Library Progress International
Vol.44 No. 3, Jul-Dec 2024: P. 11769-11775

Print version ISSN 0970 1052
Online version ISSN 2320 317X

Original Article

Available online at www.bpasjournals.com

Impact of Artificial Intelligence to Tertiary Students' English Language Learning Achievement

Maria Eden C. Zarate, EdD

Cebu Normal University
mariaedenzarate@gmail.com

How to cite this article: Maria Eden C. Zarate, EdD (2024). Impact of Artificial Intelligence to Tertiary Students' English Language Learning Achievement. *Library Progress International*, 44(3), 11769-11775.

ABSTRACT

The impact of AI-mediated language instruction on English learning achievement among tertiary learners of Cebu Normal University was investigated in this mixed methods study. This paper looked into the growing popularity of AI-driven learning tools and their potential for transforming language instruction.

In all, fifty-eight (58) freshmen students from two whole classes who were randomly selected. There were thirty (30) students from the BSEd English and twenty-eight (28) students from the BA English Language who took part in the research. This was conducted during the First Semester of Academic Year 2022-2023. Artificial Intelligence (AI) was used to facilitate the training of the experimental group, while conventional language teaching was given to the control group. The proficiency of the students in learning English in a number of areas, such as grammar, vocabulary, reading comprehension, and writing abilities, was assessed which include pre-test and post-test.

An examination of twenty-eight (28) students from the experimental group's semi-structured interviews through qualitative analysis revealed the AI platform's innovative impact. In the end, it was discovered to increase motivation and promote self-regulated learning by improving engagement and providing tailored learning experiences. The aforementioned results underscore the capacity of artificial intelligence (AI) to enhance language acquisition results, inspire students, and foster independence.

Researchers and teachers that are interested in integrating AI-powered platforms into language classes may find this study to be a useful resource as it advances evidence-based language education. As well as demonstrating the beneficial effects of AI-driven educational technology in the field of language education, the results lend credence to the idea that AI-mediated language training has promise for completely changing language acquisition.

Keywords: *AI-mediated language instruction, Experimental & Control Group, English language learning achievement, Artificial Intelligence*

Introduction

Globally, English is the language that is most often spoken. It is one of the most widely used languages for discourse, employment, commerce, travel, and international connectedness since it is the universal language of communication (Lan et al., 2020). Additionally, it's the language that has been examined the most. Globally, there are thought to be about 2 billion English language learners (Rich, 2021).

English language proficiency is highly desired, but there are a number of challenges that learners must overcome. These include inadequate exposure to the language, few opportunities for using the language both inside and outside of the classroom, the necessity of communicating in English across linguistic and cultural boundaries, a lack of self-control in learning, and limited access to high-quality teaching, along with the anxiety of being misinterpreted and making mistakes. Teachers should look for strategies to support students in succeeding. AI, or artificial intelligence, is being hailed as an instrument to assist English language teaching and learning (ELT/L) that can offer fresh approaches and chances to overcome obstacles and expand and improve knowledge (Baranwal, 2022).

Linguists have recently focused a great deal of attention on the use of information technology in language learning and teaching (Ahmadi, 2018; Shadiev and Yang, 2020; Lai et al., 2022; Lei et al., 2022; Soleimani et al., 2022; Shadiev et al., 2023). Information technology can be used to implement personalized, interactive, and communicative learning processes in language education, which will improve the quality of instruction for students (Rodinadze and Zarbazoia, 2012; Chun et al., 2016; Shatri, 2020; Rahimi and Fathi, 2022). Information technology has been embraced by language educators to build virtual language learning environments that enhance language acquisition processes and actively involve learners (Fathi and Rahimi, 2022; Loncar et al., 2023; Nguyen and Le, 2023). Artificial intelligence (AI) has become clear as a viable technique in information technology programs that can be used to improve language learning and teaching outcomes for students (Haristiani, 2019; Pedro et al., 2019; Knox, 2020; Pikhart, 2020; Huang et al., 2023).

Artificial Intelligence (AI) in computer programs is intentionally created to understand and react to human inquiries; it functions as a platform that depends on human intelligence to provide relevant data (Buzko et al., 2016; Spector and Ma, 2019; Devi et al., 2022; Khosravi et al., 2022; Nemorin et al., 2023). For instance, ChatGPT, an AI-enabled tool, can effectively respond to users' inquiries and provide them with the information they need (Fitria, 2023; Yan, 2023). Actually, the advent of AI has brought about revolutionary advances in a number of areas, including education and language acquisition (Spiro et al., 2017; Balyen and Peto, 2019; Su et al., 2023). The potential of artificial intelligence (AI) to transform conventional teaching and learning approaches has drawn interest from scholars, educators, and politicians across the globe (Michalski et al., 2013; Ilkka, 2018). AI presents new opportunities for improving educational methods and student results because of its capacity to process enormous volumes of data, identify intricate patterns, and provide individualized insights (e.g., Roll and Wylie, 2016; Ouyang and Jiao, 2021). In this vein, teachers have incorporated AI-assisted language learning resources into the classroom to help students improve their language proficiency (Lu, 2018; Tafazoli et al., 2019). The language skills and subskills of language learners may gain from ChatGPT's AI-assisted language learning capabilities (Baskara and Mukarto, 2023; Hong, 2023; Kohnke et al., 2023). In addition to giving students writing ideas, it also offers sentence replacement suggestions to help them write better and advances their language learning (Su et al., 2023; Yan, 2023). Learners can easily complete language learning activities and advance their general language competency with the help of AI-supported language learning technologies, which are renowned for producing immersive and engaging learning environments (Divekar et al., 2022).

The impact that AI-assisted language learning tools have on the individual language abilities and sub-skills as well as the overall learning accomplishment of English language learners has been the subject of numerous research papers (Kim, 2019; Junaidi, 2020; Zheng et al., 2021; Xu et al., 2022; Hsu et al., 2023; Yan, 2023). In their investigation on the effects of AI-powered language learning tools on the overall learning achievement of English language learners, for example, Xu et al. (2022) discovered that AI-assisted language learning tools were positively correlated with learners' achievement. The impact of AI-assisted language learning tools on the vocabulary knowledge of learners was investigated in another study by Hsu et al. (2023). The results showed that learners who used AI tools outperformed their classmates and showed a considerable improvement in vocabulary knowledge. Furthermore, Junaidi (2020) discovered that AI learners outperformed non-AI learners in speaking proficiency when they examined the impact of AI-assisted language learning tools on improving the speaking abilities of learners.

Even with these insightful discoveries, previous research has not gone far enough in exploring how AI-supported education affects the language learning achievement of English language learners, especially when it comes to tertiary

English Language learning. As a result, conducting a thorough investigation into how AI-assisted language learning tools affect tertiary learners' language learning outcomes will significantly add to the corpus of existing material. To further delve into the literature, it would be beneficial to investigate how AI-assisted instruction can improve the motivation and self-regulated learning of English language learners. While self-regulatory learning refers to a learner's capacity to independently plan, monitor, and assess their progress in language acquisition, second language motivation has a substantial impact on English language learners' engagement and attempts to acquire language proficiency (Boo et al., 2015). (Moyer, 2014).

The current study makes multiple contributions to the body of literature already in existence. It first and primarily fills a significant void by offering empirical data on the precise effects of AI-assisted language learning tools on the language learning achievement of tertiary learners. While earlier studies have investigated the efficacy of AI-powered language learning resources, the analysis focuses only on tertiary students, offering insightful information unique to this particular situation. Second, this study broadens theoretical understanding of artificial intelligence's potential applications in language learning. Though AI's positive effects on language acquisition have been acknowledged in the literature, the study employs a mixed methods approach to investigate in greater detail the precise mechanisms through which AI-mediated instruction enhances tertiary learners' emotional and motivational development as well as their language proficiency.

The study offers theoretical insights into the relationship between pedagogical practices and technology-driven training. The purpose of the study was to determine if the teaching methods utilized were responsible for the observed disparities between AI and traditional instruction situations. By carefully examining these components, the research aims to provide light on whether the impact of AI-supported instruction is primarily due to pedagogical innovation or technological novelty. This will allow for insights into the unique advantages that this approach may bring to the language learning environment.

Literature Review

Increased proficiency in speaking with individuals from other nations is the goal of English language instruction (Mukhallafi, 2020). Artificial intelligence (AI) has the potential to significantly improve language teaching and learning due to the swift progress of big data and natural language processing technology. Zhu (2017) highlights the unique and challenging nature of teaching English using artificial intelligence (AI). Learning environments that are inclusive of all individuals, including those with hearing or vision impairments or diverse linguistic backgrounds, could be made feasible. Gawate (2019) predicts that artificial intelligence (AI) will play a significant role in the additional support system for teachers and students of English. Li (2017) provides support for the assertion that "Artificial intelligence also functions as a tool for enhancing English teaching". Digital and language skills work well together in AI to increase global competency, such as studying in English. Similar to this, digital learning technology greatly relies on customized content. Adaptive systems based on artificial intelligence and big data are now feasible. The current study defines artificial intelligence (AI) as using AI systems to improve the organization, arrangement, and selection of content when teaching and learning English, as stated by Mukhallafi (2020). Depending on the students' competency levels, it further diversifies the teaching strategies and curriculum. Furthermore, it creates assessment, instructional methodologies and approaches by adapting self-study procedures to each individual and modeling knowledgeable and intelligent systems.

In his paper "Research on Artificial Intelligence Promoting English Learning Change," Wang (2019) outlined the following connection between artificial intelligence and English instruction. These include the following, namely: a) Artificial intelligence has an impact on English learning environments. Artificial intelligence makes it feasible to learn English through immersion. By combining and logically processing text, speech, and visual data in an intelligent device, English learning becomes more stereoscopic and visual. The human-computer interaction allows for AI enables students to interact, which improves the realism of language environments. The assertion that artificial intelligence (AI) has a significant capacity to create a customized environment where adult learners use all of their senses to simultaneously train their English skills in relation to their present proficiency in English or to their professional needs or desires is supported (Zilberman, 2019); b) Artificial intelligence maximizes the efficacy of teaching English. AI will provide a realistic conversational simulation platform for studying and teaching English.

Students' comprehension skills and written, spoken, and written English usage will all improve as a result. AI's understanding of the customs and cultures of the numerous English-speaking
countries can be used to interact and communicate with learners and significantly boost their motivation to learn English; and c) Artificial intelligence has made practical skills in English classrooms better for students. Right now, artificial intelligence (AI) is the most popular technology topic in the social science field. It is imperative that educators and learners comprehend how to use a system and quickly resolve problems so that science and technology can be used to teach English as a second language (ELT). Students' practical operational capacity increases as a result of using AI to teach English.

Objective of the Study

This study looked into the perceptions of selected freshmen students of Cebu Normal University-Main Campus regarding the impact of AI-assisted language learning on their English Language learning achievement.

Methodology

This study was carried out at the main campus of Cebu Normal University with a carefully chosen sample of first-year students. In order to guarantee a fair distribution of learners' characteristics, participants were randomly allocated to either the experimental or control group in two intact classrooms of a total of fifty-eight (58). There were thirty (30) BSEd English and twenty-eight (28) BA Language students. A standardized English proficiency exam was used to determine the intermediate English proficiency levels of the 28 participants in the experimental group, of whom 10 were males and 18 were females. The participants were all between the ages of 18 to 20. Comparably, thirty (30) participants in the Control Group, 18 girls and 12 males with intermediate English proficiency levels measured using the same standardized exam ranged in age from 18 to 20.

Participants had to fulfill specific requirements in order to be considered for the study. These included not being diagnosed with any learning disabilities that would materially impair their ability to learn languages, being undergraduate students with English as their specialization, and not having any prior experience with AI-mediated language instruction.

In order to protect the participants' rights and well-being, ethical considerations were crucial throughout the whole study. Each participant gave their informed consent before the start of the study, guaranteeing that they were fully informed about the goal and methods of the investigation and that they had the option to withdraw at any moment. To preserve the privacy of the participants, the researchers also upheld stringent confidentiality and data anonymity policies. The research demonstrated the researchers' dedication to prioritizing the participants' rights and well-being during the whole study by closely adhering to ethical criteria for research involving human subjects.

During the pre-test phase, both the experimental and control groups were given a comprehensive English Language Achievement test to determine the participants' pre-level of English proficiency. The English Achievement exam was carefully created by a group of seasoned educators with in-depth knowledge of both language instruction and assessment, guaranteeing its validity and applicability to the goals of the research. The exam was carefully designed to fit the learning goals and course requirements of the university's program, making it an appropriate instrument for reliably determining the language competency levels of participants. It was divided into several components, each of which assessed a different set of fundamental language abilities, including as writing, grammar, vocabulary, and reading comprehension. Three subject matter experts thoroughly examined the examination to guarantee the validity and quality of the English achievement test. Their insightful comments and thorough examination validated the test's face and content validity, guaranteeing that it accurately assessed the desired language proficiency. The English achievement exam showed great reliability and strong internal consistency among its items.

There were twenty-eight (28) members who were interviewed from the experimental group in semi-structured interviews to gather qualitative data. In order to guarantee a balanced representation of gender and age groups in the experimental cohort and to gather a wide variety of experiences and viewpoints for a more comprehensive qualitative

analysis, the researcher used a purposive sampling technique. The participants' demographic profile is as follows: ten of them were males and eighteen of them were females, with ages ranging from 18 to 20. Through the use of standardized exams, their English proficiency levels were determined to be intermediate at the beginning of the study. The participants also brought with them a variety of academic backgrounds that covered a wide range of subjects inside the institution.

With careful consideration, the semi-structured interviews were created to provide participants with a focused and adaptable forum to express their opinions and thoughts on AI-mediated language instruction. A vast range of topics pertaining to their experience learning languages through the Duolingo platform were covered in these conversations. The subjects covered included their motivation and sense of autonomy during the learning process, as well as their feelings and views regarding interactive learning activities and the impact of individualized feedback on language improvement. It was also urged of participants to consider difficulties they faced and to express the benefits they saw from using AI-mediated instruction. These one-on-one interviews created a relaxed and honest environment that allowed participants to speak freely about their ideas. With their permission, every interview was audio recorded and included thorough notes that captured contextual details as well as verbal and nonverbal cues.

The experimental and control groups underwent pre-test assessments to gauge their initial English learning performance prior to the intervention's implementation. The pre-test assessed the participants' writing, reading comprehension, grammar, and vocabulary skills. Following the completion of the pre-test phase, participants were assigned at random to either the experimental or control groups. The study's dependability was increased by this random assignment, which made sure that any individual differences or biases between the two groups were spread equally.

Traditional language education was given to the control group for eight (8) weeks concurrently. In this lesson, textbooks, lectures, and classroom activities were among the standard teaching tools and approaches that were provided. Writing assignments, grammar exercises, reading passages, and teacher-led conversations were some examples of the activities. Lectures and activities in the classroom were led by the teacher, who acted as the primary educator. In order to improve their language proficiency outside of the classroom, participants were urged to complete their allocated homework and commit at least two hours a week.

The researcher meticulously observed the execution of interventions and participant involvement during the data collection phase to guarantee precision and validity. To protect the rights and welfare of the participants, ethical guidelines were closely followed over the whole study, including gaining informed consent and upholding anonymity.

Findings

A qualitative phase was included in the study to provide a thorough grasp of the experiences and perspectives of the students who took part in the AI-mediated language instruction. Twenty-eight (28) carefully chosen students from the experimental group participated in semi-structured interviews to ensure a wide range of experiences and viewpoints. With the goal of illuminating the underlying mechanisms and contextual factors that influenced the students' English learning achievement, these interviews attempted to get further into the subtleties and subjective aspects of the students' involvement with the AI-mediated instruction.

Quantitative analysis showed that the experimental group did much better than the control group in every area tested. Additionally, they demonstrated a greater drive to acquire a second language and a more comprehensive use of self-regulated learning strategies. The results show that self-regulated learning, motivation to learn a second language, and English learning achievement are all positively impacted by AI-mediated instruction.

The AI platform's transformative effects were shown through a qualitative study of semi-structured interviews conducted with twenty-eight (28) students from the experimental group. It has been discovered to provide tailored learning experiences and improve engagement, which in turn increases motivation and promotes self-regulated

learning. These results highlight the ability of AI-mediated language training to raise student motivation, enhance language learning outcomes, and foster autonomy.

The AI-mediated instruction was credited by the participants for their notable improvements in English language ability. They emphasized how their improved proficiency in a variety of language domains, such as writing, grammar, vocabulary, and reading comprehension, was facilitated by the AI platform's interactive and adaptive capabilities. A number of students related personal tales of their development, demonstrating the beneficial effects of their enhanced language skills on several facets of their personal and academic lives. The students' accounts demonstrated how their increased language ability helped them succeed in coursework requiring English language proficiency, which resulted in better grades and more self-assurance in their academic abilities.

By providing a thorough understanding of the students' experiences with AI-mediated language instruction, the integration of qualitative insights enhances the discussion and strengthens the validity of the study. The qualitative phase adds nuance and depth, capturing the subjective aspects of the learning journey that quantitative measures might not fully capture. Additionally, the integration of both qualitative and quantitative data enhances the study's credibility and contributes to a comprehensive understanding of the phenomenon.

The results offer insight on the possible effects of AI-assisted language learning technologies in language classrooms and have important consequences for both students and teachers.

Tertiary students could embrace AI-powered language learning tools as useful tools to improve their language learning experience. These resources provide a more personalized and engaging learning environment, which boosts enthusiasm and motivation for additional language learning assignments. Learners may access language practice anytime and anywhere with AI-powered platforms like Duolingo, giving them the ability to take charge of their education and developing a sense of autonomy and self-regulation.

In addition, AI-assisted language learning technologies can be a useful to the teaching tactics of tertiary language instructors. Teachers can more effectively adapt their instruction thanks to the useful data and insights these platforms offer about each student's development and areas for improvement. Teachers can provide focused help and coaching to individual students and achieve more efficient and effective language learning outcomes by addressing unique language learning issues. Teachers can differentiate their teaching methods to meet the different requirements and skill levels of their students with the help of AI-supported education.

The individualized and adaptive learning environments could be created in tertiary classes by using AI-powered language learning tools. By providing rapid feedback, comments, and alternative sentences, interactive AI platforms help learners grow continuously and build confidence in their language skills. The environment that this real-time help fosters is encouraging and supportive, which enhances the learning process. Furthermore, the application of AI to language acquisition creates new and interesting opportunities for pedagogical study and development. Researchers and educators might investigate creative ways to harness AI technology's potential to enhance language learning outcomes and instructional strategies as it develops. The long-term impacts of AI-assisted language learning, its use in various language situations, and the creation of increasingly advanced AI tools suited to particular language learning requirements might all be the subject of future research.

Conclusion

The English language learning achievement of the tertiary learners was significantly impacted by the AI-assisted language learning technology. It was discovered that the learners' perceptions on using the AI-powered language learning tool to improve their English language proficiency were favorable. The results may generally be attributed to the efficacy and efficiency of the AI tool in giving students instant feedback and assisting them in customizing their language learning environment so they can get more involved in the language learning activities.

Thus, applications for AI-assisted language learning have shown a substantial impact on improving the general language learning achievement as well as the specialized language abilities and subskills of English language learners. Furthermore, these research have demonstrated how AI-powered language learning aids support better self-regulated learning and higher levels of motivation in English language learners.

References

1. Ali J. K. M., Shamsan M. A. A., Hezam T. A., Mohammed A. A. (2023). Impact of chat GPT on learning motivation: teachers and students' voices. *J. English Stud. Arabia Felix* 2, 41–49. doi: 10.56540/jesaf. v2i1.
2. Baskara F. R., Mukarto F. X. (2023). Exploring the implications of Chat GPT for language learning in higher education. *Indonesian J. English Lang. Teach. Appl. Linguist.* 7, 343–358.
3. Carpio Cañada J., Mateo Sanguino T. J., Merelo Guervós J. J., Rivas Santos V. M. (2015). Open classroom: enhancing student achievement on artificial intelligence through an international online competition. *J. Comput. Assist. Learn.* 31, 14–31. doi: 10.1111/jcal.12075.
4. Chen X., Xie H., Zou D., Hwang G. J. (2020). Application and theory gaps during the rise of artificial intelligence in education. *Comput. Educ. Artif. Intell.* 1:100002. doi: 10.1016/j.caeai.2020.100002.
5. Chen X., Zou D., Xie H., Cheng G., Liu C. (2022). Two decades of artificial intelligence in education: contributors, collaborations, research topics, challenges, and future directions. *Educ. Technol. Soc.* 28, 1323–1358. doi: 10.1007/s10639-022-11209-y.
6. Chun D., Kern R., Smith B. (2016). Technology in language use, language teaching, and language learning. *Mod. Lang. J.* 100, 64–80. doi: 10.1111/modl.12302.
7. Fitria T. N. (2023). Artificial intelligence (AI) technology in Open AI Chat GPT application: a review of Chat GPT in writing English essay. *ELT J. English Lang. Teach.* 12, 44–58. doi: 10.15294/elt. v12i1.64069.
8. Hsu T. C., Chang C., Jen T. H. (2023). Artificial intelligence image recognition using self-regulation learning strategies: effects on vocabulary acquisition, learning anxiety, and learning behaviours of English language learners. *Interact. Learn. Environ.* 1–19. doi: 10.1080/10494820.2023.2165508.
9. Huang X., Zou D., Cheng G., Chen X., Xie H. (2023). Trends, research issues and applications of artificial intelligence in language education. *Educ. Technol. Soc.* 26, 112–131.
10. Hwang G. J., Xie H., Wah B. W., Gašević D. (2020). Vision, challenges, roles and research issues of artificial intelligence in education. *Comput. Educ.* 1:100001. doi: 10.1016/j.caeai.2020.100001.
11. Ilkka T. (2018). *The impact of artificial intelligence on learning, teaching, and education*. Maastricht: European Union.
12. Kim N. Y. (2019). A study on the use of artificial intelligence Chatbots for improving English grammar skills. *J. Digital Converg.* 17, 89–110.
13. Lai Y., Saab N., Admiraal W. (2022). University students' use of mobile technology in self-directed language learning: using the integrative model of behavior prediction. *Comput. Educ.* 179:104413. doi: 10.1016/j.compedu.2021.104413.
14. Shadiev R., Wen Y., Uosaki N., Song Y. (2023). Future language learning with emerging technologies. *J. Comput. Educ.* 10, 463–467. doi: 10.1007/s40692-023-00285-9.
15. Zheng L., Niu J., Zhong L., Gyasi J. F. (2021). The effectiveness of artificial intelligence on learning achievement and learning perception: a meta-analysis. *Interact. Learn. Environ.* 1-15, 1–15. doi: 10.1080/10494820.2021.2015693.