Role of Technology in Learning English as A Second Language at Undergraduate Level

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Abstract: This paper aims to highlight the academic role of technology that promotes learning in ESL classrooms for undergraduates. It also signifies that there is an excessive use of technology within the academic field that every undergraduate student must require access to technology for academia. This paper takes into account quantitative method analysis in the SPSS software including responses of 50-50% of each male and female student of the English Department Quaid-e-Awam University of Engineering Science and Technology. There are 14 Questions that we ask from our respondents that articulate the role, value, progress, and diverse use of technology within education. All these are shown in the visual representation (graphs and tables). Many agreed that technology has a huge role in learning English as a second language. However, there are technical flaws that most of the students face while using this Behoof technology that must be ceased in future by technology experts and creators for improvement of this collaborator phenomenon. This research will be helpful for undergraduate students who are facing trouble with technology or do not know which type of technology is effective at the undergraduate level. Especially for those who are taking this subject English as their academic career and future growth, the strategies that we provide in this paper will help not only students and teachers but also give an indicative signal to the technology developers and creators to create more helpful technology that boost the knowledge and confidence of students.

Keywords: role of technology, ESL classroom, undergraduates, academic role.

1. Introduction

In general, the role of technology in learning English as a second language at the undergraduate level is very crucial; in today's fast-paced world, learning English as a second language (ESL) has become an asset for undergraduate students. Technology has always been an important part of teaching and learning environment. It is an essential part of the teachers' profession through which they can use it to facilitate learners' learning [1]. The ability to communicate effectively in English opens doors to diverse opportunities, both academically and professionally. To navigate this linguistic journey, technology has emerged as a trusty companion. This article explores the pivotal role of technology in helping undergraduate students master ESL, as illuminated by several insightful studies. It has become apparent that students in the modern world must attain a certain level of technological skills in order to be able to fully benefit from different learning environments

[2]. Technology integration brings many innovations and changes in social, cultural, economic areas [3]. Lee and Kim (2020) take us into the fascinating world of virtual reality, showcasing how it captivates students and enhances their language learning experiences. It has become apparent that students in the modern world must attain a certain level of technological skills in order to be able to fully benefit from different learning environments [2]. One of the studies indicates that students in technology-intensive language classrooms learned both language skills and valuable information/communication literacies simultaneously [8].

As the researchers embark on this journey through the realm of ESL and technology, they discover how these innovations are not only making language learning more accessible but also turning it into an exciting and dynamic adventure. Through the purposeful use of technology, Students read, listen to, and view authentic, engaging, and timely materials from the target culture. Students practice interpersonal skills as they interact via video, audio, or text in real time with other speakers of the target language [9]. Furthermore, the researchers explore how technology is transforming the landscape of ESL education for undergraduate students, making language proficiency not just attainable but enjoyable.

2.   Literature Review

The dynamic intersection of technology and ESL learning has attracted significant attention within the realm of education and linguistic research. Over the past decade, the adoption of digital tools and platforms in ESL education has proliferated, offering new avenues for both educators and learners. A multitude of studies have explored the integration of technology, ranging from language learning applications and online classrooms to the utilization of artificial intelligence in language instruction. These investigations have sought to elucidate the multifaceted impacts of technology on ESL learning at the undergraduate level, examining aspects such as language acquisition, motivation, engagement, and the development of essential communication skills. One of the pioneering works in this domain is Johnson and Smith's [5] study on the effectiveness of mobile language learning apps in improving ESL proficiency. They found that the use of such apps significantly enhanced vocabulary acquisition and self-directed learning among undergraduate ESL students. Similarly, Smith et al [7] conducted a longitudinal study on the role of virtual classrooms in promoting interactive ESL learning. Their findings indicated a positive correlation between virtual classroom participation and improved oral communication skills. In addition to these technological interventions, the impact of AI-driven language assistants has garnered substantial attention. Chen and Lee [4] explored the use of AI chat bots for ESL practice and found that learners reported increased confidence in their speaking abilities after regular interactions with these AI language partners. On the other hand, Rodriguez et al. (2018) examined potential challenges, such as privacy concerns and overreliance on technology, which emerged when integrating AI into ESL classrooms.

2.1. Research Gap

While these studies illustrate the promising potential of technology in ESL learning, it is essential to acknowledge potential limitations and gaps in the existing literature. Therefore, this literature review seeks to provide a comprehensive foundation for understanding the intricate relationship between technology and ESL learning in the academic sphere, guiding our exploration of this dynamic landscape.

2.2. Significance of the Study

This study will help undergraduate students who are facing challenges in their academic fields. This study will enable them to learn the proper usage of technology and which type of technology and applications are more significant in learning English. This paper provides a complete framework for undergraduate students to analyze their needs in their academic growth to become more proficient in their language. Additionally, this paper alights the adversities in operating technology due to the technical and proficiency faults that must be removed in future by technological experts to make this phenomenon more helpful and resourceful. Technology allows students to break away from textbooks and discover real-life English materials that spark their interest and boost their language learning [10]. Even using technology, teachers can better motivate students through interactive and engaging activities, which complement traditional teaching methods and enhance the learning experience [11].

3.   Methodology

This research was conducted by the Quantitative method in which we provided a Questionnaire to the undergraduate students of Quest Nawabshah and asked their regards while making our presence physically there. We asked twelve questions to each of our respondents, and they selected options to give the answers as we put a close-ended questionnaire. The research tool to generate this Questionnaire was Google form but we make it truly clear that only the university undergraduate student answers it. Quaid-e-Awam University of engineering science and Technology was our research site and, English department students were our population. We get 100+ responses from our respondents in which we select 100 students, consisting of 50 male and 50 female students to maintain gender equality and their educational and social awareness in technological usage.

3.1. Questions:

1. To what extent is technology currently utilized in undergraduate English language learning programs?
2. How do undergraduate English language learners perceive the impact of technology and what technological tools or methods do students prefer as ESL learners?
3. What challenges does a learner face in ESL learning and investigate what impact technology has on language learning outcomes?

3.2 Objectives:

1. To determine the extent of integrating English language learning at the undergraduate level.
2. To develop students' perception regarding the effectiveness of technology in aiding their English language learning journey and to identify their preferences for specific technological tools or methods.
3. To explore the challenges learners face in ESL learning and the impact of technology on language learning outcomes.

4.   Findings

The paper's findings based on the three main objectives of the research are given below in the form of graphs, charts, and tables which give readers a visual representation of the paper's findings or results.
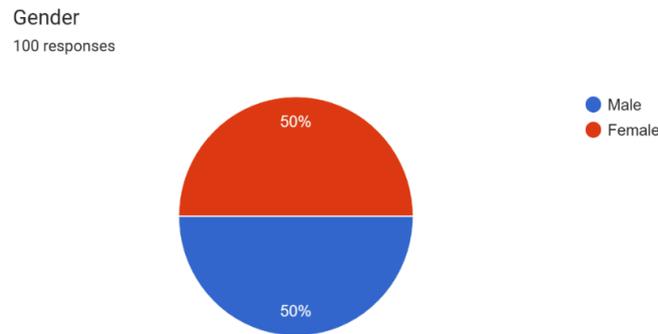
Gender
100 responses

50%

50%

● Male
● Female

Figure 1: Visual Illustration of gender in terms of percentage.

In figure 1 visual representation take one hundred responses the table shows an equal representation of both male and female, with each group making up half of the total.

Year of study?
100 responses

34%

12%

14%

40%

● 1st year
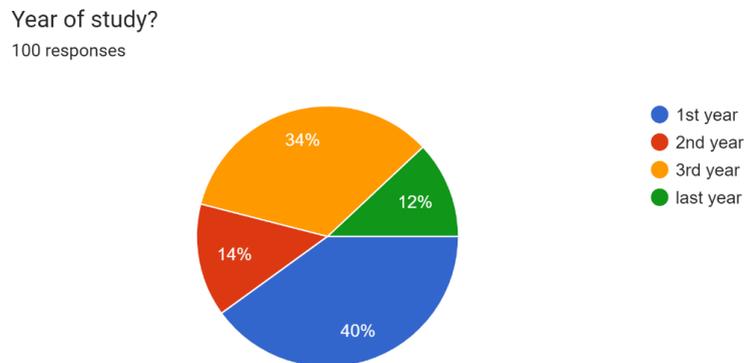● 2nd year
● 3rd year
● last year

Figure 2: Visual Illustration of academic background in terms of percentage.

In Figure 2 visual representation takes one hundred responses the table shows the distribution of students across different years of study. 40% first-year students, 14% second-year students, 34% third-year students, and 12% final-year students.

4.1. Assessing Technology Integration

Determine the extent to which technology is currently integrated into English language learning at the undergraduate level. This objective aims to understand the existing usage of technology in language education. This paper asks five questions from the respondents about this objective and their responses and is given below.

Table 1: Are you currently using technology to learn English as a second language?

	Frequency	Percent	Valid Percent	Cumulative Percent
A: Strongly Agree	42	42.0	42.0	42.0
B: Agree	46	46.0	46.0	88.0
C: Neutral	8	8.0	8.0	96.0
D: Disagree	3	3.0	3.0	99.0
E: Strongly Disagree	1	1.0	1.0	100.0
Total	100	100.0	100.0	

It seems that 42% of respondents strongly agree that technology is beneficial for learning English, while 46% agree with this statement. Additionally, 8% of respondents remain neutral, while the remaining respondents disagree with the idea.

Table 2: Which apps or learning platforms do you use for studying English?

	Frequency	Percent	Valid Percent	Cumulative Percent
Dualingo	1	1.0	1.0	1.0
Facebook	1	1.0	1.0	2.0
Google Translator	14	14.0	14.0	16.0
Google Translator;	1	1.0	1.0	17.0
Netflix	1	1.0	1.0	18.0
Short courses	1	1.0	1.0	19.0
Ted	1	1.0	1.0	20.0
YouTube	56	56.0	56.0	76.0
YouTube;	1	1.0	1.0	77.0
YouTube;Chatgpt	1	1.0	1.0	78.0
YouTube;chatgpt and others	1	1.0	1.0	79.0
YouTube;Dualingo	3	3.0	3.0	82.0
YouTube;Google Translator	15	15.0	15.0	97.0
YouTube;Google Translator;	1	1.0	1.0	98.0
YouTube;Google Translator;Chat GPT	1	1.0	1.0	99.0
YouTube;Google Translator;Dualingo;Twitter	1	1.0	1.0	100.0
Total	100	100.0	100.0	

According to the responses, it seems that 80% of the respondents are using YouTube for language learning. Additionally, 33% are utilizing Google Translation, while a smaller percentage of 5% are using Duolingo. It's interesting to see the variety of platforms being used, such as ChatGpt, Twitter, Netflix, short courses, and Facebook.

Table 3: How frequently do you use technology for learning English?

	Frequency	Percent	Valid Percent	Cumulative Percent
A: Daily	54	54.0	54.0	54.0
B: Weekly	29	29.0	29.0	83.0
C: Monthly	2	2.0	2.0	85.0
D: Rarely	13	13.0	13.0	98.0
E: Never	2	2.0	2.0	100.0
Total	100	100.0	100.0	

According to the respondents, 54% use technology daily, while 29% use it every week. There is a smaller percentage of 13% who use it rarely and a small amount of people who use it monthly.

Table 4: Do you use language exchange or conversation partner apps to practice speaking English with native speakers or other learners?

	Frequency	Percent	Valid Percent	Cumulative Percent
No	41	41.0	41.0	41.0
Yes	59	59.0	59.0	100.0
Total	100	100.0	100.0	

This visual representation shows that 59% of respondents believe that they use conversational partner apps to practice speaking English with natives and 41% of respondents do not use any language exchange application.

Table 5: If yes, which tools or platforms did you use for online group collaboration?

	Frequency	Percent	Valid Percent	Cumulative Percent
Google classroom	11	11.0	11.0	11.0
Google classroom;WhatsApp groups	2	2.0	2.0	13.0
Google classroom;Zoom	2	2.0	2.0	15.0
Google classroom;Zoom;WhatsApp groups	1	1.0	1.0	16.0
MS Teams	21	21.0	21.0	37.0
MS Teams;	1	1.0	1.0	38.0
MS Teams;Google classroom;WhatsApp groups	1	1.0	1.0	39.0
MS Teams;Google classroom;Zoom;WhatsApp groups	1	1.0	1.0	40.0
MS Teams;WhatsApp groups	2	2.0	2.0	42.0
MS Teams;Zoom;WhatsApp groups	3	3.0	3.0	45.0
WhatsApp groups	39	39.0	39.0	84.0
WhatsApp groups;	1	1.0	1.0	85.0
Zoom	10	10.0	10.0	95.0
Zoom;WhatsApp groups	5	5.0	5.0	100.0
Total	100	100.0	100.0	

It seems like there are a variety of tools and platforms that people have used for online group collaboration. According to the responses, 29% of people used MS Teams, 18% used Google Classroom, 22% used Zoom, 55% used WhatsApp groups, and 2% used other platforms.

4.2. Identify Perception and Preferences

Gather data on students' perceptions of technology's effectiveness in aiding their English language learning journey and identify their preferences for specific technological tools or methods. This objective helps gauge student attitudes and preferences regarding technology-based language learning. This paper asks four questions from the respondents about this objective and their responses and given below.

Table 6: How has technology helped improve your English language skills?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	A: Increased vocabulary	38	38.0	38.0	38.0
	Above All	1	1.0	1.0	39.0
	all these skills	1	1.0	1.0	40.0
	B: Improved pronunciation	31	31.0	31.0	71.0
	C: Enhanced listening comprehension	22	22.0	22.0	93.0
	D: Better writing skills	7	7.0	7.0	100.0
	Total	100	100.0	100.0	

This visual representation shows that 38% of respondents select increasing vocabulary, 31% go with improved pronunciation, 22% claim it enhanced listening comprehension, 7% believe that it betters writing skills, and only 2% responses come in favor of above all these skills.

Table 7: Do you think technology makes it easier to access authentic English-language content (e.g., movies, news, and podcasts) for language practice?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	A: Strongly Agree	44	44.0	44.0	44.0
	B: Agree	47	47.0	47.0	91.0
	C: Neutral	7	7.0	7.0	98.0
	D: Disagree	2	2.0	2.0	100.0
	Total	100	100.0	100.0	

Most of the responses agree that technology makes it easier to access authentic English resources for language practice. Approximately 44% strongly agree, while 47% agree. Only a small percentage, 2%, disagrees with this statement. The remaining 7% are neutral.

Table 8: Which communication tools do you use most frequently for academic purposes?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	A: Email	11	11.0	11.0	11.0
	A: Email;B: Social media platforms (e.g., YouTube)	2	2.0	2.0	13.0
	A: Email;B: Social media platforms (e.g., YouTube);C: Messaging apps (e.g., WhatsApp)	1	1.0	1.0	14.0
	A: Email;B: Social media platforms (e.g., YouTube);C: Messaging apps (e.g., WhatsApp);E: Searching sites (e.g., Google, Ai)	1	1.0	1.0	15.0
	A: Email;E: Searching sites (e.g., Google, Ai)	1	1.0	1.0	16.0
	B: Social media platforms (e.g., YouTube)	37	37.0	37.0	53.0

B: Social media platforms (e.g., YouTube);C: Messaging apps (e.g., WhatsApp)	2	2.0	2.0	55.0
B: Social media platforms (e.g., YouTube);C: Messaging apps (e.g., WhatsApp);D: Video conferencing (e.g., Zoom, Microsoft Teams);E: Searching sites (e.g., Google, Ai)	1	1.0	1.0	56.0
B: Social media platforms (e.g., YouTube);C: Messaging apps (e.g., WhatsApp);E: Searching sites (e.g., Google, Ai)	2	2.0	2.0	58.0
B: Social media platforms (e.g., YouTube);D: Video conferencing (e.g., Zoom, Microsoft Teams);E: Searching sites (e.g., Google, Ai)	1	1.0	1.0	59.0
B: Social media platforms (e.g., YouTube);E: Searching sites (e.g., Google, Ai)	6	6.0	6.0	65.0
C: Messaging apps (e.g., WhatsApp)	18	18.0	18.0	83.0
D: Video conferencing (e.g., Zoom, Microsoft Teams)	3	3.0	3.0	86.0
E: Searching sites (e.g., Google, Ai)	14	14.0	14.0	100.0
Total	100	100.0	100.0	

Social media platforms are the most frequently used communication tool for academic purposes, with 53% of the respondents choosing this option. Messaging apps also play a significant role, with 25% of the responses indicating their usage. Email is chosen by 16% of the respondents, while video conferencing and searching sites are less commonly used, at 5% and 26% respectively.

Table 9: Do you find that using technology enhances your effectiveness and interest in learning English as a second language?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	A: Strongly Agree	37	37.0	37.0	37.0
	B: Agree	50	50.0	50.0	87.0
	C: Neutral	10	10.0	10.0	97.0
	D: Disagree	2	2.0	2.0	99.0
	E: Strongly Disagree	1	1.0	1.0	100.0
	Total	100	100.0	100.0	

So, a good chunk of people, around 37%, strongly agree that using technology enhances their effectiveness and interest in learning English as a second language. Another 50% agree, which is also a considerable number. About 10% are neutral, meaning they neither agree nor disagree. And the remaining few disagree.

4.3. Exploring Challenges and Evaluation Impact on Learning Outcomes

Exploring the challenges which a learner faces in ESL learning is crucial and investigating the impact of technology on language learning outcomes among undergraduate students is another thing which is centered in this paper. This objective seeks to establish a correlation between the use of technology and improvements in language proficiency, fluency, and overall learning experience. This paper asks five questions from the respondents about this objective and their responses as given below.

Table 10: Do you find technology-based language learning to be more convenient than traditional methods?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	A: Much more convenient	41	41.0	41.0	41.0
	B: Somewhat more convenient	33	33.0	33.0	74.0
	C: About the same	21	21.0	21.0	95.0
	D: Less convenient	3	3.0	3.0	98.0
	E: Much less convenient	2	2.0	2.0	100.0
	Total	100	100.0	100.0	

It's interesting to note that 41% find technology-based learning much more convenient, while 33% find it somewhat more convenient. Additionally, 21% feel that it is about the same level of convenience, while the remaining respondents find it less convenient.

Table 11: Are there any specific challenges you have encountered while learning English through technology?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	A: Lack of face-to-face interaction	31	31.0	31.0	31.0
	B: Technical issues	22	22.0	22.0	53.0
	C: Difficulty staying motivated	19	19.0	19.0	72.0
	D: Limited speaking practice	19	19.0	19.0	91.0
	E: None	9	9.0	9.0	100.0
	Total	100	100.0	100.0	

This table shows that 31% of respondents face a lack of face-to-face interaction, 22% go with technical issues, 19% of respondents believe that difficulty staying motivated, another 19% claim that limited speaking practice, and 9% of respondents said none of any challenges occurs with using technology.

Table 12: Have you encountered any challenges when using technology in your undergraduate studies?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	A: Technical issues	42	42.0	42.0	42.0
	B: Overwhelming notifications	16	16.0	16.0	58.0
	C: Misunderstandings in text-based communication	21	21.0	21.0	79.0
	D: Privacy concerns	6	6.0	6.0	85.0
	E: None	15	15.0	15.0	100.0
	Total	100	100.0	100.0	

Based on the responses gathered, it was found that 42% of the participants encountered technical difficulties, 16% felt overwhelmed by notifications, 21% experienced misunderstandings, 6% had privacy concerns, and 15% reported no challenges. These findings highlight the diverse range of experiences faced by users.

Table 13: How comfortable are you with using technology for academic purposes?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	A: Very comfortable	59	59.0	59.0	59.0
	B: Somewhat comfortable	26	26.0	26.0	85.0
	C: Neutral	11	11.0	11.0	96.0
	D: Somewhat uncomfortable	3	3.0	3.0	99.0
	E: Very uncomfortable	1	1.0	1.0	100.0
	Total	100	100.0	100.0	

According to the survey results, most respondents (59%) expressed an elevated level of comfort when using technology for academic purposes. Another huge portion (26%) reported feeling comfortable, while a smaller percentage (11%) remained neutral, and a small minority (4%) indicated discomfort with using technology in an academic setting.

Table 14: Do you think listening to native speaker through technology help you to improve your English language skill?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	A: Strongly Agree	55	55.0	55.0	55.0
	B: Agree	34	34.0	34.0	89.0
	C: Neutral	10	10.0	10.0	99.0
	E: Strongly Disagree	1	1.0	1.0	100.0
	Total	100	100.0	100.0	

The graph shows that 55% of respondents strongly agree that listening to native speakers through technology helps improve English language skills, while 34% agree and 10% are neutral meaning they neither agree nor disagree.

5. Discussion

5.1. Strategies for ESL Learning

Improving the use of technology in an ESL (English as a Second Language) class for undergraduates can enhance engagement and learning outcomes. Here are some strategies that will help the ESL students to improve their learning through technology:

- Integrate Multimedia: Use multimedia resources such as videos, podcasts, and interactive websites to expose students to authentic English language content.
- Language Learning Apps: Recommend language learning apps like Duolingo, Babbel, or Rosetta stone for additional practice outside of class.
- Online Language Labs: Utilize online language labs with exercises that focus on pronunciation, grammar, and vocabulary.
- Virtual Reality (VR): Explore VR tools and applications that immerse students in English-speaking environments, allowing them to practice real-life situations.
- Language Exchange Platforms: Encourage students to join language exchange platforms or apps to connect with native speakers for conversation practice.
- Digital Flashcards: Suggest digital flashcard apps like Anki or Quizlet to create and share vocabulary flashcards.
- Gamification: Incorporate language learning games and quizzes using platforms like Kahoot! or Quizizz to make learning more fun.
- Online Discussion Forums: Create online discussion forums or social media groups where students can interact in English on topics of interest.
- Online Writing Tools: Use online writing tools like Grammarly to help students improve their writing skills and correct grammar mistakes.
- Digital Assessment Tools: Implement online assessment tools for quizzes, tests, and assignments to provide instant feedback and track progress.
- Video Conferencing: Use platforms like Zoom or Skype for virtual speaking and conversation practice with classmates or native speakers.
- Digital Reading Materials: Share e-books, online articles, and blogs relevant to students' interests and proficiency levels.
- Collaborative Projects: Assign group projects that require students to collaborate using online tools like Google Docs, Slides, or Sheets.
- Adaptive Learning Platforms: Explore adaptive learning platforms that personalize content and exercises based on each student's proficiency level and progress.
- Professional Development: Offer training sessions or workshops for instructors to keep them updated on the latest educational technology and teaching methods.
- Feedback and Assessment: Use online surveys and feedback forms to gather input from students about their experiences with technology in the classroom.
- Accessibility: Ensure that all technology and digital resources used are accessible to students with disabilities.
- Data Analytics: Use data analytics to track student performance and adapt teaching methods based on the insights gained.
- Tech Support: Provide technical support and resources to help students troubleshoot any technology-related issues.
- Feedback Loop: Continuously gather feedback from students about their experiences with technology in the ESL class and adjust accordingly.

Remember that effective integration of technology should support and enhance language learning goals while being mindful of students' varying levels of access to technology and digital literacy.

6. Conclusion

In the fast-evolving landscape of education, technology stands as a transformative force, revolutionizing the way English as a Second Language (ESL) is learned at the undergraduate level. The use of technology at the undergraduate level has transformed the way students learn and teach. It brings more interactivity, flexibility, and personalized experiences to students. With access to online resources and virtual classrooms, learning English as a second language becomes more accessible and engaging. Technology increases vocabulary, improves pronunciation, enhances listening and makes writing better. Through findings, we analyze that using technology ESL students can access the authentic English content that they require to improve their English. Additionally, technology helps us to listen to native English language speakers to improve our overall language. The usage of technology is increasing day by day. With access to online resources and virtual classrooms, learning English as a second language becomes more accessible and engaging. However there are some drawbacks of technology as it has a lack of face-to-face interaction, so students face challenges in technology and there are some technological errors that students often encounter while using technology. These drawbacks must be removed in future by their respective fields' proficiency.

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