Effects of Technology-Assisted English Language Learning on Students at the Tertiary Level

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Abstract

Our world is constantly evolving and technology has become an essential component. Technology is used in schools and colleges to help students better understand curriculum standards. The use of computers, tablets, and software associated with these devices has become a tool for both teachers and students to increase their mastery of the standards exclusively through one umbrella term technology. Language learning has been well-developed using this methodology. The increase in the availability of technology also demands its use in the classroom. With the significant importance of technology in schools since the early 21st century, it could very well be time to start using technological wavier in education, paving a great way for students to learn new content. Educators are beginning to integrate technology into their lessons to improve students' comprehension of numerous subject areas. The influence, effectiveness, and cognitive growth of technology-based English language learning are the main topics of this study.

Keywords: technological impact, language learning, tertiary level learners, online learning, global citizens

1. Introduction

Students are greatly impacted by technology use as they develop into global citizens. Technology integration and instruction in schools have become increasingly important. Many reviews have demonstrated the significant areas of technology that bring about considerable changes in students' achievements and cognitive development. Students who also had access to computers and technology in their learning possessed higher achievement rates and grade point averages than those with limited or no access to technological learning. Instructors must also have a strong understanding of technology to effectively guide their students.

2. Literature Review

The integration of technology into English language learning has revolutionised the way students acquire language skills. With the advent of Artificial Intelligence (AI) tools, language learning has become more personalised, interactive, and effective. This literature review aims to explore the use of technology and AI tools in English language learning. Technology has been widely used in English language learning to enhance students' engagement, motivation, and autonomy. Studies have shown that technology-based language learning can improve language proficiency, particularly reading, writing, and listening skills (Chapelle, 2003; Warschauer, 2004). AI tools have been increasingly used in English language learning to provide personalised feedback, correct pronunciation, and offer real-time assessment. Some popular AI tools used in language learning include language learning apps such as *Duolingo*, *Babbel*, and *Rosetta Stone*, which use AI-powered chatbots to provide interactive lessons and feedback. Some of them like

Speechling and *Forvo* use AI-powered speech recognition to correct pronunciation and provide feedback, Chapelle, C. A.(2003).

According to recent studies, MALL appears to be important in multiple stages of language instruction. Mobile technologies include a wide range of "handheld technologies, such as smartphones, tablets, or gaming devices in a language learning context" and are not restricted to smartphones (Hsu, 2016). In this context, Nazari and Xodabande (2020) affirm that mobile technologies' personalised,

portable, and dynamic qualities have opened up new avenues for theory and research development. They also infer that if teachers opt to use mobile phones, both they and their students would profit. Similarly, movements like "Bring Your Own Device" emphasise interacting with and utilising the capabilities of mobile technology in order to raise educational standards (O'Bannon & Thomas, 2014).

3. Statement of the Problem

The key question is whether necessary gadgets and internet access are available. The primary problems that users encounter are related to Internet access, device availability, administrative concerns, and the difficulties that teachers and students encounter with these online tools. These problems fall into three categories: pedagogical, managerial, and technological.

3.1 Relational Study Reviews

1. Technological Problems: Internet connectivity encounters many impediments in reaching users. In the event of natural calamities, even students living within a city face challenges in receiving uninterrupted connectivity. Interruptions in connectivity play a spoil sports game, especially during online exams. Such unforeseen glitches lead to students' and teachers' loss of time in the re-conduct of tests/examinations, and thus to frustration later. Muthuprasada's survey research in 2021 on agricultural university graduates with structured and unstructured questionnaires shows students' ratings on a 5 point scale after calculating the percentage and being tried with "a measure of consensus for each statement" ensuring the constraints due to data limit, data speed rated as the major hindrance to online learning.

2. Gadgets are expensive, and the affordability of devices demands attention on the part of administrators. Not only the lack of stock or/and malfunctioning gadgets, but also the lack of technical knowledge on how to operate those gadgets either by the teacher or/and the student checks them from using for online teaching.

3. Platforms for streaming are uncertain, but there is a need to confirm whether it caters to the needs of students from different areas of the world and is suitable for teachers to handle classes without any intrusion of outsiders. Each has its own advantages and disadvantages, but careful attention to ensure that it allows others to peep in will help teachers be aware of the presence of strangers on the platform of their choice. At least a few teachers' limited expertise in handling such platforms also poses a problem for online teaching (Noor, 2020).

4. Managerial Problems: The concerns of administrators on teaching online must receive much attention before simply forcing others to adopt online teaching. The decision to adopt online teaching will perhaps be ineffective, and yet no preparedness or proper understanding of its implications deters the successful implementation and realisation of its worth. Essuman (2015) reveals the lack of proper technical support, motivation, and understanding of the over workload involved in the process. Hodges (2020) confirms the need to consider all possibilities for effective online teaching before the transition.   Instructional design and planning carry much weight, as learning is both cognitive and social. Since temporary shift compromises quality, the institution should consider skill training and accessibility, needs, and attributes of all registered students to ensure quality teaching and learning. He highlights the futility of media comparison studies because they fail to emphasise quality improvement in comparison. The lack of technology management and support systems can be a cause of concern in this rapid transition in a few institutions (Noor, 2020). The ill-timing of instructional time and space occurs as a result of adopting a blending method of teaching to suit the needs of students and the course content.   The real challenge will be to "develop fluency with teaching and learning with technology, not just with technology   itself" (Bair, 2011, p. 44).   Setting the parameters clearly should be the main concern for institutional management.

5. Above all, the conduct of exams as well as offline evaluation is relatively convenient for institutions to follow. Online teaching questions the reliability of online assessments and evaluations. Reliability carries a lot of weight in conducting online tests/exams. Milone (2017) drives home the point that the online proctoring service ProctorU's high technological and additional monetary demand on students is more than the benefits from its assurance of integrity. Therefore, the difficulty in preventing students from cheating on exams is inevitable (Kumar 2021) because of the prohibitive cost of proctoring services.

6. Pedagogical Problems: Online teaching has both merits and demerits such as face-to-face teaching.   Even though no mode of teaching is perfect, assurance of the presence of students at the other end creates many issues, and even if their presence is for attendance, their attentiveness is poor in some cases. Real-time teaching is possible; however, sincere learning is a question. The assuaging of students for their cerebral needs is beyond our reach because their expectations are greater and their access to information has immediacy; thus, this becomes, sometimes, intimidating to teachers.

4. Research Methodology

To obtain useful data, many quantitative studies have been conducted using pre- and post-tests. They undoubtedly improve perceptions of the teaching and learning processes. Instead of being taught, the English language is a subject that is presented in a variety of ways. Students truly appreciate and comprehend this subject, which receives mixed responses. Therefore, their affective domain levels increase. Much of this can be attributed to the way content is being taught. As technology continues to enter classrooms, teachers can begin using it as another means of instruction, especially in providing training language subjects. Several similar studies have been conducted in this field.

This study explores how computer-based instruction affects student achievement and their attitudes toward instruction. Many questions, such as how does computer-based instruction impact the achievement of students in their cognitive levels? How does computer-based

instruction affect students' attitudes towards technology and pedagogical purposes? Despite these assumptions, many quantitative studies proved positive towards technology-based language learning that enhanced the cognitive and affective domains of students at various levels.

A majority of educational institutions followed the traditional mode of teaching invariably but a majority of professors from reputed private educational institutions of technology from which two authors of this paper hail, opted for online teaching using BigBlueButton,Open Source Web Conferencing for a few courses and Moodle, open-source Learning Platform for every course and the first author of this paper had an experience of teaching employing BigBlueButton a few semesters ago long before the pandemic period. Online teaching was the need of the hour to avert any spread of infection. This drastic change caught teachers and students unaware. How many teachers are geared toward online teaching? Was the stage well-set for online teaching? How many teachers have received adequate training? Are they now well-equipped to handle online classes? Did prior exposure help private institutions make smooth transitions?

5. Methods and Design

Studies using quantitative research methods opine, "Quantitative research generally reduces measurement to numbers. In survey research, for example, attitudes are usually measured by using rating scales." (Johnson & Christensen, 37). By using a quantitative research approach, it provided a dimension that offered to show if there is a correlation between both focus groups, while also understanding what is occurring from the participants' point of view. The quantitative method provides specific data related to student test scores based on pre- and post-assessments. The quantitative method also used surveys provided to all participants to show changes in attitudes towards the use of technology throughout the study.

The goal of the study was to determine whether student achievement and attitudes are impacted when students use only computer-based instruction for language learning and the development of the cognitive part. The participants of such studies are students who will be randomly divided into two groups: the control group and the experimental group. Each group was taught the same content, but through two separate methods of instruction. The data collected from the pre- and post-tests will be used to determine the increase in students' understanding in both instructional groups. Data will be gathered to determine how much growth has occurred for all students as a whole. Then, the data will be analysed to determine which instructional group, teacher-led or computer-based, achieved a greater increase in achievement on the post-test.

Through data collection and analysis, it is clear that students taught through teacher-led instruction had an overall higher average passing score than students who received only computer-based instruction. Student attitudes towards technology will also be an important factor in deciding how impactful technology implementation is on academic achievement. These findings provide educators with sufficient data to determine whether computer-based instruction can be used for academic growth in students; however, it is not as convincing as teacher-led instruction.

Hence, such studies have explored how computer-based instruction affects student achievement and attitudes toward instruction. These studies have provided valuable insights into the importance of technology use in classrooms. As society continues to use technology on a daily basis, students need more opportunities to learn through technology in the classroom. However, this does not mean that students should use computers as their only means of instruction in the classroom.

The use of computers and technology for primary instruction did improve student attitudes towards learning, and many students felt that learning was much more enjoyable when using computers than when learning from the teacher. Hence, it is worthwhile to believe that all computer-based instruction programs are beneficial, but that using technology and computer-based instruction as a secondary source of instruction can be beneficial for students' overall academic achievement, improve the level of the cognitive domain, and improve student attitudes towards technology and learning as well.

6. Results and Discussion

6.1 Impact on Technology and Globalization

With the advent of technology and globalisation, the 21st century has become an era of bilingualism and multilingualism. A survey suggests that since 2000, English speaking and learning have become a necessity. Since 2000, the number of English speakers and learners has increased. English is spoken as L2 in many countries, but the use of technical aids has made teaching easier, easier, and accessible.

Necessity of ICT in English Teaching • To enhance students' interest in teaching, the use of ICT and multimedia is necessary. There are many apps, devices, and their uses which attract students to learn. • Traditional teaching hampers students from interacting with each other. As a result, they only become passive listeners. They do not understand the structure, meaning, and comprehension of language, so they cannot make sentences or speak. Technological introduction gives them the opportunity to see visual and audio aids and enhance their communication skills. • The Use of ICT and multimedia enhances students' knowledge and provides them with opportunities in classroom studies. • Multimedia enriches teaching content, and many apps offer the teacher to interact with students one-to-one at any time, even when they are not physically present. • Technology always creates liveliness in teaching. The classroom becomes interesting and interactive as ICT offers a fusion of sound and image. Students can use these things in the absence of a teacher and revise the content for better understanding. • Language Teaching is not a one-day process. This is a continuous process that requires special attention and

revisions. Therefore, teachers can give tasks to students and they can see their content with the help of devices according to their needs. Students can use technology, contact their teachers through Net when not in class, and obtain their expert advice as and when required.

7. Development of Technology in a New World

"Education technology improves students' attitudes towards technology and learning, because it can customise the learning experience to the student and it makes learning more enjoyable, and interactive (Valdez and Hutchinson 34). The quantitative method provides data relating to student test scores based on their pre- and post-assessments. This type of study uses a quantitative approach. It provides more concise data that directly show the correlation between student achievements for both focus groups as well as how their attitudes have changed throughout the process.

Many studies have shown that technology has a positive impact on student perception. These studies suggest that many factors play a role in how technology impacts student achievement. For one, technology must be used in a way that assists a teacher with the content already being taught. This means that it is used as a secondary source of instruction as opposed to being the only form of instruction. Second, the technology must be readily available for students to use, and must be used consistently. Lastly, the teacher must have complete knowledge and training using the technology for it to be used successfully. These are all common themes discussed in many studies on computer-based instruction and the impact technology has on student achievement.

Another study found that "students who used technology were (a) spending more time involved in collaborative work, (b) participating in more project-based instruction, (c) producing writing of higher quality and greater length, (d) gaining increased access to information, (e) improving research analysis skills, and (f) spending more time doing digital homework. Studies have also determined that using technology at the beginning of class sessions helped students stay on task and concentrate." (Devlin 2013).

8. Conclusion

Despite many advantages of technology integration and computer-based instruction, there are some disadvantages. However, the cost of using this technology should not be overlooked. With such little funding in education today, the cost of technology can cause many institutions to think about making purchases twice. An article discussing the differences between computers and textbooks in schools stated the additional costs of technology integration that many overlooked. "On top of the initial costs to each school system, the additional costs of servicing the computers, protecting the equipment from theft, and providing staff development for teachers must not be overlooked." (Wishengrad, R). Additionally, technology can cause students to lose important face-to-face interactions that are necessary for human growth. Even though there are disadvantages in technical learning, the current world, based on technology, forwards the student community into the universe of development. Ultimately, this development pitches a higher level of success in the pedagogy of English language learning.

Authors' contributions

Dr. Sujatha Menon was responsible for the working outline, organisation of content, formatting, and the substantial editing of the article. Dr. Sankar..G was responsible for the literature review and in finding relevant sources to strengthen the article. Dr. V.Saravanan and Dr.G.Coumaran worked on the initial round of editing Dr.M.Kannadhasan was responsible for formatting and also modified the content of the first draft.

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The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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References

Arifah, A. (2014). Study on the use of technology in the ELT classroom: Teachers' perspective *(M.A. Thesis)*. Department of English and Humanities, BRAC University, Dhaka, Bangladesh.

Aydin, S. (2013). Teachers' perceptions about the use of computers in EFL teaching and learning: The case of Turkey. *Computer Assisted Language Learning*, *26*(3), 214-233. https://doi.org/10.1080/09588221.2012.654495

Baytak, A., Tarman, B., & Ayas, C. (2011). Experiencing technology integration in education: Children's perceptions. *International Electronic Journal of Elementary Education, 3*(2)*, 139-151. Retrieved from https://www.iejee.com/index.php/IEJEE/article/view/233

Beatty, K. (2003). Teaching and researching computer-assisted language learning. New York: Longman.

Becker, H. J. (2000). Findings from the teaching, learning, and computing survey: Is Larry Cuban right? *Education Policy Analysis Archives 8*(51). https://doi.org/10.14507/epaa.v8n51.2000

Beijing foreign Language Teaching and Research Press. (n.d.). Retrieved from http:// www.onestopenglish.cIl

Brown, H. D. (2001). Teaching by principles: An interactive approach to language pedagogy. *Beijing Foreign Language Teaching and Research Press*. Retrieved from www.onestopenglish.com

Chapelle, C. A. (2003). *English language learning and technology*. John Benjamins Publishing. https://doi.org/10.1075/lllt.7

Devlin, T. J., Feldhaus, C. R., & Bentrem, K. M. (2013). The evolving classroom: A study of traditional and technology-based instruction in a STEM classroom", *Journal of Technology Education. 25*(1). https://doi.org/10.21061/jte.v25i1.a.3

Harbon, L., & Fielding, R. (2022). Continuity of language learning from primary to secondary: Secondary school language learners' investment and identity development in language learning, *Journal of Language, Identity & Education*. https://doi.org/10.1080/15348458.2022.2092739

Johnson & Christensen. (2008). *Educational research: Quantitative, qualitative, and mixed approaches*. Thousand Oaks, CA: SAGE Publications, Inc.

Lee, J. (2017). The effects of AI-powered language learning on English language learners' motivation and anxiety. *Journal of Language and Linguistics*, *16*(3), 531-544.

Li, Z., & Hegelheimer, V. (2013). Mobile-assisted language learning: A review of the current state of the field. *CALICO Journal*, *30*(2), 165-183. https://doi.org/10.1558/cj.21021

Reena, M. (2015). Use of technology in English language teaching: Is it helping students and teachers? *The International Academic Forum.*

Valdez & Hutchinson. (2006). "Tracking Long-Term Effects of Technology-Based Education on Former at Risk-Continuation High School Students". Retrieved from http://hdl.handle.net/10211.3/122035

Warschauer, M. (2004). Technology and social inclusion: Rethinking the digital divide. MIT Press. https://doi.org/10.7551/mitpress/6699.001.0001

Wishengrad, R. (1999). Are paper textbooks ready to fold? *Education Digest*, *64*(6), 57. Retrieved from https://search.ebscohost.com/