According to Liu (2023), AI has become more actively employed in the teaching of foreign languages. Students can practice speaking and listening skills with reliable feedback thanks to speech recognition technology. With the aid of machine translation, students of many languages can communicate more easily and have a rapid access to foreign language resources.

According to Raba (2017) as cited by Kim et al. (2021), "mastering foreign language speaking requires great effort and the skillful integration of certain language aspects like appropriate vocabulary, correct grammar and sentence structure, and clear pronunciation" (p.713). One of the key benefits of AI in developing speaking skills is the availability of virtual language tutors and conversational chatbots. These

AI-based conversational agents can engage learners in interactive conversations, simulating real-life language interactions. Learners can practice speaking in a comfortable and non-judgmental environment, where they can experiment with language, receive instant feedback, and refine their pronunciation and fluency. Rusmiyanto et al. (2023) discuss that the four core language abilities of speaking, listening, reading, and writing can all be developed with the use of AI in language learning environments. AI-powered products that can provide learners with engaging and immersive language learning experiences include speech recognition systems, chatbots, virtual tutors, and language learning applications. Real-time feedback, adaptive testing, and customized content, among other features provided by these technologies, have the potential to improve language learners' communication skills and hasten the process of language acquisition. Liu (2023), argues that speech recognition software can aid students in developing their listening and comprehension abilities. Students can listen to recordings of native speakers and correct any pronunciation errors by using speech recognition software. This makes it possible for pupils to hear how words and phrases should be spoken and intoned, which helps them learn the language better.

According to Roumaissa and Saliha (2020), this immediate feedback enables learners to identify and correct pronunciation errors, work on intonation and stress patterns, and develop greater confidence in their spoken communication. With AI's ability to analyze spoken language, learners can receive targeted feedback on specific aspects of their speaking skills, leading to more efficient and targeted practice.

Another way AI supports speaking skill development is through personalized and adaptive learning. Liu (2023) claims that AI algorithms can assess learners' speaking proficiency and tailor the learning content to their specific needs and goals. Learners can access a variety of speaking exercises, such as dialogues, role-plays, or pronunciation drills, which are dynamically generated based on their skill level. This personalized approach ensures that learners are appropriately challenged and can focus on areas that require improvement.

Furthermore, AI enables learners to access authentic spoken language materials and resources. AI-powered platforms can provide learners with a vast array of audio and video content, including interviews, podcasts, and speeches, allowing them to engage with real-world language use. Learners can practice listening comprehension, mimic native speakers' pronunciation, and gain exposure to different accents and speaking styles. AI algorithms can also recommend relevant and engaging speaking activities based on learners' interests, ensuring a stimulating and immersive learning experience. Another study conducted by Kuhail and colleagues (2023) found that AI-powered chatbots designed to simulate conversation partners can be an effective tool for helping students practice their speaking skills in a low-stress and supportive environment. The chatbots provided students with opportunities to practice their listening and comprehension skills, as well as their speaking skills. The study found that

students who used the chatbots demonstrated measurable improvement in their speaking skills. Hence, AI can be used to improve students' learning outcomes through the use of intelligent tutoring systems. These systems use machine learning algorithms to adapt to student's individual needs and provide personalized feedback and support. In a study by VanLehn (2005), students who used an intelligent tutoring system demonstrated significant improvement in their understanding of complex mathematical concepts.

However, it is important to acknowledge the limitations of AI in developing speaking skills. AI systems may not always capture the full range of linguistic nuances, cultural context, or non-verbal communication cues that are essential for effective spoken communication. Human interaction and feedback from language instructors remain vital in providing learners with a comprehensive understanding of spoken language and guiding them in overcoming specific challenges.

AI has a significant influence on the development of speaking skills in language learners. Through virtual language tutors, speech recognition technology, personalized learning, and authentic spoken language resources, AI empowers learners to practice speaking in a supportive and tailored environment. While AI can greatly enhance speaking skill development, it should be seen as a complement to human instruction, as the role of skilled language teachers remains essential in providing guidance, cultural insights, and individualized support.

2.3. The influence of AI on the development of listening skills

The evolution of listening skills has also been significantly impacted by the quick developments in artificial intelligence (AI). How people learn and improve their listening skills has been completely transformed by AI technology, notably in the areas of speech recognition and natural language processing (NLP). Hu and Hu (2020) emphasize that in order to communicate properly with someone while speaking to them, one needs to both speak and listen. Consequently, in the language learning process, the activities that link the two language skills should be planned, for instance, by engaging in discussion and pair work while using multimedia. During such activities, students have the chance to connect and develop their ability to articulate their thoughts clearly. Xiao et al. (2020), argue that "active listening helps not only oral communication but also online text communication" (p.1). Students are taught to cooperate and assume responsibility through 'teamwork'. In addition, online oral presentations, conversations, role plays, storytelling, and even games are effective activities for fostering better listening conditions. People now have access to individualized language learning apps that assess pronunciation, intonation, and understanding and offer real-time feedback and specialized exercises thanks to AI-powered tools and applications. According to Hodgan et al. (2014), building comprehension of specific words and sentences in a tale is the first step in effective listening comprehension. AI-enhanced podcasts and audiobooks make use of speech recognition and NLP to provide interactive

features, track progress, and provide content recommendations based on listener listening histories, improving engagement and comprehension. Virtual language tutors and automated speech evaluation systems have allowed for significant advancements in AI-assisted language instruction, giving students the chance to practice their listening skills in a safe setting and receive immediate feedback on their speaking and pronunciation skills. The impact of AI on improving listening abilities is evident and holds enormous promise for future improvements in communication ability.

Zhou (2021) discussed in his article that to enhance pupils' overall English proficiency, listening skills must be improved. The listening performance of the top and worst students in English exams frequently varies greatly. The author presented examples of Chinese schools and claims that listening skills are rated highly on the English proficiency rating scale developed by the Ministry of Education and are included as one component of the English proficiency test. It is challenging for teachers to provide more opportunities for students to practice their English listening abilities in class because the new round of English teaching reform has drastically reduced the amount of time spent teaching college English in class. Therefore, some out-of-class teaching techniques are desperately needed to supplement in-class instruction. The AI teaching and learning platform just satisfies the prerequisite at this time. However, there are ethical concerns around AI usage, such as data privacy and bias, and difficulties in recognizing complicated language nuances.

The fact that the cognitive sciences have yet to successfully identify the precise nature of human capacities further complicates the situation. The way AI intellectual systems are organized may be different from how it is for humans. Every time humans outperform computers at a task or when computers need a lot of computing to perform the work as well as humans, it is clear that the program designers have insufficient comprehension of the mental processes needed to complete the activity effectively.

The use of AI in education in general and in developing speaking and listening skills, in particular, has the potential to revolutionize the way students develop their skills. By providing immediate feedback, simulating conversation partners, and supporting cross-cultural communication, AI can help students develop their speaking and listening skills in engaging and effective ways. As AI technology continues to develop, it will be exciting to see how it can be integrated into the classroom to support students' learning outcomes.

3. Methodology

The purpose of this chapter is to introduce the research methodology applied in the studying skills. The study applied a mixed-approach methodology. It allowed to make the results both objective and deep and provided a way to develop a theory to show the role of AI in education.

Qualitative methodology focuses on understanding people's subjective experiences, viewpoints, and meanings in their social context. It is used in investigating and comprehending complicated social phenomena that cannot be simply quantified or assessed using numerical data. One of the key strengths of qualitative methodology is its ability to provide rich, detailed, and context-specific insights into complex social phenomena. According to Moen and Middleton (2015), qualitative research allows researchers to explore the nuances and complexities of social phenomena, and to uncover the meaning and significance that people attach to their experiences. A qualitative methodology is a valuable tool for researchers who seek to understand the social world from the perspectives of the people who inhabit it and to generate insights that are grounded in the complexities of human experience. Six open-ended questions in the applied questionnaire involve the qualitative approach. After carefully analyzing each participant's responses, to evaluate the data for multiple-choice questions, percentages were calculated to determine the distribution of responses among the participants. To assess the open-ended questions, a code assignment system was used, which allowed to categorize and analyze the qualitative data efficiently. Additionally, for a Likert scale question, the SPSS platform was applied to gain valuable insights into the respondents' attitudes toward the utilization of artificial intelligence in education. Employing these techniques enabled the researcher to thoroughly examine the data and obtain a comprehensive understanding of the participants' perspectives on the use of artificial intelligence in the field of education.

Quantitative methodology collects and analyzes numerical data to find patterns, trends, and linkages in the social environment. It assumes that social phenomena may be measured and quantified in a way that allows for objective analysis and interpretation. According to Williams (2007), quantitative research employs a numerical or statistical approach to research design. The current research applied a survey. It entails gathering data using standardized instruments or measures meant to elicit specific types of answers and then analyzing and interpreting that data using statistical techniques. One of the quantitative methodology's primary assets is its capacity to deliver exact and replicable statistics on big populations. Based on a sample of individuals, it enables researchers to test hypotheses, establish cause-and-effect correlations, and conclude the larger population. The quantitative approach is a useful tool for researchers who want to comprehend the social environment using numerical data. It enables exact measurement and objective study of social phenomena, and it can bring insights into patterns and relationships that other research methodologies may not reveal. The current study employed simple descriptive statistics (percentages) to analyze the answers to multiple choice questions and one linear (5-point Likert) scale to find out whether the teachers believed that their school was ready to apply AI in language teaching (SPSS software was applied to analyze the Likert scale item).

3.1. Research methods

The study objective was to determine to what degree teachers in secondary educational institutions in Georgia were aware of employing AI. Based on the literature analysis, the researcher developed the survey questions. In this study, an online survey was conducted to gather information about the utilization of AI in the teaching and learning process. The survey included sixteen multiple-choice questions with one or more than one possible answer, six open-ended questions, and one linear scale. To ensure the accuracy and reliability of the survey, the validity of the questionnaire was carefully evaluated and refined with the assistance of an expert in the field. The expert's insights and recommendations played a crucial role in testing and correcting the questionnaire, ultimately enhancing its effectiveness in capturing valuable data regarding the integration of AI in education. The survey questions were based on the issues and areas of interest surrounding AI: whether teachers apply educational technologies (and if so, which ones), whether their instruction is teacher or student-centered, how aware they are about AI, and whether they perceive it as beneficial.

3.2. Participants

The first four questions of the questionnaire deal with the demographic data of the participants. The research study comprised a diverse group of 52 participants selected by convenience approach, all of whom were experienced educators from both public and private schools. Each participant had a minimum of one year of teaching experience. The age range of the participants spanned from 20 to 50 years, ensuring a broad spectrum of perspectives and experiences. This diverse group of teachers provided a rich pool of knowledge and expertise, which greatly enhanced the research findings and discussions.

3.3. Procedure

The online survey was conducted efficiently through email, allowing for convenient and widespread participation. Spanning three weeks, the survey provided ample time for participants to carefully consider and respond to the questions posed. After the survey was completed, the researcher carefully examined each response and presented a discussion for clarification.

3.4. Results and analysis

The following are the research findings from the survey:

Q1. The gender distribution in this discussion indicates a significant majority of female participants, comprising 80% of the sample, while males make up the remaining 20%. This gender ratio suggests a potential imbalance in participation, which can influence the perspectives and dynamics of the conversation. However, this is the approximate gender balance among school teachers, therefore, it should not have too much impact on the results.

Q2. The research results regarding age distribution indicate a diverse range of participants. Among the respondents, 50% fall within the 20-30 years age group, 25% belong to the 31-

40 years age bracket, and the remaining 20% represent individuals aged 41-50 years, and 5% belong to 51-60-year-old teachers. These findings highlight a significant presence of participants in their thirties and forties, suggesting a balanced distribution across these age ranges. The data showcases a broad spectrum of perspectives, experiences, and insights, contributing to a comprehensive understanding of the topic under investigation.

Q3. The research results regarding the type of school in which participants teach indicate a varied distribution. Among the respondents, nearly 50% stated that they teach in public schools, while 40% reported teaching in private schools. Additionally, 10% of the participants preferred not to disclose their affiliation. These findings highlight a significant representation from both public and private school educators, providing a diverse perspective on the educational landscape. The data suggests that the majority of the participants have experience of working in public schools, which may contribute to discussions on the challenges and opportunities specific to that sector. However, the presence of private school educators and those who prefer not to reveal their membership ensures a well-rounded exploration of teaching experiences across different educational settings.

Q4. The study findings about the participants' years of work experience also suggest a wide diversity of professional backgrounds. Among the respondents, 40% reported having 1-5 years of working experience, while more than 20% indicated 6-10 years of experience. Furthermore, 25% of the participants reported having 11-15 years of experience, and the remaining more than 10% had more than 15 years of experience. The presence of respondents with varying levels of experience provides a comprehensive perspective on the topic under investigation, considering the viewpoints of both early-career and seasoned professionals in the field.

Q5. The findings from the research on the preferred methods utilized in the classroom shed light on the participants' varied selection of teaching strategies. Among the respondents, 20% primarily use computer/laptop technology in both classroom and home settings to fulfill various drills, focusing on grammar, vocabulary practice, as well as listening comprehension exercises. Additionally, 15% of the participants employ a mixed approach, combining traditional teaching methods without the use of computers or laptops with some computer-based applications. Furthermore, 25% of the educators utilize computer/laptop/mobile devices for communication purposes, allowing learners to interact with the technology or engage with fellow learners through these devices. Another 25% use mobile devices such as phones or tablets to fulfill drills related to grammar, vocabulary practice, listening, and reading comprehension, both in class and at home. Finally, 15% assign computer/laptop/mobile device activities as homework, including viewing tutorials and completing drills, primarily focused on grammar, vocabulary, listening, and reading comprehension. These results showcase the range of teaching strategies employed, highlighting the incorporation of technology to support learning, communication, and preparation for interactive classroom

activities. The combination of traditional and digital approaches demonstrates a balanced approach to pedagogy, fostering comprehensive language development among the students.

Q6. The research results regarding the distribution of speaking roles in the classroom provide insights into the dynamics of communication. Among the respondents, nearly 30% reported that teachers speak more during class sessions, while 20% stated that students are the primary speakers. Additionally, nearly 50% of the participants indicated that both teachers and students share an active speaking role. These findings highlight the diverse approaches to classroom interaction. When teachers take the lead in speaking, they play a central role in delivering instruction, explanations, and facilitating discussions. Conversely, when students are the primary speakers, it suggests a more student-centered approach, where active participation and student engagement are emphasized. The presence of the respondents who noted a shared speaking role between teachers and students indicates a balanced approach, where both parties contribute to classroom discourse. The division of speaking time reflects the value placed on encouraging student voice, encouraging discussion, and building an interactive learning environment. The findings highlight the value of clear communication and the possible advantages of including a variety of speaking opportunities in the classroom.

Q7. The findings of the research on the selection of subjects and subtopics in the classroom indicate that teachers play a significant role in deciding the content. Among the respondents, the most popular answer was given by 50% of the respondents. They indicated that teachers are primarily responsible for choosing the topics and sub-topics. Other 40% mentioned a collaborative approach where both teachers and students have input in this decision-making process. Interestingly, 10% of the participants explicitly mentioned student engagement in this aspect of curriculum development. These findings suggest a traditional approach to curriculum design and topic selection, where teachers take the lead in setting the agenda and content of the classroom. However, it is important to note that the absence of student involvement in this particular research does not discount the possibility of student engagement in other aspects of the learning process. The process of topic selection can be improved by taking into account the opinions and interests of the students to better motivate and engage them. The potential advantages of integrating students in decision-making about themes and subtopics, enabling a more inclusive and collaborative learning environment, may become clearer with further research and exploration into student-centered techniques.

Q8. The findings of the study on the choice of activities in the classroom show a clear pattern, that teachers are dominant in the classroom, with 55% of the respondents saying that teachers are completely in charge of making the decisions. Another nearly 40% of the participants addressed the collaboration of students and teachers in this decision-making process, and only 5% highlighted student involvement. These results illustrate a conventional method of choosing activities,

where teachers have complete discretion over the selection of the exercises and the learning objectives. It is important to take into account the advantages of including students in the decision-making process, even though teacher experience and direction help establish a planned and organized learning environment. Teachers can increase student engagement, motivation, and ownership of the learning process by adding student input and choice into the activity selection process. The potential benefits of encouraging a collaborative approach, where teachers and students collaborate to co-create meaningful and pertinent activities that cater to varied learning preferences and interests, could be explored in future research.

Q9. The findings of the research on the evaluation procedure in the classroom offer perceptions on the division of duties. Among the respondents, 50% stated that teachers are primarily responsible for conducting assessments, while 40% mentioned a collaborative approach where both teachers and students share this obligation. It is noteworthy that only 10% of the participants suggested that students alone have the responsibility for assessment. These findings highlight the predominant role of teachers in evaluating student progress and learning outcomes. However, the inclusion of a smaller percentage indicating shared responsibility suggests a recognition of the value of involving students in self-assessment or peer assessment processes. By engaging students in the assessment process, educators can promote a sense of ownership, self-reflection, and metacognitive skills development. Collaborative assessment practices can also encourage students to take an active role in monitoring their learning, setting goals, and providing feedback to their peers.

Q10. When analyzing the responses to the open-ended question (Which of the methods described in the previous question is artificial intelligence?), it became evident that the participants had varying perspectives. The answers provided by the participants diverged, indicating a diversity of interpretations regarding what constitutes artificial intelligence. Some respondents identified specific methods as examples of artificial intelligence, while others expressed uncertainty or offered differing viewpoints. This disparity highlights the subjective nature of defining artificial intelligence and underscores the need for a comprehensive understanding of the concept. By considering the range of participant responses, it becomes apparent that artificial intelligence is a nuanced and multifaceted field, with different individuals perceiving it through their own experiences. The research findings revealed that a significant number of the participants had limited knowledge about the use of AI. Below find some answers to the question. It was evident that some participants associated AI primarily with the utilization of computers, laptops, or mobile devices for communication purposes. Some respondents remark: "Using computers and other devices in the learning process". According to their responses, they perceive AI as a means for individuals to interact and engage in communication with either machines or fellow learners, facilitated by the assistance of computers, laptops, or mobile devices. Another teacher mentioned: "I

think AI is using online resources during the lesson". This understanding of AI focused on the function of technology in promoting communication, whether it be between people or between people and machines. These revelations highlighted the need for additional teacher education and an understanding of the wider breadth and applications of AI beyond communication, illuminating what AI is and how it can be used in education.

Q11. Regarding the question concerning the benefits of artificial intelligence, the participants' responses were various. According to the survey, 30% of the respondents highlighted that artificial intelligence provides students with communication exercises. This suggests that AI technology can be used to enhance students' communication skills, allowing them to engage in interactive and immersive learning experiences. Additionally, 20% of the teachers who participated in the survey specifically chose communicative exercises as a key aspect that artificial intelligence offers to students. This demonstrates that AI can provide a valuable tool for educators to facilitate communication-based activities in the classroom. Interestingly, the most popular answer (50% of the respondents) recognized the potential of artificial intelligence in providing both communication exercises and other benefits. This indicates that a significant portion of the participants acknowledged the versatility of AI technology in addressing multiple aspects of student learning, including communication skills. Consequently, these findings suggest that artificial intelligence has the potential to greatly benefit students by offering a variety of educational opportunities, particularly in the realm of communication exercises. This integration allows for a comprehensive and well-rounded educational experience, harnessing the power of AI to optimize learning outcomes and foster student growth.

Q12. The study findings offer insight into how AI-based tools and technology might be used in the classroom to help develop students' speaking and listening abilities. Among the respondents, approximately 60% claimed that they have incorporated AI-driven resources to enhance these specific language skills. These AI tools could range from interactive language learning apps to speech recognition software, providing students with opportunities for practice, feedback, and improvement in their listening and speaking skills. On the other hand, 25% of the participants indicated that they have not employed AI-based tools for this purpose, suggesting that traditional methods may still succeed in their classrooms, while 15% of the respondents expressed uncertainty regarding the use of AI in fostering listening and speaking skills, possibly reflecting a lack of awareness or limited exposure to such technologies. These findings highlight the existing diversity in the adoption and familiarity with AI-based tools for supporting students' language development, calling for further exploration and examination of their potential benefits and challenges.

Q13. The findings of the study shed light on specific AI tools or technologies used by teachers to improve their students' language proficiency. Among the respondents who confirmed utilizing AI-based resources, 25% mentioned using speech

recognition software. These applications allow students to practice their speaking skills by providing real-time feedback on pronunciation, intonation, and fluency. Additionally, 30% of the participants reported utilizing virtual language tutors, which are AI-powered programs designed to simulate one-on-one interactions and offer personalized language instruction. 45% of the respondents mentioned 'other' AI tools or technologies. Although the specifics were not named, this highlights the diverse range of AI applications in the classroom, potentially including chatbots, language learning apps, or adaptive learning platforms. Overall, these findings underline the significant role that AI plays in enhancing language acquisition, offering various avenues for students to develop and refine their listening and speaking skills.

Q14. Q16. The study findings provided some clarification on the impact of AI on students' listening and speaking skills development. The majority of the participants (90%) expressed positive experiences, highlighting the beneficial role of AI in fostering these language abilities. AI has had a significant impact on students' listening skills development, providing innovative tools such as speech recognition software that offers real-time feedback and targeted practice opportunities. Students' capacity to understand spoken language, their pronunciation, and their overall listening comprehension can all be improved by utilizing AI. Similarly to this, the respondent teachers believe that AI has helped students improve their speaking abilities by offering interactive language learning apps and virtual language instructors. These AI-driven resources enable students to practice their speaking skills in a simulated environment, receive personalized feedback, and refine their oral communication. It is important to note that even though the majority of the participants reported favorable effects, almost half of them stated that they were unable to use it in the classroom. This highlights the need for further exploration and awareness of the potential benefits of AI in enhancing students' listening and speaking skills, and the importance of encouraging its adoption in educational settings.

Q15. Q17. The research reveals that the benefits of using AI for speaking and listening skills are huge. Learning experiences can be customized and adjusted to the needs of specific students thanks to AI technology. One participant remarked: "Electronic devices are very helpful for me during the lesson. Here are already prepared exercises and they are very helpful to practice new things." These tools, in the respondent teachers' views, help students improve their speaking and listening skills by giving them immediate feedback, precise pronunciation, and helpful ideas for growth. Tools with AI power give pupils lots of practice possibilities. Another teacher said: "I always use the application during teaching and I think it is very motivating and supportive for students". This customization improves engagement and

comprehension, which promotes speaking and listening abilities. One of the participants' answers was: "AI gives us the opportunity to use individual approaches for each student". According to each student's competence level, learning style, and speed, AI systems can adjust and give personalized content, exercises, and feedback. AI technology offers individualized learning opportunities that are tailored to each student's needs, abilities, and learning preferences. By leveraging AI-powered technology, teachers may create distinctive learning paths, provide focused feedback, and provide individualized information, allowing students to learn at their own pace and realize their full potential. Therefore, it is crucial to strike a balance between opportunities for meaningful human interaction and AI-driven technologies in the contexts of language learning.

Q18. The research results reveal a strong inclination toward recommending the use of AI-based tools or technologies to other teachers for improving their students' listening and speaking skills. An overwhelming majority of 90% of the participants expressed a positive recommendation. This signifies the recognition of the value and effectiveness of AI in enhancing language skills development. By leveraging AI, teachers can provide their students with interactive and personalized learning experiences, targeted practice opportunities, and instant feedback. The positive endorsement from the majority of the participants highlights the potential of AI to significantly contribute to the improvement of listening and speaking abilities in the classroom. However, it is important to note that a small percentage (10%) indicated uncertainty regarding their recommendation. This could reflect a cautious approach due to limited familiarity or experience with AI-based tools or technologies. Further exploration and sharing of success stories and best practices may help address any reservations and encourage a wider adoption of AI in language learning for more comprehensive and impactful educational experiences.

Q19. The readiness of a school to implement AI technologies is crucial for ensuring the successful integration and utilization of these advanced tools. The teachers were asked to rate the school's equipment and internet quality on a linear scale ranging from 1 (poor) to 5 (excellent). The results revealed a diverse range of opinions. 12 teachers selected '1', indicating a lack of necessary resources or infrastructure. Another 11 teachers chose '2', suggesting certain deficiencies in equipment or internet quality. Additionally, 13 teachers opted for '3', implying a moderate level of technical readiness. Ten teachers selected '4', signifying a relatively advanced state of school preparedness. Lastly, six teachers chose '5', indicating exceptional equipment and high-quality internet access. The mean result (2.75), however, is below 3, so the total assessment is negative.

Table 1. Results for the 'School readiness for AI application' item

Descriptive Statistics									
	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
VAR00001	52	1.00	5.00	2.7500	1.31171	.213	.330	-1.058	.650
Valid N (listwise)	52								

Although the standard deviation is above 1 (which means that the group of teachers hold heterogeneous views on the issue), the skewness is 0.213, and the kurtosis is -1.058 (both between -3 and 3), which means that the curve of the results is normal, therefore, the obtained mean result is reliable. These findings highlight the need for further investment in the schools' technical capabilities to adequately support AI implementation.

3.5. Discussion

The finding that all teachers apply some technology in their teaching of listening and speaking skills aligns with previous research, which highlights the widespread adoption of technology in language classrooms (Lin et al., 2014).

About one-third of the participant teachers reported using technology for communicative purposes. This finding coincides with the research conducted by Rusmiyanto (2023), which emphasizes the value of digital tools in promoting authentic communication among language learners.

The findings of the current study reveal the respondent teachers' student-centered views from the point of view of teacher-speaking vs. student-speaking tone. This can be viewed as a good result, as, for instance, Kostadinovska-Stojchevska and Popovikj (2019) from Macedonia found that 85% of the teachers in their study did not provide the needed speaking time to their students.

The current study revealed that from decision-making (100%) and assessment (80%) viewpoints teachers, unfortunately, apply the teacher-centered approach to teaching. This is in line with Al-Rashidi (2022) research who found that traditional assessment methods and teacher control in language classrooms still prevail.

According to the current survey results, 70% of teachers find it difficult to tell the difference between teaching with digital technology and teaching with AI. This finding aligns with the limited understanding of AI among educators observed in other studies (Akcair & Akcayir, 2017).

Only 50% of the respondent teachers stated having some experience using AI, primarily with speech recognition software and virtual language tutors. The rest of them responded "other" without specifying their experience. These findings are consistent with research indicating a lack of widespread exposure to AI tools among language teachers by Lee (2022) and Sanusi et al. (2022).

The majority of the respondent teachers (90%) recognize the advantages of AI applications, mostly in connection with listening skills development. This finding coincides with Sumakul et al. (2022) study held in Indonesia which states

that all interviewed teachers have a positive view on AI application in English as a foreign language classrooms.

The survey results reveal that over 60% of secondary schools in Georgia are considered technically unprepared to implement AI in their classrooms. This finding echoes the challenges faced by educational institutions worldwide in terms of infrastructure, resources, and technical support for integrating AI which is discussed in the articles written by Tondeur et al. (2021). To address this readiness gap, investments should be made in providing schools with adequate devices, reliable internet connectivity, and training opportunities for teachers to effectively leverage AI tools.

The survey results provide valuable perceptions into the current state of technology and AI integration in language teaching in Georgia. While the majority of teachers utilize technology for teaching listening, there is a need to enhance their understanding of AI and its potential applications for teaching listening and speaking. Additionally, addressing the technical readiness challenges can pave the way for effective AI integration in language classrooms. By comparing these findings with other research results, a broader perspective can be gained on the global trends and challenges in technology and AI integration, highlighting the need for further professional development, infrastructural improvements, and collaborative efforts to fully harness the potential of technology and AI in language education.

3.6. Research Ethics

Research ethics played a fundamental role in ensuring the integrity and validity of the study on the impact of artificial intelligence (AI) on the development of students' listening and speaking skills in secondary schools in Georgia. In conducting the research, strict adherence to ethical principles was upheld to safeguard the rights and well-being of the participants. Informed consent was obtained from the participants, ensuring their voluntary participation and understanding of the research aims and procedures. Confidentiality and anonymity were strictly maintained throughout the study, protecting the privacy of the participants and their responses. The data collected were securely stored and accessed only by the researcher, with appropriate measures taken to prevent any unauthorized disclosure. Furthermore, the research was conducted in a manner that respected the dignity and diversity of the participants, ensuring that no harm or discrimination occurred during the study. The research ethics implemented in this study fostered trust, transparency, and respect, contributing to the credibility and ethical conduct of the research process.

3.7. Limitations of the Study

One notable limitation of this study is that many of the method of sample selection, another notable limitation was the number of participants, which does not enable to make generalizations. A certain problem constituted the fact that the respondent teachers did not have sufficient prior knowledge or awareness about the effective use of AI in the teaching process. This lack of familiarity with AI could have influenced their responses and perspectives on the topic. Their limited exposure to AI tools and resources may have hindered their ability to fully comprehend and appreciate the potential benefits and implications of AI integration in language learning. As a result, the insights obtained from the teachers' answers may not fully capture the range of possibilities and challenges associated with utilizing AI for improving students' listening and speaking skills.

Conclusion and recommendations

In conclusion, the study on the effects of AI on the development of students' speaking and listening skills in secondary schools in Georgia yielded some thought-provoking results. The study revealed a significant gap in their knowledge and understanding of AI usage in the educational context. Despite the lack of the knowledge of AI, the results highlight the potential advantages it may provide in improving students' speaking and listening skills.

Based on the survey findings, several recommendations can be made to support the integration of AI in secondary schools in Georgia.

- Georgian secondary schools need to provide comprehensive training and professional development programs for teachers to familiarize them with the concepts and applications of AI in education. This will empower teachers to effectively leverage AI technologies to enhance their students' listening and speaking skills.
- It is necessary to allocate resources for schools to acquire AI tools and resources that specifically target the development of listening and speaking skills. This can include AI-powered language learning platforms, speech recognition tools, and interactive virtual assistants to facilitate student engagement and personalized learning experiences.
- Collaboration and sharing the best practices are important for the improvement of secondary education. It is essential to encourage collaboration among teachers, schools, and educational institutions to share best practices and success stories related to integrating AI into language learning. This will encourage the development of a welcoming community that can work together to explore novel ideas and resolve problems related to the application of AI.

By putting these suggestions into practice, secondary schools in Georgia can use AI to effectively improve students' speaking and listening abilities and better prepare them for the needs of a quickly changing technological environment.

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