

The Role of Technology in Enhancing Quality English Teachers in 21st Century Classrooms

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Abstrak

Penelitian ini mengkaji integrasi teknologi pendidikan dalam pengajaran Bahasa Inggris di tujuh sekolah menengah di wilayah terpencil Kecamatan Payung, Indonesia. Data dikumpulkan melalui wawancara dengan 14 guru Bahasa Inggris dan dianalisis menggunakan pendekatan tematik. Hasil temuan menunjukkan bahwa para guru secara luas memanfaatkan platform digital seperti Quizziz, Google Classroom, dan YouTube untuk meningkatkan keterlibatan, motivasi, dan hasil belajar siswa. Praktik ini mencerminkan pergeseran menuju pembelajaran campuran (*blended learning*), khususnya pascapandemi. Namun demikian, sejumlah tantangan masih menghambat pemanfaatan teknologi secara efektif, seperti keterbatasan konektivitas internet, akses perangkat siswa yang terbatas, serta tingkat literasi digital yang beragam di kalangan guru dan siswa. Selain itu, kurangnya dukungan kelembagaan dan belum adanya standar implementasi digital yang merata juga menjadi hambatan. Hasil ini sejalan dengan literatur mengenai kesenjangan digital dan kebutuhan akan dukungan sistemik, pedagogis, serta infrastruktur. Penelitian ini menyimpulkan bahwa meskipun teknologi memiliki potensi besar untuk mentransformasi pembelajaran Bahasa Inggris, integrasi yang berhasil memerlukan strategi komprehensif mencakup pelatihan profesional, pengembangan infrastruktur, dan kebijakan yang terarah. Menutup kesenjangan ini penting untuk memastikan pengajaran berbasis teknologi yang merata dan efektif di daerah terpencil.

Kata kunci: Teknologi pendidikan, pengajaran Bahasa Inggris, kesiapan guru, pembelajaran digital.

Abstract

This study explores the integration of educational technology in English language teaching across seven rural secondary schools in Payung District, Indonesia. Data were collected through interviews with 14 English teachers and analyzed using thematic analysis. The findings reveal that teachers widely adopt digital platforms such as Quizziz, Google Classroom, and YouTube to enhance student engagement, motivation, and learning outcomes. These practices reflect a shift toward blended learning, particularly in the post-pandemic era. However, several challenges hinder effective technology use, including poor internet connectivity, limited student access to devices, and varying levels of digital literacy among both teachers and learners. Additionally, the absence of structured institutional support and standardized digital tools impedes consistent implementation. These results align with existing literature on the digital divide and the need for systemic, pedagogical, and infrastructural support. The study concludes that while technology has the potential to transform English language education, its successful integration requires comprehensive strategies encompassing infrastructure development, professional training, and clear policy direction. Addressing these gaps is essential to ensure equitable and effective technology-enhanced instruction in rural educational settings.

Keywords: Educational technology, English teaching, teacher readiness, digital learning

1. INTRODUCTION

The 21st century In the 21st century, the role of teachers has shifted dramatically from being sole providers of information to becoming facilitators of student-centered learning. This paradigm shift is particularly crucial in English language education, where teachers are

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expected not only to possess mastery of the subject matter but also to apply innovative, engaging, and contextually relevant teaching strategies. The incorporation of technology into the classroom has become a key component of these strategies, reflecting the digital realities that today's learners experience in their everyday lives (Ginting & Fithriani, 2021; Thornbury, 2023; Dash, 2022). Teachers must be able to integrate tools such as Learning Management Systems (LMS), video conferencing platforms, interactive media, and other digital resources to meet the demands of modern education (Hadianti & Rohmah, 2021; Indahsari, 2020; Mahesti et al., 2025; Anggriawan, 2019). The effective use of these technologies enhances learning experiences, encourages student autonomy, and facilitates real-time feedback. As such, educators who embrace technology are more likely to foster dynamic and inclusive learning environments that respond to diverse student needs. The 21st-century classroom, therefore, is no longer confined to traditional textbooks and chalkboards it is increasingly shaped by digital tools and practices (Wahyuni et al., 2019; Toheri et al., 2019; Suyitno et al., 2021).

Technology plays a transformative role in language learning by bridging the gap between learners and authentic use of the target language. Digital platforms such as YouTube, Instagram, TikTok, and various mobile applications enable learners to access real-life content and practice English beyond the classroom walls (Wang & Coe, 2021; Jones & Flint, 2022; Merta et al., 2023). Gamified learning platforms like Kahoot and Quizizz promote active engagement and motivation by turning learning into a competitive and enjoyable experience (Shortt et al., 2023; Fathi et al., 2024; Loewen et al., 2019). Additionally, Learning Management Systems allow teachers to organize content, assign tasks, track progress, and personalize learning experiences based on students' needs. These tools foster collaborative learning, improve communication between teachers and students, and create opportunities for formative assessment. When appropriately implemented, educational technologies can support differentiated instruction and promote 21st-century skills such as critical thinking, digital literacy, and communication. As learners increasingly rely on digital media for information and social interaction, integrating these platforms into the English language classroom aligns with their learning preferences and habits (Ntumba et al., 2023; Aleksius et al., 2022; Prayudha, 2023).

Despite the numerous advantages, the successful integration of technology into English teaching remains a significant challenge for many educators. A lack of digital infrastructure, especially in rural or underserved areas, hinders access to reliable internet connections, up-to-date devices, and necessary software. Moreover, many teachers face difficulties due to limited technological literacy and inadequate training in how to use educational tools effectively (Masita et al., 2024; Akram et al., 2022; Nettey et al., 2024). Professional development programs, where they exist, are often short-term and focus on tool usage rather than pedagogical integration. As a result, teachers may feel overwhelmed or resistant to adopting unfamiliar technologies in their teaching practices. The absence of ongoing support and a clear implementation framework further complicate the process. These issues highlight the presence of a digital divide, not only among students but also among educators, which in turn perpetuates educational inequalities and impacts the quality of English language instruction.

Addressing these challenges requires a systemic approach that includes improving infrastructure, providing continuous professional development, and fostering a supportive school culture for digital innovation. Teachers need access to training that emphasizes the pedagogical purposes of technology rather than just technical skills. Such training should focus on how to integrate digital tools meaningfully to achieve specific learning outcomes in the English language classroom (Azamatova et al., 2023; Ajani et al., 2024). Collaboration among stakeholders government, schools, teacher education institutions, and communities is

essential to ensure that teachers are equipped with the skills and confidence to use technology effectively. Furthermore, policies must be designed to reduce the digital gap by allocating resources equitably and encouraging innovation in both urban and rural settings. By empowering teachers with the necessary competencies and support, the transformative potential of technology in English education can be fully realized. This, in turn, will contribute to achieving more inclusive, flexible, and future-ready learning environments.

Given these realities, it becomes crucial to conduct research that explores both the potentials and challenges of technology integration in English language education. This study seeks to examine how technology can enhance teacher quality and improve pedagogical practices in 21st-century classrooms. Additionally, it aims to identify the specific barriers that prevent teachers from fully adopting technological tools in their teaching. Understanding these issues will not only inform the development of more relevant teacher training programs but also support the formulation of effective educational policies. Moreover, the research findings are expected to contribute to the broader discourse on digital transformation in education, particularly within the context of English as a Foreign Language (EFL) instruction. As education systems strive to adapt to the demands of the digital era, empowering teachers through technology becomes a vital strategy for sustainable and equitable educational development.

Research Questions

- 1) How does technology contribute to improving the quality of English teachers in 21st-century classrooms?
- 2) What challenges do English teachers face in integrating technology into their teaching practices?

Research Objectives

- 1) To describe the role of technology in enhancing the quality of English teachers.
- 2) To identify the challenges teachers face in integrating technology into the English teaching and learning process.

2. METHOD

2.1 Type of Research

This study employs a qualitative descriptive approach, as it aims to gain an in-depth understanding of the phenomenon from the perspective of English teachers. A qualitative approach is appropriate for exploring complex educational settings, where researchers seek to interpret the meaning individuals or groups ascribe to a social or human problem (Patton, 2020; Tisdell et al., 2025). Descriptive qualitative research focuses on understanding real-world practices and experiences, making it well-suited for this study, which examines how technology is integrated into English language teaching in the 21st century classroom.

2.2 Population and Sample

The subjects of this study are English teachers who teach in junior high schools (SMP) and senior high schools/vocational schools (SMA/SMK) located in South Bangka Regency (Basel), Bangka Belitung Islands Province, Indonesia. Although South Bangka consists of eight sub-districts, this study specifically focuses on schools in Payung sub-district. The selection of this sub-district was based on considerations of accessibility, the researcher's familiarity with the field, the availability of technology facilities, the problems that occur and logistical efficiency in data collection.

The schools involved in this study are as follows:

Table 1. Research Population and Sample

Level	School
SMP	SMP Negeri 1 Payung
SMP	SMP Negeri 2 Payung
SMP	SMP Negeri 3 Payung
SMP	SMP Negeri 4 Payung
SMP	SMP Negeri 5 Payung
SMA	SMA Negeri 1 Payung
SMK	SMK Negeri 1 Payung

The participants were selected through purposive sampling, a non-probability sampling technique that involves selecting individuals who meet specific, predefined criteria relevant to the research objectives. This method is commonly used in qualitative research to gain in-depth insights from information-rich cases (Patton, 2020). In this study, the main criterion for participant selection was that English teachers must be actively integrating digital technology into their classroom teaching. This includes the use of educational applications, online learning platforms, multimedia resources, or other digital tools as part of their instructional strategies.

2.3 Research Instruments

The instruments used in this study consist of the following:

- 1) Semi-structured interviews: to explore teachers' perceptions, experiences, and strategies in using technology for English language instruction.
- 2) Classroom observations: to directly observe how technology is implemented in real teaching and learning contexts.
- 3) Documentation: including lesson plans (RPP), screenshots of applications or tools used, and digital learning platforms accessed by teachers during their instructional process.

2.4 Data Collection Techniques

The data in this study were collected using three main techniques:

- 1) Interviews: conducted either face-to-face or online (via Zoom, Google Meet, or similar platforms), depending on the availability and convenience of the participants (Gill & Baillie, 2018).
- 2) Observations: carried out during classroom teaching sessions to observe the practical use of technology by teachers, with attention given to instructional delivery, student interaction, and digital tools employed (Van Maanen, 2025).
- 3) Documentation: collected from the teachers and schools, including instructional materials, digital content, and evidence of the use of educational technology.

2.5 Data Analysis Technique

The data were analyzed using thematic analysis, which involves identifying, analyzing, and reporting patterns (themes) within the data (Braun & Clarke, 2022; Braun & Clarke, 2019). The analysis was conducted in three main stages:

- 1) Data reduction: selecting and simplifying relevant data from interviews, observations, and documentation to focus on key findings.
- 2) Data display: organizing the reduced data in narrative form or tables to facilitate interpretation.

- 3) Conclusion drawing: interpreting the patterns and themes to answer the research questions and draw meaningful insights.

Thematic analysis was chosen for its flexibility and suitability in exploring qualitative data in depth and across varied sources.

3. RESULT AND DISCUSSION

3.1 Result of Interview

This section presents the results of interviews conducted with 14 English teachers from seven different secondary schools, with two teachers from each school. The purpose of the interviews was to explore the role of technology in enhancing the quality of English teachers in the 21st-century classroom, as well as to identify the challenges they face in integrating technology into their teaching practices.

The data were collected through semi-structured interviews, focusing on teachers' experiences, perceptions, and reflections regarding the use of technology in English language teaching. The interviews were transcribed and analyzed using a thematic analysis approach to identify recurring patterns and categories related to the research questions.

The analysis revealed several dominant themes, including the benefits of technology in creating interactive and engaging learning environments, the increased motivation of students, and the improvement in learning outcomes. However, it also highlighted significant barriers such as inadequate infrastructure, limited digital literacy among teachers, and unequal access to technology among students. The results of the thematic analysis are summarized in the table below:

Table 2. Thematic Analysis of English Teachers' Interviews on Technology Integration

No.	Main Theme	Interview Quote	Coding (Label)
1	The role of technology in teaching	“With apps like Quizziz and Google Classroom, I can make lessons more interactive, and students become more enthusiastic.”	Interactive learning
2	Increased student motivation	“Students are more interested when I use learning videos from YouTube. They're more engaged than during traditional lectures.”	Improved student motivation
3	Infrastructure limitations	“In our school, the internet connection is often slow or unavailable in some classrooms. That's a major obstacle.”	Lack of facilities
4	Teachers' digital readiness	“I'm still learning how to use digital platforms, so it's sometimes challenging. But I try to join online training from the district.”	Lack of ICT competence
5	Institutional support	“The principal supports the use of technology, but not all teachers are used to it. We're adapting together.”	Institutional support
6	Blended learning implementation	“During the pandemic, I got used to online teaching. Now I combine face-to-face and online sessions it's quite effective.”	Blended learning
7	Student access and	“Some students don't have phones or	Students' limited

	technical barriers	internet data, so I must prepare alternatives for them to keep learning.”	access to technology
8	Impact on learning outcomes	“My students' scores improved after I used game-based learning systems. They learn while having fun.”	Positive impact on learning outcomes

3.2 *The Role of Technology in Enhancing English Teacher Quality*

Based on interviews and observations with English teachers from junior high schools (SMP), senior high schools (SMA), and vocational schools (SMK) in Payung District, it was found that technology plays a significant role in enhancing teaching quality. Teachers reported that using applications such as Quizziz, Google Classroom, and YouTube learning videos makes lessons more interactive and engaging, leading to increased student motivation. The implementation of blended learning combining face-to-face and online sessions has also proven effective, especially in the post-pandemic era. However, the findings also highlight several challenges, including limited infrastructure, students' lack of access to devices and internet data, and uneven levels of digital readiness among teachers. Despite these obstacles, school support and teachers' willingness to participate in online training demonstrate a strong commitment to adapting to technological advancements. Overall, technology not only enriches instructional methods but also encourages teachers to continuously develop their competencies and creativity in teaching English.

3.3 *Challenges in Integrating Technology in Teaching Practice*

Based on the thematic analysis of interviews with English teachers from various secondary schools in Payung District, several key challenges in integrating technology into teaching practice were identified. These challenges are both technical and human in nature, affecting the overall effectiveness of technology use in the classroom.

One of the most prominent issues is infrastructure limitations, as many teachers reported poor internet connectivity and the lack of reliable facilities within school environments. Some classrooms have weak or no internet signal, making it difficult to implement consistent digital learning. In addition, students' limited access to technology poses a significant barrier. Not all students own smartphones or have sufficient internet data, especially those from economically disadvantaged families. As a result, teachers are forced to prepare alternative offline materials, which increases their workload and reduces the uniformity of the learning experience.

Another crucial challenge is the lack of digital competence among teachers. Although some educators have a strong willingness to learn, many are still in the early stages of understanding how to effectively utilize digital platforms. The rapid shift toward online learning during the pandemic has left a gap in digital readiness, particularly for older teachers or those who had limited exposure to technology in their training. Without regular professional development or technical support, their ability to fully embrace tech-based pedagogy remains constrained.

Furthermore, while there is a degree of institutional support, it is not always systematic or evenly distributed. In some schools, principals encourage the use of technology, but without clear policies, standardized tools, or training frameworks, the support remains informal and lacks long-term sustainability. This inconsistency affects teacher motivation and the standardization of digital learning practices across schools.

Overall, while technology holds great potential for enhancing teaching and learning, the integration process is hindered by infrastructural deficiencies, socio-economic inequality, and gaps in teacher readiness. Addressing these challenges requires a comprehensive approach,

including improved funding for infrastructure, targeted digital literacy training, and stronger institutional policies that support the long-term integration of educational technology.

Discussion

The findings of this study confirm the growing body of literature emphasizing the transformative potential of educational technology in modern classrooms. Teachers' use of platforms such as Quizziz, Google Classroom, and YouTube aligns with previous research indicating that digital tools can foster more interactive and engaging learning environments (Dash, 2022). The evidence of improved student motivation and enhanced learning outcomes also resonates with studies showing that multimedia and gamified content contribute to better retention and active participation in language learning (Fathi et al., 2024). In particular, the adoption of blended learning approaches post-pandemic reflects a global trend, where educators have found hybrid methods effective for combining traditional and digital instruction (Jahangir et al., 2024).

However, the challenges reported by teachers in this study such as poor internet connectivity, limited access to student devices, and uneven levels of digital literacy highlight persistent barriers that are also widely recognized in educational technology literature. The distinction between first-level barriers (external factors such as infrastructure) and second-level barriers (internal factors such as teachers' beliefs and skills), both of which are apparent in the context of the Payung region. These challenges are particularly acute in rural and under-resourced areas, where educational inequity is exacerbated by the digital divide (Ahmed, 2024; Oluwaferanmi, 2025). The reported lack of ICT competence among some teachers further underscores the need for ongoing professional development tailored to technological integration, as supported by Rais and Kristiawan (2022), who emphasize that meaningful technology use is contingent upon continuous training and institutional backing.

Moreover, while some teachers noted support from school leadership, the absence of structured policies and standardized tools indicates a lack of systemic implementation. This aligns with findings by (Rusdarti et al., 2021; Chan et al., 2018), who argue that policy support, leadership commitment, and institutional vision are crucial for sustainable technology integration in schools. The current informal and fragmented support systems limit scalability and long-term impact, particularly when individual teacher motivation is not matched by adequate resources and guidance.

In conclusion, the study reinforces the dual reality of technology in education: while its benefits are evident in terms of improved engagement and pedagogical innovation, its full potential can only be realized when infrastructural, pedagogical, and institutional gaps are addressed comprehensively. To move forward, schools and policymakers must invest in reliable infrastructure, provide targeted ICT training, and design inclusive digital strategies that cater to both teachers' and students' needs. These measures will ensure that technology serves not as a supplementary tool but as an integral part of quality English language instruction in 21st-century classrooms.

4. CONCLUSION

This study concludes that while technology holds significant potential to enhance the quality of English language teaching, its integration in rural schools like those in Payung District remains uneven and challenged by infrastructural, technical, and pedagogical limitations. Teachers have shown a willingness to adopt digital tools such as Quizziz, Google Classroom, and YouTube to support student engagement and learning, yet they are

constrained by inadequate access to internet, limited availability of devices, and insufficient training. These barriers highlight the critical need for a more supportive ecosystem.

The implications of these findings suggest that effective integration of technology in education requires not only teacher initiative but also systemic support. Educational policymakers should prioritize the provision of infrastructure, professional development programs, and digital literacy training tailored to the context of rural schools. Additionally, school leaders must play an active role in facilitating access and encouraging collaborative learning among teachers.

For future research, it is recommended to conduct longitudinal studies assessing the long-term impact of technology integration on student performance and teacher development. Further exploration into student perspectives and comparative studies between urban and rural settings can also offer deeper insights to inform more inclusive and effective educational technology policies.

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