

THE ROLE OF TECHNOLOGY AS A FACILITATOR IN LEARNING AND TEACHING ESL AT THE UNIVERSITY LEVEL

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Abstract:

English as a Second Language (ESL) at the university level, emphasizing its impact. This study explores the role of technology as a catalyst in teaching and learning on interactive, tailored education in a globalized environment. Pictured on qualitative methodology, semi-structured interviews were conducted with seven participants—five university students and two ESL instructors from Pakistani public sector universities. Participants aged 20-45 and representing diverse genders and regions were chosen purposively for their habitual use of digital tools in ESL contexts. Thematic analysis exposed key themes: the utilization of AI tools (e.g., ChatGPT, Gemini), multimedia resources (e.g., YouTube, podcasts), and shared platforms (e.g., Zoom, Google Docs) to boost vocabulary, listening, speaking, reading, and writing skills; conversion from traditional to interactive learning post-pandemic; better communication and global collaboration; increased engagement through gamification and immersive content; and technology's facilitation of personalized, flexible ESL objectives. Challenges incorporated technical glitches, convenience disparities, and training gaps, particularly in developing regions. The findings highlight technology's transformative potential in bridging ESL gaps, nurturing cultural awareness, and preparing students for global competence, while advocating for fair access, teacher training, and balanced hybrid models to maximize benefits. This research addresses gaps in ESL-specific studies, offering evidence-based insights for inclusive university programs.

Introduction

With the globalization of the world, acquiring English as Second Language (ESL) is becoming crucial to university learners. It provides them with access to additional educational opportunities, facilitates the establishment of international collaboration and opens new employment opportunities. Colleges and universities are striving to satisfy the requirements of pupils with numerous backgrounds and technology has become an essential element of ESL education. It assists in the transition between the conventional training and the new ones, providing innovative and easy to access methods by which students can enhance their language proficiency. This introduction examines the influence of technology in ESL instruction at university level by examining the research and teaching models to demonstrate how technology can transform the language learning and equip students to understand a globalized world.

English as a Second Language (ESL) is the process of acquiring English by non-native speakers in English-speaking situations, a process that relies on practicality in language use, both academically and socially (Al-Sharqi and Abbasi, 2020). English as a Foreign language (EFL) refers to the acquisition of the English language outside English-speaking contexts, which is mostly in formal tuition without the involvement of immersion (Kirkpatrick, 2010). Even though the differences attract the focus to different contexts of learning, technology bridges these differences because it provides virtual contexts to replicate actual language situations, which is also beneficial to both ESL and EFL learners. Garrison and Vaughan (2008) use the term technology integration to refer to the deliberate use of digital tools to create learner-centered spaces in which learners take part, have freedom, and learn how to think critically. In ESL learning, it is done with the help of Computer-Assisted Language Learning (CALL) that makes use of electronic resources to offer interactive, one-on-one learning and allow the provision of individualized feedback and exposure to natural language settings (Chapelle, 2001). A creation of CALL, Mobile-Assisted Language learning (MALL)

uses mobile devices, for example smartphones and tablets, to provide flexible, ubiquitous learning anytime, anywhere (Kukulska-Hulme and Shield, 2008).

Technology has transformed the manner, in which ESL is taught in universities no longer through memorization but rather a more interactive and collaborative approach. By enabling students to experience life in the real world and build on effective learning, computer-based tools aid in enhancing listening, speaking, reading and writing. As an example, virtual reality and augmented reality allow students to learn in model classrooms or offices, where they can learn to apply English in a real-life context and to learn about other cultures. Online chat rooms and online workspaces motivate students to communicate and exchange ideas, which make them fluent. Automated writing feedback and speech recognition tools are artificial intelligence tools that provide students with immediate feedback to help them improve themselves. Gamification sites include games, rewards, and progress monitoring to ensure students are motivated and make learning fun.

Although it has a potential of being transformative, integration of technology presents challenges that should be considered. Digital disparities like the lack of access to devices or a reliable internet connection can increase inequities, especially in students living in under serve areas (Tafazoli et al., 2018). Furthermore, poor technological training of teachers may inhibit the effective utilization of digital technology, and the overdependence on technology without pedagogical consideration may lead to the reduction of its effectiveness (Hubbard, 2020). In order to fulfill these needs, higher learning institutions must invest in order to have an equitable access, provide professional growth to the members of staff as well as ensuring that technology is connected with evidence-based teaching practices. Hybrid delivery systems, in which digital media blend with face-to-face instruction, have been found to enhance language outcomes to their utmost by harnessing the power of technology with the power of the human interaction (Garrison and Kanuka, 2004).

Other than linguistic competence, technology prepares students to the demands of a globalized labour market. With English knowledge, computer literacy enables the students to gain access to international research, to work internationally, and to compete internationally in the labor market. The familiarity with computer-based communication tools such as email applications and video conferencing software equips students with the knowledge in matters that concern the workplace, where English is the lingua franca (Warschauer, 2000). Considering the attempt of universities to produce globally competent citizens, technology serves as a catalyst to create inclusive, responsive, and visionary ESL programs.

Objectives

1. To investigate the role of technology in teaching the ESL classroom.
2. To investigate the role of technology in learning ESL at the university level.
3. To investigate the role of technology as a facilitator in teaching and learning. ESL

Research questions

1. How does technology play a role in teaching ESL in the classroom?
2. How does the technology influence ESL learning at the university level?
3. How does the technology act as a facilitator in teaching and learning ESL?

Literature review

Technology has become a crucial catalyst in the quickly changing field of higher education, transfigure English as a Second Language (ESL) instruction and allowing for more individualized and interactive university-level learning experiences.

Liang (2021) used Likert-scale questionnaires and thematic analysis to poll 35 EFL teachers and interview nine as part of a mixed-methods case study at a Chinese university. The main conclusions indicate that teachers mostly use WeChat, Moodle, and PowerPoint to share

materials. Although there is limited student interaction, there are favorable opinions (e.g., 88.6% support classroom access). External obstacles such as the Great Firewall and inadequate training were significant. In order to improve engagement and creativity in academic contexts, the discussion suggests pedagogical training for constructivist approaches, while acknowledging that technology supports EFL by offering tools and motivation.

In order to determine frequencies, Başar and Şahin (2022) conducted a descriptive content analysis of 366 studies (2016-2020) from national and international databases. Important conclusions: MALL and flipped learning are prevalent and have a favorable impact on abilities (e.g., speaking, vocabulary) and motivation as well as success. The group that was studied the most was university students. The conversation highlights how technology can support active, self-directed EFL learning at universities, and it makes recommendations for infrastructure and training to improve results.

Hashim & Tamil Maran (2022) This systematic review used theme synthesis to examine 21 studies (2015–2021) from various databases. Results indicate that podcasts, MALL, and AI apps increase confidence and verbal fluency. Elsa Speak and WhatsApp are two examples of applications that improve engagement in university. Seven Indonesian university professors participated in semi-structured interviews as part of Rintaningrum's (2023) qualitative study, which looked at the advantages, disadvantages, and experiences of using technology in EFL. Data were evaluated and coded thematically. Results show that using resources like Duolingo, PowerPoint, and online resources can help with both individual and group learning by improving test scores, quiz practice, and writing, speaking, listening, and reading skills. Rapid technological advancements, class size, expenses, and lecturer workload are among the difficulties. The conversation emphasizes how technology may help with university EFL by providing efficient and authentic materials, particularly for Gen Z students. However, it also emphasizes the importance of training and mentality changes to optimize student-centered results.

13 experimental investigations from 2018–2022 were reviewed by Klimova et al. (2023) using Web of Science and Scopus. Results show how smartphone apps for vocabulary, machine translation for grammar, and virtual reality (VR) for speaking and listening can improve abilities and motivation. The conversation promotes training for real-world application in university EFL to supplement conventional approaches.

Buddha and associates (2024), 27 publications (2012–2022) were reviewed using the Kitchenham standards. Results: MALL and intelligent systems provide teamwork and motivation by concentrating on English vocabulary and grammar. Anxiety is one barrier. The conversation emphasizes how TALL supports individualized university EFL while offering solutions to address its drawbacks.

Sari(2024) conducted a qualitative case study at Universitas Pahlawan Tuanku Tambusai in Indonesia between February and June 2024. The study used questionnaires, classroom observations, and semi-structured interviews with 74 students and 6 lecturers to investigate the use of technology in EFL instruction. Thematic analysis was used to examine the data. Key findings show that resources like internet resources (like YouTube, BBC Learning English, and Duolingo), multimedia presentations, and language learning apps (like Duolingo and Kahoot) promote accessibility, interactivity, and personalization, which in turn improves vocabulary, listening, and engagement. 85% of lecturers reported using these tools, and 87% of participants said they had a favorable effect on their motivation and skill sets. Technical problems, unequal access to devices, and discrepancies in digital literacy are among the difficulties.

Using a mixed-methods methodology, Pérez-Jorge et al. (2025) and Amir et al. (2025) conducted surveys with 200 Indonesian university students and interviews with 10 teachers.

The data were analyzed using statistical and thematic analysis. Results indicate that 7–15% proficiency gains are associated with significant utilization of mobile apps (78%), AI tools (48%), and virtual reality (35%). Interactive, individualized instruction for abilities like pronunciation is one advantage. Literacy gaps are a problem. According to the discussion, technology is moving toward learner-centered EFL at universities, and for best integration, teacher preparation is necessary.

Despite the growing array of research on integrating technology into ESL/EFL education at the university level, key gaps remain that require further scrutiny. Much of the existing literature, such as Liang (2021), Rintaningrum (2023), Sari (2024), and Pérez-Jorge et al. (2025), centers on EFL contexts in non-English-dominant countries like China and Indonesia, where technology simulates immersion. In contrast, studies on ESL settings in English-speaking nations—where learners are immersed but face unique hurdles in academic integration, cultural adaptation, and using technology for advanced proficiency over basic acquisition—are scarce. This ESL/EFL distinction, noted in the introduction (Al-Sharqi and Abbasi, [2020](#); Kirkpatrick, 2010), is often overlooked in reviewed works that blend the two without addressing contextual differences.

Additionally, emerging technologies like generative AI (e.g., advanced chatbots beyond basic speech recognition) and their ethical implications for ESL support are underrepresented, as most reviewed studies predate or barely touch post-2023 advances. Regional biases favor Asian university contexts, yielding shortfalls in insights from diverse regions like Europe, North America, or Africa, where socioeconomic and cultural factors may shape technology adoption differently. This research aims to bridge these gaps by examining technology's multifaceted role as a facilitator in university-level ESL teaching and learning, through a focused empirical study using mixed methods to offer actionable, equitable, evidence-based guidance.

Methodology:

This study adopted a **qualitative research** method because it seeks to gain a rich in-depth understanding of how university students and instructors experience and utilize Technology as a facilitator in teaching and learning of English as a second language. Qualitative methodology is particularly suitable for exploring participants' lived experience, attitudes, practices, and challenges in real world educational context, which aligns with the aim of the study to examine the multifaceted role of Technology in enhancing ESL acquisition at the tertiary level. The primary data collection instrument was semi-structured interviews. This approach was chosen because it offers sufficient flexibility to probe emerging ideas while maintaining focus on key areas of interest (specific tool used, impact on 4 language skills, engagement and collaboration, challenges encountered, and overall facilitation of learning objectives.) Semi-structured interviews allowed participants to elaborate on their personal experience, provide concrete examples.

Interviews were conducted in conversational style using open ended questions this created a relaxed atmosphere encouraged participant to speak freely and enable the researcher to pursue unexpected but relevant insights while ensuring the discussion remained aligned with the research objective.⁷ participants were purposively selected to ensure rich and relevant data the sample consisting of: 5 ESL learners(University student currently enrolled in degree programs where English is the medium of instruction) and two experienced ESL instructors teaching at university level in Pakistan. Participants are drawn from the public sector university. All participants were regular users of Technology in their ESL teaching/ learning processes. Recruitment was carried out through the researcher's professional and academic network as well as snowball sampling.

Participants' demographics: Age range 20 - 45 years

Gender: 5 females and 2 males

geographic representation of Punjab, Sindh

All participants were fluent in English and had daily exposure to digital tools and platforms in academic settings. Before each interview, participants were fully informed about the purpose of the study, the voluntary nature of participation, confidentiality measures, and their right to withdraw at anytime. Informed consent was obtained verbally, and interviews were recorded through a mobile recorder. The participant explicitly permitted the interview to be recorded and for anonymous quotations to be used in the research report.

Interview Questions :

1. How do you use technology in your ESL classroom, and what tools do you find most effective?
2. In what ways has technology changed your experience of learning ESL at the university level?
3. How does technology support communication and collaboration between students and teachers in an ESL classroom?
4. In your opinion, how does technology enhance language skills such as listening, speaking, reading, and writing?
5. What challenges do you face while using technology for learning ESL?
6. Can you describe a situation where technology helped make English learning more engaging and interactive?
7. How do you think technology acts as a facilitator in achieving ESL learning objectives at the university level?

Saturation point

Thematic saturation was reached after interview 6, while interviews 1 and 2 established all major themes(tools used, impact on four skills, engagement, collaboration, access to resources, personalized learning, challenges, and facilitation of objectives).Interviews 3 and 4 gave different examples of covered themes, and interviews 5 and 6 added contextual depth (post-COVID shift, infrastructure issues, historical evolution). data situation occurred at interview 6 with a full consolidation including the teachers' viewpoint, then another interview was conducted to have deep insight, and the 7th interview gave minor information on already covered themes.

Findings.

Major themes and Codes:

Themes	Codes	Insight from interviews
Utilization of technology tools in ESL classrooms	1.AI tools(chatgpt, Gemini,Quilbot) 2.multimedia(videos, podcast,YouTube) 3.apps/platforms(Duolingo,Babbel ,Hello talk,quizzes) 4.Devices/software(phones ,Laptops,Powerpoint,Google doc.)	Diverse tools integrate in ESL ,with AI/apps for personalized and multimedia for exposure.Mobile devices enable flexibility ,effective for vocabulary
Transformation of learning/teaching experience	1.Traditional to digital shift 2.post-pandemic changes 3.interactivity boost	Participants say that tech makes ESL interactive and efficient ,reducing prep

	4.personalized access 5.Evolution	time and enhancing engagement .Builds confidence and cultural exposure,contrast with pre-university limits in places like Pakistan
Support communication and collaboration	1.connectivity>Email, whatsapp,zoom) 2.Group tools(forums,Google doc) 3.Bonding(flipped classrooms) 4.Global exchange(diverse peers) 5.large class engagement	Tech bridges gap for real-time interaction and teamwork ,fostering cultural awareness. Extends contact beyond class but in balanced hybrid models
Enhancement of core language skills	1.Listening 2.Speaking 3.Reading 4.Writing	Boosts all skills via authentic,self-paced resources.Enables vocabulary growth and accent adaptation,more effective than textbooks.
Challenges in technology integration	1.technical glitches 2.training gaps 3.Distractions 4.Accessibility 5.Adaptation	Infrastructure and skills barriers frustrate use,especially in developing contexts.Initial curves and distractions common,surmountable with training ,but need equitable access
Increased engagement and interactivity	1.Gamification 2.Immersive visuals 3.Feedback 4.Motivation 5.Scenarios(COVID classes, Phonetic self-learning)	Transforms dry content into fun memorable sessions via visuals and competition.Boosts morale and confidence ,effective in blended setups with authentic assessments
Technology as a facilitator for ESL objectives	1.Resources access 2.Management 3.personalized paths 4.Global competence 5.Flexibility	Scales resources for individuals/group needs,aiding skill mastery and exchanges.Complements traditional method ,essential for efficiency but avoid over-dependency

Conclusion:

This study investigates the role of technology as a facilitator in teaching and learning ESL at university level, drawing on qualitative realizations from both students and teachers of Pakistani higher-education institutions. The findings suggest that technology has become an important and transformative ESL pedagogy, transforms classroom practices, learning behavior and educational experiences. Results of semi-structured interviews show that

technological tools including AI- powered application, multimedia resources, mobile apps and collaborative platforms significantly enhance learner's engagement. Students state noticeable improvement in all four language skills listening, reading, speaking and writing through interactive pronunciation tools, machine-assisted feedback and global resources. Technology also support communication and collaboration by increasing interaction beyond physical classes, encourage group work, feedback and culturally distinct discussions. At the same time study highlights challenges that effect technology integration. Participants identified issues like unsupported Internet access, limited digital literacy, distractions and inadequate teacher's training-barriers that are particularly relevant in developing contexts. Despite these limitations both learners and teachers communicate strong agreement that technology significantly facilitates ESL learning when used purposefully with sound pedagogical practices. Overall the study concludes that technology function not only as a supplementary tool but as a critical facilitator in achieving ESL learning objectives at university level. To maximize the effectiveness of technology universities must invest in infrastructure, digital literacy training and pedagogical support to ensure equitable and effective implications. In future research should go beyond the EFL dominant context of prior studies and continue examining how emerging in innovations especially AI can be integrated ethically and feasibly in ESL instruction.

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