



## ICT integration in language classroom for sustainable education

Herawati<sup>1</sup>, Dwi Riyanti<sup>2</sup>, Dewi Novita<sup>3</sup>

<sup>1,2,3</sup>Faculty of Teacher Training and Education, Universitas Tanjungpura, Pontianak, Indonesia

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### ABSTRACT

This study explores the integration of technology in English as a Foreign Language (EFL) classroom, focusing on its application, benefits, and challenges in the context of sustainable education. In the era of Industry 4.0, technology plays a crucial role in enhancing teaching strategies and language learning outcomes. Using a scoping review methodology, this research analyses recent literature to identify trends and theoretical perspectives on the use of Information and Communication Technology (ICT) in EFL instruction. The review reveals that technology integration—such as language learning apps, online platforms, and multimedia tools—can significantly enhance student engagement, motivation, and language proficiency. However, it also identifies key challenges, including limited teacher training, unequal access to digital resources, and resistance to pedagogical change. The study concludes that while technology offers substantial benefits for EFL learning, its effective implementation requires institutional support, teacher readiness, and equitable access to digital tools to ensure sustainable educational outcomes.

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### Corresponding Author:

Herawati,  
English Education,  
Universitas Tanjungpura,  
Jalan Tebu, Pontianak, 78115, Indonesia  
Email: herawatirosyra@gmail.com

## INTRODUCTION

In an increasingly digital world, technology is widely recognized as a powerful tool for improving the quality of education and enhancing teaching and learning experiences. Its integration into classrooms has become essential in modern pedagogy, particularly in language education. Researchers have shown that digital tools can support students in developing their language proficiency. Technological advances have reshaped the daily lives of all age groups, with children and adolescents being especially affected due to their constant exposure to digital media and communication platforms.

The traditional model of mass media has shifted toward a more decentralized, participatory communication ecosystem. In this new paradigm, users actively choose, create, and share content, contributing to a more personalized and interactive flow of information. This shift has also influenced education, particularly in the development of digital and media competencies, which are now seen as vital skills for navigating modern life. Education must now go beyond basic

environmental awareness, promoting skills, values, and attitudes for the ethical and transformative use of technology.

Furthermore, digital technologies are considered key enablers for achieving the United Nations' Sustainable Development Goals (SDGs). They have the potential to foster innovation, promote inclusive and equitable education, and reduce the cost of implementation in resource-constrained environments. When it comes to English as a Foreign Language (EFL) education, researchers such as Gong and Lai (2018) stress that effective integration of technology requires appropriate teaching strategies and content. Farooq and Soormro (2018) add that teachers need to be well-prepared and trained to incorporate digital tools meaningfully into their practice. ICT-integrated pedagogy, as defined by Davies and West (2014), involves interactive, collaborative, and often online-supported instruction. With the widespread use of smart devices and educational apps, technology-enhanced language learning is increasingly seen as engaging and effective (Mai, 2020).

However, despite the growing use of technology in EFL instruction, several challenges and gaps remain. These include inadequate teacher training, unequal access to digital resources, and the lack of standardized pedagogical models for technology integration. Moreover, while many studies report improved engagement, there is insufficient empirical evidence linking specific technologies to measurable gains in language proficiency. Cultural and contextual differences, especially in underrepresented regions, are also often overlooked in current research.

This study seeks to address these gaps by conducting a scoping review of existing literature on technology integration in EFL classrooms. It aims to identify the key benefits and challenges associated with digital tools in language education and to explore how technology can support sustainable and equitable teaching practices.

## RESEARCH METHODOLOGY

This study employed a scoping review methodology to explore the integration of technology in English as a Foreign Language (EFL) instruction. A scoping review was chosen over a systematic review or meta-analysis due to the broad and exploratory nature of the research topic, which spans diverse tools, teaching strategies, and educational contexts. Relevant literature was identified through database searches in ERIC, Google Scholar, Scopus, and ResearchGate using keywords such as "technology integration in EFL," "ICT in language learning," and "digital tools in English instruction." The selection process followed clear inclusion and exclusion criteria, focusing on peer-reviewed studies published between 2015 and 2024 that addressed the benefits, challenges, and pedagogical implications of technology use in EFL classrooms. To minimize selection bias, multiple databases were used, and only credible, relevant sources were included. The collected studies were analysed using a thematic synthesis approach, categorizing findings into key themes such as instructional benefits, barriers to implementation, teacher readiness, and student engagement. This method enabled a comprehensive understanding of current trends and gaps in the literature, guiding recommendations for future practice and research.

## RESULTS AND DISCUSSIONS

### **Definition of Technology Integration in the Classroom for Sustainable Education**

Even if technology integration has gained popularity among academics and educators, there is hardly a shared understanding of the topic. In other words, technological integration can happen if the teacher selects learning activities that go well with the technology being used and has received training or is accustomed to using a range of technologies (Solano et al., 2017). To maximize practice opportunities and profit from technology use both within and outside of the classroom, teachers and students must be able to use it regularly. Integrating Education for

Sustainable Development themes into school curricula could offer a helpful pedagogical foundation for ICTs.

Technological research and development will enable language instructors to create more effective lesson plans (Summak et al., 2010). Furthermore, research shows that students benefit from using technology in the classroom since it improves the learning experience and encourages relaxation (Parvin & Salam, 2018). More research on these topics is required to fully understand the possibilities of wireless technology and devices such as tablets and smartphones in language acquisition.

Meeting students' needs and language proficiency, encouraging teachers' creativity, facilitating faster access to instructional materials, encouraging interactive work between teachers and students, encouraging students to approach learning with positivity, and assisting teachers in the teaching-learning process are just a few of the many benefits of ICT integration in language classrooms. Previous research has shown that teachers' strategies and tactics have been altered and modified by technology (Dr. S Rehan Ahmad & Mohammad Un Nisa, 2016). According to (Merzifonluoğlu, A., & Gonulal, T. (2018). *Review of Digital Language Learning and Teaching Research, Theory, and Practice. Language Learning & Technology.Pdf*, n.d.), using technology to teach English to non-native speakers has enhanced the long-term learning outcomes for both teachers and students.

#### **Benefits of ICT in Language Classroom**

ICT integration in language classrooms provides a number of benefits, including meeting students' needs and language proficiency, increasing teachers' creativity, allowing for faster access to instructional materials, encouraging interactive work between teachers and students, encouraging students to have a positive attitude toward learning, and assisting teachers in the teaching-learning process. According to previous research, technology has altered and influenced educators' methods and approaches (Ahmad and Nisa, 2016).

According to several studies, technology-based foreign language instruction offers a variety of efficient learning strategies (García Quijano, 2014). ICT is both a tool and a learning environment, and users are ultimately in charge of judging its efficacy. Accordingly, one of the primary objectives of educational ICT use is to increase learning motivation. They found that using ICT in speaking courses increased students' inventiveness in language classes by 35.71% and motivated 76.19% of students. These findings suggest that ICT enhances EFL instruction. Students can now become more proficient in foreign languages because to the use of technology in the classroom (Mandot, 2023).

#### **Challenges in Integrating ICT in Language Classrooms**

There are several things to consider while integrating ICT in language schools. (Mbodila et al., 2013) divided the challenges of integrating ICT in language education into three groups: (1) environmental challenges, like the variety of ICTs in the educational system and the availability of appropriate spaces or buildings; (2) cultural challenges, like the fact that most online content is in English and can be a major barrier to integrating ICT use; and (3) educational challenges, like the types of methods employed and the lack of interaction between students and teachers.

(Silviyanti & Yusuf, 2015) described three main obstacles that teachers face: (1) a lack of training on ICT, which left them unsure of how to use it; (2) a lack of technical support, such as ICT media or facilities, an internet connection, and frequent blackouts that frequently occurred during class; and (3) a negative attitude among teachers regarding ICT use.

A few of them continued to believe that the process of teaching and learning languages would not be substantially enhanced by the use of ICT. ICT integration may also present certain difficulties when used in the teaching and learning process, as evidenced by the difficulties identified by earlier researchers. Teachers' reluctance to use ICT, their workload, their lack of time, their age, their experiences, and their inability to use ICT are additional obstacles (Raman and Yamat, 2015).

From a more local standpoint, (Munawwarah, 2014) discovered that when incorporating ICT into their lessons, instructors face two obstacles: (1) time management, which requires them to use ICT more to plan a lesson, and (2) a lack of technical support. The instructors were unhappy about the lack of internet connectivity and damaged, unusable facilities. Therefore, teachers need to remember that there are other ways to guarantee good teaching and learning than having access to ICT. This research both confirms and expands upon previous research, while also identifying continuing gaps in implementation, particularly related to teacher support and policy development.

## CONCLUSION

ICT integration in language classrooms has the potential to bring both benefits and challenges for sustainable teaching, according to the current study. One benefit is that modified ICT programs can be used to meet the demands and language proficiency of pupils. Teachers' creativity in teaching English could also be improved by ICT. Additionally, teachers may be able to provide their lesson plans faster thanks to ICT. ICT may also facilitate collaboration between educators and students. ICT-using students may also develop more positive attitudes toward language acquisition. A more sustainable educational system could result from ICT's potential to support educators in the teaching-learning process. The four primary problems were identified as time management, technological support, technical expertise, and instructor self-confidence. Given the challenges, teachers might be interested in receiving their own training to get the technical know-how and boost of confidence required to incorporate ICT into their teaching. Schools, parents, and other stakeholders must also work to support teachers and students in integrating ICT in order to create a more meaningful learning-teaching process.

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