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## The improvement of oral communicative competence in english through the artificial intelligence

Desarrollo de la competencia comunicativa oral en inglés mediada por la inteligencia artificial

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### Abstract

The study "Improvement of Oral Communicative Competence in English through the Artificial Intelligence" focused on exploring how artificial intelligence technology can influence the development of oral communication skills during the teaching and learning process of English as a second language, with the participants of this research being future teachers of the subject. This research aimed to determine the effectiveness of artificial intelligence applications, such as voice assistants and speech recognition systems, in improving students' oral communicative competence. The study examined how these artificial intelligence systems provided instant and personalized feedback, as well as opportunities for continuous oral practice for students. It also explored how artificial intelligence can adapt to the individual needs of students, which was beneficial for those with different skill levels or specific learning needs. The results of this research demonstrated that teaching and learning mediated by artificial intelligence had significant implications, suggesting how artificial intelligence technology can play an integral role in the development of oral communicative competence in English and possibly


other languages. Finally, this teaching approach promises to facilitate more effective and accessible learning for a larger number of students, enhancing their oral communication skills in the process.

*Keywords:* oral communicative competence, artificial intelligence

## Resumen

El estudio "Desarrollo de la competencia comunicativa oral en inglés mediada por la inteligencia artificial" se enfocó en explorar cómo la tecnología de inteligencia artificial puede influir en el desarrollo de las habilidades de comunicación oral durante el proceso de enseñanza-aprendizaje del inglés como segunda lengua, al ser los participantes de esta investigación futuros docentes de la asignatura. La presente investigación buscó determinar la eficacia de las aplicaciones de inteligencia artificial, como asistentes de voz y sistemas de reconocimiento de voz, pueden mejorar la competencia comunicativa oral de los estudiantes. Este estudio examinó cómo estos sistemas de inteligencia artificial proporcionaron retroalimentación instantánea y personalizada, así como oportunidades de práctica oral continua para los estudiantes. También exploró cómo la inteligencia artificial puede adaptarse a las necesidades individuales de los estudiantes, lo que fue beneficioso para aquellos con diferentes niveles de habilidad o necesidades específicas de aprendizaje. Los resultados de esta investigación demostraron que la enseñanza-aprendizaje mediada por la inteligencia artificial tuvo importantes implicaciones, ya que sugiere cómo la tecnología de inteligencia artificial puede desempeñar un papel integral en el desarrollo de la competencia comunicativa oral en inglés y, posiblemente, en otros idiomas. Finalmente, este enfoque de enseñanza promete facilitar un aprendizaje más efectivo y accesible para un mayor número de estudiantes, mejorando sus habilidades de comunicación oral en el proceso.

*Palabras clave:* competencia comunicativa oral, inteligencia artificial

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## **INTRODUCTION**

Oral communicative competence in English refers to an individual's ability to express themselves effectively and comprehensibly in oral communication situations in English. This competence involves not only appropriate grammar and vocabulary but also pronunciation, intonation, fluency, communication strategies, socio-cultural knowledge, and the ability to adapt to different contexts and audiences. Several authors have addressed this topic from different theoretical perspectives. Dell Hymes developed the concept of "communicative competence" as an expansion of Chomsky's proposed concept of linguistic competence. Hymes emphasizes that communicative competence goes beyond grammar and focuses on the effective use of language in specific social and cultural contexts (Hymes, 1972).

Oral communicative competence in English, a crucial element for effective participation in global contexts, has been a priority objective in language teaching (Canale & Swain, 1980). However, effectively addressing this objective has been a continuous challenge in language pedagogy. Garcia et al., (2019) state the increasing integration of artificial intelligence (AI) in education has opened new possibilities for enhancing the development of communicative skills in a second language, and this study focuses on exploring this intersection (Son & Park, 2020). Furthermore, some of the challenges in second language teaching are related to the lack of opportunities for constant and personalized practice (Li, 2020). Artificial intelligence can provide an environment of uninterrupted practice, which is essential for the development of oral competence. In their research on Artificial intelligence-assisted teaching, Chen and Jeng (2019) point out that AI offers more consistent practice than traditional teaching.

The incorporation of artificial intelligence (AI) in education has generated growing interest in the field of second language acquisition (Li, 2020). Artificial intelligence has become an innovative tool for improving language teaching and learning, particularly oral communicative competence in English, a widely used language in global contexts. Chomsky (1957) and his generative theory have been a reference point for understanding language structure, and artificial intelligence can help personalize teaching according to individual student needs. Following this line, artificial intelligence can foster collaborative learning and provide personalized feedback to enhance oral communicative competence in English. In their study, Li et al. (2018) demonstrated that the use of artificial intelligence systems significantly improved pronunciation and oral fluency in English as a second language students, thus demonstrating the effectiveness of artificial intelligence in developing oral communicative competence. As stated by, Lee and Kozma (2006), artificial intelligence in language education can provide more personalized and effective learning experiences. The advancement of artificial intelligence has led to voice assistant applications and speech recognition systems that offer instant and personalized feedback to language learners (Li, 2020).

Artificial intelligence, through applications such as voice assistants and speech recognition systems, holds the promise of providing immediate and personalized feedback to students (Li, 2020). This technology also has the potential to adapt to individual student needs, creating more personalized learning experiences (Yamashita & Jiang, 2010). In the literature review on the use of artificial intelligence in language teaching, Chappell and Jennings (2018) identify key areas where artificial intelligence has had a positive impact on learning. This research is based on the premise that artificial intelligence has the potential to transform language teaching and learning, with a focus on the development of oral communicative competence in English, making it a relevant and promising area of study. However, it is important to conduct a critical analysis and evaluation of the effectiveness of artificial intelligence in the specific context of oral communicative competence in English (Radford et al., 2019).

This study aims to determine the effectiveness of artificial intelligence in the development of oral communicative competence in English, a widely spoken language worldwide. By examining how artificial intelligence can be optimized to address the diverse needs and skill levels of students, it seeks to provide a deep insight into how this technology can revolutionize language teaching and learning (Zheng, 2018). Additionally, the perceptions and experiences of students regarding the incorporation of artificial intelligence in the educational context are explored. This study presents itself as a response to the challenge of improving English communicative skills and explores the transformative potential of artificial intelligence in language education.

## **METHODOLOGY**

This research is action research aimed at determining the effectiveness of artificial intelligence in the development of oral communicative competence in English, as well as exploring how Artificial Intelligence can adapt to the needs and skill levels of students. Findlay (2017), described action research as an investigation undertaken by teachers within their environments to enhance their methods and enhance the learning of their students. For this study, a mixed quantitative and qualitative research design was employed. The mixed quantitative and qualitative approach, also known as mixed methods research, combines both quantitative and qualitative methods in a single study. According to Creswell and Plano (2017), this approach allows for a more comprehensive understanding of a phenomenon by collecting and analyzing quantitative and qualitative data in an integrated manner. This approach not only enables quantifying relationships and patterns but also explores the depth and context of a phenomenon. It allowed combining quantitative data, such as oral test results (speaking tests), with qualitative data, such as class observations and participant opinions, to obtain a more comprehensive understanding of the impact of artificial intelligence on the development of oral communicative competence in English.

The target population consisted of third-level or grade students of English as a second language at a public higher education institution. A representative sample of participants was selected, considering factors such as English proficiency level and previous experience with artificial intelligence technology. The sample included students aged 18 to 30 with diverse backgrounds to ensure diversity. The intervention plan was implemented over 16 weeks, 7 hours per week. Various instruments were used to collect data for this study, including standardized oral tests, which were administered both before and after the intervention with artificial intelligence technology to assess improvement in English oral communication skills. In the words of Hair et al. (2006), t-tests are a set of statistical tests used to determine if there is a significant difference between the means of two groups of data. These tests are commonly used in research to assess whether an intervention or treatment has had a significant effect on a variable.

Additionally, surveys were conducted with participants to gather their perceptions of using artificial intelligence in English learning, including its effectiveness and usability. Cohen et al. (2018) characterized survey research as the gathering of data from a subset of participants via their answers to inquiries. Furthermore, class observations were conducted to collect data throughout the intervention period, specifically focusing on significant events such as student interactions with technology during the learning process. Finally, quantitative and qualitative data were analyzed to determine the effectiveness of artificial intelligence technology. Statistical methods, such as t-tests, were used to analyze quantitative data and determine if there were significant differences in oral competence before and after the intervention. Descriptive statistics constitutes an analytical technique aiding researchers in summarizing acquired data systematically, thereby elucidating the relationship among the variables under investigation (Kaur et al., 2018). Qualitative data were analyzed using content analysis to identify patterns and emerging themes in the opinions and experiences of the research participants.

## RESULTS AND DISCUSSION

In the following section, I present a detailed overview of the findings derived from the research on the impact of artificial intelligence technology on the development of oral communicative competence in English. Subsequently, the collected data from a diverse group of participants who underwent educational interventions based on artificial intelligence are exhibited and analyzed.

**Table 1**

*Results of oral tests*

Indicators	Participants	Spelling (5/5)	Fluency (5/5)	Pronunciation Intonation (5/5)	Total mean difference (15/15)
Pre-test	20	1,01	1,05	1,10	3,16
Post-test	20	4,17	4,05	3,90	12,12
Difference	n/d	3,16	3,00	2,80	8,96

The results reveal a significant change in the scores of oral tests administered before and after the intervention plan, in which the use of Smalltalk, Elsa-speak, and D-Id-studio was primordial to improve oral competence among students. Based on the results presented in Table 1, the use of Artificial Intelligence technology helps improve students' pronunciation, intonation, spelling, and fluency deeply because the score difference is 8.96 between pre and post-test. This technology has shown potential to enhance the pronunciation and oral fluency of English learners, as noted by Wang (2019) in their study on the effectiveness of artificial intelligence feedback on pronunciation. Pronunciation is one of the main aspects to be understood (Wang et al., 2016). In addition to feedback, artificial intelligence can adapt to individual student needs, which is essential in second-language learning (Yamashita & Jiang, 2010).

Furthermore, the results demonstrated that artificial intelligence in comparison with other learning methods highlighted its interactivity and customization. For Thorne (2016), artificial intelligence can be effectively integrated into the classroom to enhance the teaching and learning of English. The use of applications and online platforms that harness artificial intelligence to develop oral communicative competence was successful during the teaching-learning process. Currently, there is a growing interest in ethics and privacy in the use of artificial intelligence in education (Zheng, 2018). Artificial intelligence can tailor the teaching of oral English skills according to each student's level and needs. This is achieved through algorithms that analyze student performance and adjust the content and difficulty of activities (Beck et al., 2016).

**Table 2**

*Survey results about perceptions and experiences*

Categories	Description	Agree	%	Dis agree	%
Motivation and self-confidence	Participants mentioned that Artificial Intelligence technology boosted participants' motivation by providing feedback and tracking their progress.	14	70	6	30
Immediate Feedback	Participants appreciated the accurate feedback from the Artificial Intelligence, which allowed them to focus on specific areas for improvement.	13	65	7	35
Personalization of Learning	Participants appreciated the personalized learning provided by AI, as it allowed them to focus on specific areas of improvement.	15	75	5	25

Autonomous Learning	Participants stated that Artificial Intelligence promotes autonomy in learning, as participants can choose when and what to practice.	12	60	8	20
Preference for Human Interaction	Participants manifested that Human interaction continues to be valued, and AI is perceived as complementary rather than substitutive because many of them said "I missed the communication with a teacher in real-time. AI is helpful, but it doesn't replace face-to-face interaction."	18	90	2	10

The table above shows the participant's perceptions about the effectiveness of the technology in their learning process. These findings provide valuable insights for assessing the impact of artificial intelligence technology on the development of oral skills in English and contribute to understanding its effectiveness in second language learning environments (Martinez, 2021). Following this, a results matrix is presented, compiling the analyzed data which evidenced that the majority of the participants believed working on the Smalltalk, Elsa-speak, and Did-Studio tools, helped them to improve their pronunciation, intonation, spelling, and fluency because of the feedback that they received immediately. In this regard, authors like Bull and Czarniak (2019) have explored ethical issues in the use of student data in artificial intelligence education.

This adaptability allows for addressing differences in skill levels and learning styles, as highlighted by Reinders and Wattana (2017) in their research on personalization in artificial intelligence language teaching. Moreover, the results portray that participants agree that the use of these technological tools promotes personalized and autonomous learning which focuses on specific areas of improvement. Finally, Zheng (2018) points out that Artificial Intelligence in education should be considered in terms of accessibility and equity. It is crucial to ensure that all students have equal opportunities to access this technology. In the realm of equity, Blikstein (2018) emphasizes the importance of ensuring that artificial intelligence does not widen educational gaps.

### CONCLUSIONS

The results of this research suggest that artificial intelligence technology has a positive impact on improving English pronunciation. Participants highlighted that specific feedback and personalized practice provided by artificial intelligence helped them refine their pronunciation. The feedback and progress tracking offered by artificial intelligence increased students' intrinsic motivation. By experiencing a sense of achievement and personal improvement, participants felt more motivated to practice and enhance their English oral skills.

The ability of artificial intelligence to adapt to each student's level and focus on specific areas of improvement was considered effective. This allowed them to make the most of their study time. The flexibility and accessibility of artificial intelligence tools such as Elsa Speak, D-ID studio, and Smalltalk were highly valued by the participants. Being able to practice anytime, anywhere was considered a significant advantage, making learning more accessible and convenient.

Participants appreciated the integration of cultural aspects into language learning. Artificial intelligence not only focuses on language learning but also enriches understanding of English-speaking culture. However, despite the benefits of artificial intelligence tools, human interaction remains essential in English teaching. Participants expressed a preference for communication with their teachers in face-to-face classes for theoretical lessons and more complex discussions.

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