



English Language Learning and Teaching through the Lens of ICT and Artificial Intelligence: A Systematic Review

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Abstract

The modern advancements in computer technology, the widespread use of the internet, and the rapid development of AI have transformed human life for the better. This is especially true in the fields of education and language learning, where technology has been put to full use to aid and enhance the learning process. Multiple research has been undertaken to study the possibilities in which technology can be effectively used to improve the quality of English language education. This paper is a review of some of the prominent research conducted in recent years to show the positives and pitfalls of using technology induced language education. Research conducted from 2017 all the way up to 2022 has been taken into consideration for this review to bring out the possibilities for further exploration in this domain of study and also to show the benefits of technology integrated language education from the findings of the research.

Keywords: AI, Computer Technology, Language Learning, Education

Introduction

Today, the world has been greatly influenced by the internet and technology, which has transformed the pace of life. Advancements in computer technology and the mass globalization of economies have led to the emergence of English as a global language. This has resulted in a growing demand for learning English in most developing countries, like India. In addition to the traditional methods of language teaching, technology induced language teaching has become the trending norm in recent decades. This sparked interest among scholars and a plethora of research has been done on technology integrated English language teaching all over the world. Based on the findings, several

strategies have been devised to incorporate technology into language learning. This paper is an attempt to review the research made on the domain of tech-induced English language learning and teaching over the recent years.

Survey of Literature

In the year 2017, Ismail Xodabande studied *The Effectiveness of Social Media Network Telegram in Teaching English Language Pronunciation to Iranian EFL Learners*. The researcher studied the use of the social media network called Telegram in teaching English pronunciation by choosing a group of 30 Iranian EFL learners and dividing them into experimental and control groups for the study. They

were given different kinds of treatments for four weeks, and the results were calculated by using a quasi-experimental method. The pre-test and post-test results showed considerable development of pronunciation among the participants, and the research concluded that there is a considerable effectiveness in using social media networks in teaching English language pronunciation to EFL learners.

In 2017, R Manda, H Nurlaila, and WB Indir published a paper on the title, *Development of Web-Based Computer Assisted Language Learning in English Intensive Course*. The researchers aimed to study the development of a Web-Based Computer Assisted Language Learning (WBCALL) program to aid IC courses and complement IC textbooks to improve students' comprehension levels and provide a better English language learning atmosphere. WBCALL applications were used and tested during the course of the study, and students were exposed to drills, exercises, quizzes, and tests. The final results were calculated with the help of the WBCALL application. The results of the study showed that the use of web-based computer assisted language learning applications helped students understand the learning materials. They could learn the materials both inside and outside the classroom on their own accord, thereby increasing student motivation in IC learning.

In 2017, Josiane Brunetti Cani, Ivana Queiroz Pinheiro, and Maria Elizabete Vilella Santiago published an article with the title, *Analysis of Digital Games for Foreign/Second Language Learning on Mobile Devices*. An intense study was conducted to analyze the effectiveness, potentialities and limitations of three foreign language learning mobile apps- Lingualeo, English Grammar (all Levels), and Learning 2 Talk. The research was based on theoretical studies of gamification and computer assisted language learning (CALL) with the motive of understanding the data obtained from the three games based on the criteria of learning theory, level of contextualization, level of customization, type of interaction, content addressed, and interface. A qualitative approach was used, covering aspects of both verbal and graphic language as well as interactive interface elements. The conclusions of

the study stated, although the games present the predominance of behavioristic structure, they aid in expanding the teaching of foreign languages.

Rasman explored the possible uses of overseas teaching programs in creating motivational currents among Indonesian pre-service teachers thereby helping them to build a vivid vision of being an ideal language teacher, in a research article titled *Overseas Teaching Experience and Motivational Currents: The Case of Pre-Service EFL Teachers in Indonesia* in 2018. With the use of Retrodictive Qualitative Modeling under a complex dynamic system approach, the researcher traces the factors that make possible the motivational currents in teaching. Semi-structured interviews were conducted to collect data, and six EFL teachers were monitored each day during the course of the research. The findings showed that the overseas programs had a noticeable effect of motivation only on three teachers and there is a close dynamic relation between self-system and motivation currents system. The study showed that the impact of motivation current differed between each participant and thus is a matter of personal preference.

In 2020, Gusti Nur Hafifah and Gunadi Harry Sulisty examined the teachers' knowledge, experience, ICT literacy level, and to what level they integrated ICTs into ELT in their research paper titled, *Teachers' ICT Literacy and ICT Integration in ELT in the Indonesian Higher Education Setting*. The researchers made use of emails and various social media platform messengers to distribute questionnaires and collect responses from around 280 English lecturers from various universities across the country. A quantitative study was conducted and the findings revealed that the majority of the respondents, around 60%, had a basic level of ICT knowledge and made frequent use of it in classes despite facing some difficulties on the internet and inadequate training. Most of the learners and language trainers in Indonesia are ICT literate and are ready to integrate ICT into the teaching and learning of English if they were provided with sufficient resources.

In 2020, a study was conducted and an article was published with the title *Practical Application of Computer Assisted Cooperative Learning Mode in College English* by Shanshan Wu. The research was intended to make a case study on how computers and technological gadgets play a significant part in aiding English language teachers to enhance language teaching. The researchers conducted a qualitative study exploring various new technological innovations that can be used to teach English with the use of computers. The research found out that the use of computer assisted cooperative learning methods significantly improves student's learning capability and allows teachers to use a more vivid approach in making language classes more interesting.

Ali Sorayyaei Azar and Nur Hasinda Iskandar Tan in their article, *The Application of ICT Techs (Mobile Assisted Language Learning, Gamification, and Virtual Reality) in Teaching English for Secondary School Students in Malaysia During COVID- 19 Pandemic, 2020*, studied the perceptions of university interns on integrating ICT in teaching English to secondary school students in Malaysia during COVID- 19 pandemic and which ICT tools like MALL, Gamification and VR will be preferred by them in teaching language. They adopted a quantitative research design by using an online questionnaire for the study. Around 63 university interns were put under study and the results revealed that the majority chose MALL followed in line by gamification and VR as their preferred medium of teaching English to secondary school students. The researchers suggested that virtual learning would be more conducive for language students since they have more control over their learning method and environment compared to classroom learning and this would encourage secondary school students to learn language more effectively.

In 2020, research was done and a paper was published by Zue Yang under the title, *On the Application of Computer Aided Technology in Business English Reading Class*. The researcher explored the various applications of computer-assisted teaching of English, especially in business schools and institutions. A qualitative research

method was adopted to study how computer assisted technology can be utilized to teach essential language skills to enhance business English. From the results of the study, it has been found multimedia technology has considerably increased the information output of teachers and created a more vivid language learning experience resulting in an improved teaching efficiency and quality.

An article published in 2020 on the title, *Reform of College English Teaching Model Under the Background of Artificial Intelligence*, by Hui Gao. This is a qualitative case study analysis of the fundamental implementation of computers and Artificial Intelligence Assisted Language Learning (AIALL) to promote students' interest in acquiring language at the college level. From a variety of samples collected, the researchers examined how artificial intelligence serves as a teaching assistant to language instructors and facilitates the computer learning methodology. Language learning can be made simple, effective and more appealing to students at the college level to improve their quality of teaching. The findings of the research showed that with the use of artificial intelligence based language learning methods can be effectively utilized to enhance the teaching of English at the college level.

Farhana Ahmed, Christina Cole and Kris Pierre Johnston published an article on the title, *Not More Technology but More Effective Technology: Examining the State of Technology Integration in EAP Programmes* in 2020. The researchers conducted a survey on the use of technology by English for Academic Purpose (EAP) programme teachers by taking samples from over 40 universities across North America. A mixed method of qualitative and quantitative approaches were adopted to validate and examine the collected data. In the course of the research, the researchers indulged in classroom observations, interviews with teachers and administrators, student focus groups and student surveys to get a better understanding on how technology is integrated in EAP classes in the post-secondary level. The findings revealed both enthusiastic as well as critical views from the teachers, administrators and students on the integration of modern tech into EAP programmes.

The results of the study call for the need of a sound theoretically informed techno-pedagogy for a better understanding and integration of modern technology into EAP programmes.

In 2021, a research paper was published with the title, *Research on Pre-Service English Teachers' Professional Ability Development Preferences Based on MALL* by Janshui Li, Miaomiao Gao, and Xifang Tu. The study was conducted to study the impact created by the use of mobile phones on the perception of pre-service English language teachers using MALL to develop their professional skills. A questionnaire survey was conducted among 105 students majoring in English at various colleges and universities to collect data for sampling. The researchers made use of SPSS 20.0 to draft descriptive statistics on the collected data and analyze and examine the data to find out the conclusions on the preferences of the teachers. The study revealed that the pre-service teachers preferred to improve their English professional knowledge with the use of mobile devices and their teaching skills, and very little attention was given to improving professional teaching quality. Thus, this research presented a new outlook that there is a considerable lack of interest shown by pre-service English teachers in using MALL to improve their professional ability.

Sulaiman Alnujaidi did a study under the title, *Adoption of Mobile Assisted Language Learning MALL in Saudi Arabia EFL Classrooms* in 2021. This study was primarily intended to examine EFL teachers' concerns about adopting Mobile Assisted Language Learning in Saudi Arabia. The researcher made use of the Concerns-Based Adoption Model (CBAM) to analyze the participants' stages of concern (SoC) about MALL. The study also made note of whether certain demographic and technological factors like gender, age, teaching experience, and professional experience had any impact on teachers' stages of concern on adopting MALL. The variables of the study are 130 EFL teachers from public schools in Saudi. The results revealed that the participants in the research had high concerns at the informational, personal, and management stages and had minimal concerns at the awareness, reforming, collaborating, and

consequence stages. At the same time, the results of the MANOVA analysis revealed that there is no significant impact of demographic and ethnographic factors on EFL teachers' stages of concern about adopting MALL.

An article was published on *Teacher Readiness and Challenges in Creating Learner Autonomy in ICT-Based English Learning Activities* in January 2022, by Syafryadin, Didi Suherdi, et al. The researchers investigated the readiness and the challenges faced by English language teachers in encouraging autonomous learning during online learning sessions. The researchers employed both quantitative and qualitative methods, while the quantitative data were collected from a survey conducted of 38 English teachers from 38 different high schools in Bengkulu. The qualitative data were collected from an interview conducted from selected six teachers. While the obtained quantitative data were analyzed by descriptive statistics analyses by means of percentages and frequency, the qualitative data were analyzed using thematic analysis. The results revealed the readiness of some teachers to allow students to work freely in choosing their favorite resources in learning online. A few teachers were reluctant to conduct online language learning activities. The research also showed that common challenges like poor internet, different students' characteristics, and lack of support from the school management hinder the teachers' readiness to adapt ICT based teaching of English.

In 2022, Mihireteab Abraham, Zeleke Arficho, Tesfaye Habtemariam, and Abate Demissie published an article under the title *Effects of Information and Communication Technology-Assisted Teaching Training on English Language Teachers' Pedagogical Knowledge and English Language Proficiency*. The researchers intended to examine the effects of training in ICT-assisted English language teaching on secondary school English language teachers' pedagogical knowledge and English language proficiency. A one-group within-subject quasi-experimental research design was adopted by the researcher to find out the results. The research sample of 22 English teachers from selected government secondary schools in

Arba Minch and Savlo towns in Ethiopia were put under study using a comprehensive sampling technique. The results of the study revealed that the use of ICT-assisted teaching has a significant effect on the pedagogical knowledge and English language proficiency of the teachers. Based on the findings, in-service teachers' training in ICT-assisted teaching is recommended to harness the potential of modern technology for the professional development of English language teachers.

Daniel Eden Adzovie and Abdul Bashiru Jibril conducted a study and published an article titled, *Assessment of the Effects of COVID- 19 Pandemic on the Prospects of E-Learning in Higher Learning Institutions: The Mediating Role of Academic Innovativeness and Technological Growth* in the Year 2022. This study assessed the factors that accelerated the development of e-learning strategies in Ghana during the outbreak of the COVID- 19 pandemic. The researchers made an attempt to study the enabling factors that enforced the use of digital learning in less developed and less digitized countries like Ghana. A quantitative research paradigm was adopted and Structural Equation Modeling technique was used by the researchers to achieve the goals of the study. The questionnaires were circulated and nearly 563 valid responses were collected. The findings of the study revealed that the outbreak of the pandemic, coupled with academic innovativeness and technological growth and development, has significantly accelerated the adoption of e-learning strategies in higher learning institutions in underdeveloped countries like Ghana.

Conclusion

Based on the findings of all the research under review, it can be understood that technology plays a vital role in aiding and promoting the learning of language worldwide. The researchers adopted the use of technology as the primary method of teaching English, and encouraged the students to make full use of computers, the internet, and AI to enhance the language learning experience. The researchers uncovered new possibilities of using technology for the sake of promoting language and revealed the potential of technology to alter the language

learning experience by increasing the active enrolment of students in language learning activities. In accordance with all the new ways technology has opened to learn language, it has been proved to encourage students' autonomy and efficiency in acquiring language. With the use of Quasi-analysis, Meta-data collection, and qualitative and quantitative data collection through questionnaires, the researchers not only showed all the bright possibilities of using technology to improve the quality of English language teaching and learning, the review also uncovered the possible shortcomings of the reliance on technology to teach and learn language. The findings and recommendations provided in these researches can be effectively used by English language teachers to utilize technology to enhance the language teaching process.

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