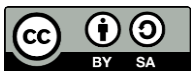
IDEAS
Journal on Language Teaching and Learning, Linguistics and Literature

ISSN 2338-4778 (Print)
ISSN 2548-4192 (Online)

Volume 13, Number 2, December 2025
pp. 4370 - 4379



Issued by English study program of IAIN Palopo

Navigating EFL Teachers' Challenges with Digital Technologies in Project-Based Learning in the English Classroom

Diah Khoirunnisa Harahap[1], Sholihatul Hamidah Daulay[2], Utami Dewi[3]
[1,2,3]Universitas Islam Negeri Sumatera Utara
Corresponding E-Mail: diah0333233010@uinsu.ac.id

Received: 2025-08-15 Accepted: 2025-08-22
DOI: 10.24256/ideas. v13i2.7813

Abstract

This study aims to investigate the challenges experienced by EFL teachers in utilizing digital technologies for the implementation of Project-Based Learning (PjBL) in English classrooms. A qualitative descriptive research design was employed, drawing on classroom observation and semi-structured interviews as the data collection method. The participants were two junior high school EFL teachers from Deli Serdang, North Sumatera, Indonesia**,** who had prior experience in implementing PjBL and integrating digital technologies into their English language teaching. A purposive sampling technique was used to ensure participants were directly involved in digital PjBL practices. The findings reveal four major categories of challenges**:** (1) technical issues, such as poor internet connectivity and limited access to devices; (2) pedagogical difficulties, including insufficient training and a lack of confidence in designing digital PjBL activities; (3) institutional barriers, such as unclear policies, inadequate technical support, and budget constraints; and (4) student-related problems, including uneven digital skills and low levels of motivation. These challenges can be better understood through the lens of the Technological Pedagogical Content Knowledge (TPACK) framework, which highlights the complex interplay between teachers' technological, pedagogical, and content knowledge. The study implies that addressing these barriers requires not only infrastructural support but also sustained professional development and clear institutional guidelines. It recommends that schools and policymakers strengthen teacher training in digital pedagogy, improve technical infrastructure, and provide ongoing support to foster effective integration of PjBL in EFL classrooms.

Keywords*: digital technologies, English classroom, EFL teachers' challenges, PjBL*

ISSN 2338-4778 (Print)
ISSN 2548-4192 (Online)

Introduction

In recent years, Project-Based Learning (PjBL) has gained increasing recognition as an effective teaching model for fostering student-centered learning, particularly in English as a Foreign Language (EFL) contexts. When combined with digital technologies, PjBL offers promising opportunities to develop students' 4Cs such as critical thinking, communication, collaboration, and creativity by enabling authentic, interactive, and collaborative learning experiences (Waly & Ashadi, 2024). However, the integration of digital tools within PjBL often reveals significant challenges for EFL teachers.

Previous studies have identified several obstacles to technology use in EFL classrooms, including insufficient teacher training, limited time to experiment, lack of vision of technology's pedagogical potential, and inadequate technical support (Mollaei & Riasati, 2013). A recurring issue is the insufficient professional development opportunities that prevent teachers from acquiring the skills necessary to effectively integrate technology into their pedagogy. Many EFL teachers struggle with the Technological Pedagogical Content Knowledge (TPACK) framework, lacking the ability to blend technological, pedagogical, and content expertise for tools such as interactive whiteboards or digital platforms (Huang et al., 2022).

Technical infrastructure remains a significant barrier. Limited internet connectivity, poor internet access, and an inadequate number of devices remain obstacles to classroom integration, particularly in inaccessible or rural schools (Salam et al., 2023). In addition, institutional constraints such as unclear policies, inconsistent administrative expectations, or restrictions on devices like mobile phones often create dilemmas for teachers attempting to implement digital PjBL approaches. Heavy teaching workloads and limited preparation time further exacerbate the difficulty of designing meaningful, technology-rich PjBL activities (Waly & Ashadi, 2024).

Beyond institutional and technical barriers, challenges also stem from limited digital literacy among both teachers and students. Teachers often lack confidence in adopting new tools, remaining at the exploratory stage rather than moving toward transformative pedagogical practices (Priyatin & Herawati, 2023). This limited confidence, coupled with insufficient professional training, may lead to reliance on traditional teaching methods even when digital resources are available (Mollaei & Riasati, 2013). Students, likewise, may possess uneven digital skills, which hinders their ability to engage with project-based tasks. For example, learners may struggle with navigating online platforms, collaborating via digital tools, or managing digital resources independently (Belda-Medina, 2021). Such limitations can negatively affect engagement and learning outcomes.

Understanding these multifaceted challenges is essential for developing effective responses. Tailored professional development, improved infrastructure, and pedagogical support are needed to empower both teachers and students to maximize the potential of digital technologies in PjBL. Against this backdrop, this

study seeks to explore the challenges experienced by EFL teachers in utilizing digital technologies for the implementation of Project-Based Learning in English classrooms.

Method

This study employed a qualitative descriptive research design to explore the challenges faced by EFL teachers in utilizing digital technologies within the implementation of Project-Based Learning (PjBL) in English classrooms. A qualitative approach was chosen because it enables an in-depth understanding of participants' perspectives, experiences, and contextual realities (Creswell & Poth, 2018). The descriptive design was considered appropriate as it allowed the researcher to present rich accounts of teachers' challenges without manipulating the research setting.

The participants of this study were two EFL teachers from North Sumatera, Indonesia, who had experience in implementing PjBL and integrating digital technologies into their English language teaching. A purposive sampling technique was employed with the following criteria: (1) currently teaching English at the junior or senior high school level, (2) having prior experience with PjBL, and (3) having integrated digital technologies in English instruction. These criteria ensured that the participants were directly relevant to the research focus.

The instrument of this study are classroom observation and semi-structured interviews. An observation sheet was developed to document how teachers utilized digital technologies during the PjBL process. The sheet focused on aspects such as the types of digital tools used, their integration into project stages, and challenges observed during classroom implementation. Interview guide was designed to explore teachers' perspectives on the challenges of implementing digital technologies in PjBL. The semi-structured format allowed flexibility for follow-up questions, encouraging participants to provide in-depth explanations and examples.

Data were collected through classroom observations and semi-structured interviews. Classroom observations were conducted during the implementation of PjBL activities to record authentic practices of digital technology integration. Following the observations, individual interviews were carried out with each teacher to gain further insights into their challenges and reflections. All interviews were conducted in Bahasa Indonesia, recorded with participants' consent, and transcribed verbatim for analysis.

The data were analyzed using the framework of Miles, Huberman, and Saldaña (2014), which emphasizes an interactive model of qualitative data analysis. The process consists of three concurrent flows of activity namely data condensation, data display, conclusing drawing and verification.

ISSN 2338-4778 (Print)
ISSN 2548-4192 (Online)

To ensure the trustworthiness of the study, strategies such as triangulation and member checking were applied. Triangulation was achieved by combining observation and interview data, while member checking involved confirming interpretations with participants. This study adhered to standard ethical research principles. Before data collection, the researcher explained the purpose of the study, the voluntary nature of participation, and the confidentiality of responses to all participants. Written informed consent was obtained prior to conducting classroom observations and interviews. Participants were assured that their identities would remain anonymous, and pseudonyms were used in reporting the findings. They were also informed that they could withdraw from the study at any point without consequence. All interview recordings and transcripts were stored securely and used solely for research purposes.

While this study provides valuable insights, it is not without limitations. The small sample size two EFL teachers from North Sumatera limits the generalizability of the findings. The study does not aim to represent all Indonesian EFL teachers but rather to provide an in-depth exploration of the specific challenges experienced by the participants. Future research with larger and more diverse samples, across multiple regions and school contexts, would be beneficial to strengthen the validity and transferability of the findings.

Results

Based on the analysis of classroom observations and semi-structured interviews, four major categories of challenges were identified in the integration of digital technologies within Project-Based Learning (PjBL**):** technical challenges, pedagogical challenges, institutional challenges, and student-related challenges**.** These themes were derived through Miles, Huberman, and Saldaña's (2014) interactive model of qualitative data analysis, which involved data condensation, display, and conclusion drawing/verification.

Technical Challenges

All participants reported difficulties related to technological infrastructure. The most common issues included unreliable internet connectivity—particularly in rural or suburban schools—and limited access to suitable devices. While many students owned smartphones, device specifications and limited storage capacity often hindered the use of certain applications. Teachers also expressed frustration with software glitches and platform incompatibility.

As one teacher reflected:

"Sometimes we plan to use a specific online tool, but during the lesson, it suddenly freezes or the students cannot log in. It disrupts the whole activity." (T1)

These findings resonate with Salam et al. (2023), who similarly reported that unstable internet and limited devices remain major barriers to digital learning in under-resourced Indonesian schools.

Pedagogical Challenges

Teachers also encountered difficulties in designing PjBL tasks that meaningfully incorporated digital tools while aligning with curriculum requirements. Both participants reported limited confidence in integrating digital technologies beyond basic functions such as using PowerPoint or WhatsApp. They emphasized a lack of training in digital pedagogy and highlighted time constraints, noting that heavy teaching loads left little room for experimenting with innovative platforms.

One teacher explained:

"While I recognize the potential of digital tools to improve learning, I frequently struggle to integrate these technologies into my lesson objectives. Sometimes I feel comfortable utilizing simple functions, but incorporating them in ways that actually promote deeper language acquisition can be difficult. I'm worried that I'll spend too much time in class fixing technical issues rather than focusing on student interaction and language practice." (T2)

This finding supports Huang et al. (2022), who argued that limited teacher training and weak TPACK competencies hinder the effective integration of technology into project-based tasks.

Institutional Challenges

Several institutional factors also hindered the effective use of digital technologies in PjBL. Participants mentioned inconsistent school policies, such as restrictions on student smartphone use, which conflicted with the goals of technology-supported learning. They also noted the absence of technical support staff and budget limitations that prevented the school from upgrading facilities. For example, one teacher reported that only three projectors were available at the school, with one out of order, requiring teachers to take turns using the remaining equipment.

As T2 explained:

"One of the main challenges is that our school's internet connection is often unstable, especially during peak hours. Even if I prepare interactive activities using online platforms, I can't always guarantee they will run smoothly. Besides that, the school has limited tools, so I often have to adjust my lesson plan to make sure activities can still be done successfully." (T2)

These findings align with Waly and Ashadi (2024), who found that insufficient infrastructure, lack of policy clarity, and inadequate institutional support often discourage teachers from implementing digital-based PjBL.

Student-Related Challenges

ISSN 2338-4778 (Print)
ISSN 2548-4192 (Online)

Finally, participants highlighted challenges related to students' digital literacy and engagement. While some students were adept at using digital tools, others struggled with basic tasks such as creating shared documents or uploading files. This disparity slowed down group projects and required teachers to provide additional technical guidance. Teachers also reported that some students were reluctant to ask questions when facing difficulties, which meant teachers needed to closely monitor project progress and provide individual or small-group support. As T1 noted:

"Some students are very quick to adapt to new apps or platforms, but others struggle even with basic digital skills like logging in or uploading files. This difference slows down the class because I have to spend extra time assisting those who are left behind." (T1)

This echoes Belda-Medina (2021), who observed that uneven digital competence among learners often hinders collaborative learning in technology-rich classrooms.

Here are the key findings related to the EFL teachers challenges in utilizing digital technologies in the implementation pf project-based learning:

Theme	Specific Challenges Reported
Technical	Poor internet, limited devices, software glitches, platform incompatibility
Pedagogical	Lack of training, limited tool variety, difficulty designing tech-rich PjBL, time constraints
Institutional	Conflicting policies, no tech support, limited budge
Student-related	Uneven digital literacy, low motivation for complex tasks

These findings found that the challenges are multifaceted, involving not only individual teacher skills but also school-level and student-related factors. The results align with previous studies (Belda-Medina, 2021; Wang, 2024; Mollaei & Riasati, 2013) that emphasize the interconnected nature of technical, pedagogical, and institutional barriers to technology integration in EFL contexts.

Discussion

This study identified four major challenges EFL teachers faced in implementing digital technologies within Project-Based Learning (PjBL): technical, pedagogical, institutional, and student-related. While these categories echo findings from previous studies (Waly & Ashadi, 2024; Wang, 2024; Belda-Medina, 2021), the Indonesian context particularly in North Sumatera reveals several distinctive patterns that add new insights to the field.

Technical Challenges

Teachers consistently reported unstable internet connections, limited access to digital devices, and occasional software errors. These findings align with global research, yet in Indonesian schools the problems are particularly acute due to rural infrastructure gaps and limited funding. Unlike in more developed contexts where Bring Your Own Device (BYOD) models are common, many students in North Sumatera lacked personal smartphones or laptops, forcing teachers to adapt project timelines or reduce technology use. Without technical staff support, troubleshooting became an extra burden for teachers, which added stress and hindered PjBL effectiveness.

Pedagogical Challenges

The study also highlighted teachers' limited knowledge of how to design interactive, technology-based PjBL activities. Many relied on simple tools such as WhatsApp or PowerPoint rather than more interactive platforms. Within the TPACK framework, this points to gaps in Technological Pedagogical Knowledge (TPK)**,** as teachers struggled to align digital tools with PjBL pedagogy. Unlike prior studies that mainly emphasized access to technology, this study shows that even when basic tools are available, teachers' pedagogical integration skills remain a barrier. This underscores the need for professional development that is not only technical but also pedagogical in focus.

Institutional Challenges

Institutional barriers included restrictive smartphone policies, limited budgets, and a lack of clear school-level support. While Wang (2024) similarly noted that unclear policies discourage technology use, the Indonesian context is unique: schools often impose strict smartphone bans due to concerns over distraction and misuse. These rules, although well-intentioned, unintentionally hinder PjBL, which relies on online research and collaboration. The absence of technical support staff also forced teachers to handle both instruction and troubleshooting, reducing instructional time.

Student-Related Challenges

Student digital literacy and motivation varied significantly. Some students were proficient in online platforms and multimedia tools, while others struggled with basic functions, slowing down group work. This uneven distribution of digital skills is consistent with Mollaei and Riasati (2013), but in the Indonesian context, it is amplified by disparities in students' socioeconomic backgrounds and prior exposure to technology. Additionally, teachers observed that students often became distracted by social media, highlighting the need for digital self-regulation skills alongside technical competence. These findings suggest that student factors

ISSN 2338-4778 (Print)
ISSN 2548-4192 (Online)

deserve more emphasis in theoretical models such as TPACK, which has traditionally focused on teacher competencies.

In the Indonesian setting, heavy teacher workloads, resource disparities between urban and rural schools, and restrictive digital policies create a unique constellation of challenges. These factors highlight that technology integration cannot be divorced from cultural and institutional realities. Compared with other contexts, Indonesian teachers face the dual pressure of adapting PjBL within limited infrastructure while also working under strict school regulations.

The findings of this study suggest several important implications for practice. Teachers need training that focuses not only on technical skills but also on how to design PjBL activities using simple and affordable digital tools in ways that support learning goals. Schools should adopt more flexible smartphone policies, allowing controlled use for classroom projects while limiting distractions, and they should also provide technical support to help teachers solve digital problems more easily. At the policy level, greater investment in internet infrastructure, especially in rural areas, and increased funding for school facilities are essential to reduce technical barriers. Finally, students should be given structured digital literacy training and encouraged to support one another through peer-learning programs so that all students can participate equally in technology-based projects.

This study is limited by its small sample size (two teachers from one province) and reliance on interviews and classroom observations. The findings cannot be generalized across Indonesia but instead provide exploratory insights into challenges in North Sumatera. Additionally, self-reported data may carry bias, as teachers may under- or overstate challenges. Future studies with larger and more diverse samples are needed to validate these findings.

Further research could compare urban and rural contexts to highlight regional disparities in digital PjBL implementation. Longitudinal studies could also track how teacher training in TPACK influences classroom practice over time. Another important direction is examining students' voices more closely through focus groups or surveys, as their perspectives are essential in understanding digital learning experiences.

Conclusion

Overall, this study contributes to the growing literature on digital PjBL by highlighting both common and context-specific challenges. By linking the findings to the TPACK framework, the study extends the discussion to include student digital competence as a crucial factor. Addressing these challenges will require multi-level action: better infrastructure, teacher training, supportive policies, and student skill development. Only through coordinated efforts can digital PjBL fulfill its potential to enhance English learning in Indonesian classrooms.

References

Azmi, N., & Daulay, S. H. (2024). Technology role in improving autodidactic learning outcomes at English language education. International Journal of Language Teaching and Education, 8(1), 28–40. https://doi.org/10.55849/ijolte.v8i1.412

Belda-Medina, J. (2021). ICTs and project-based learning (PBL) in EFL: Pre-service teachers' attitudes and digital skills. International Journal of Applied Linguistics and English Literature, 10(1), 63–71. https://doi.org/10.7575/aiac.ijalel.v10n1p63

Bani, M., & Masruddin, M. (2021). Development of Android-based harmonic oscillation pocket book for senior high school students. JOTSE: Journal of Technology and Science Education, 11(1), 93-103.

Brown, A., & Green, T. (2018). Issues and trends in instructional technology: Consistent growth in online learning, digital content, and the use of mobile technologies. In R. N. Ferdig & K. Kennedy (Eds.), Educational Media and Technology Yearbook (Vol. 41, pp. 61–71). Springer. https://doi.org/10.1007/978-3-319-67301-1_6

Cahyani, H., & Cahyono, B. Y. (2012). Teachers' attitudes and technology use in Indonesian EFL classrooms. TEFLIN Journal, 23(2), 130–148. https://doi.org/10.15639/teflinjournal.v23i2/130-148

Chaidi, I., Drigas, A., & Karagiannidis, C. (2021). ICT in special education. Technium Social Sciences Journal, 23(1), 187–198. https://doi.org/10.47577/tssj.v23i1.4277

Creswell, J. W., & Poth, C. N. (2018). Qualitative inquiry and research design: Choosing among five approaches (4th ed.). SAGE Publications.

Daulay, S. H., & Sabrina, D. (2024). Book review: What do new teachers need to know? A roadmap to expertise. PASAA, 68(1), 473–476.

Daulay, S. H., Nabila, A., & Nasution, U. A. (2024). The effect of ICT use on the classroom management in English teaching. Leksika: Jurnal Bahasa, Sastra dan Pengajarannya, 18(1), 24–35.

Demir, C. G., & Önal, N. (2021). The effect of technology-assisted and project-based learning approaches on students' attitudes towards mathematics and their academic achievement. Education and Information Technologies, 26(3), 3375–3397. https://doi.org/10.1007/s10639-020-10398-8

Fitria, T. N. (2022). Using Canva as media for English language teaching (ELT) in developing creativity for informatics students. ELT Echo: The Journal of English Language Teaching in Foreign Language Context, 7(1), 58–68. https://doi.org/10.24235/eltecho.v7i1.10789

Godwin-Jones, R. (2016). Looking back and ahead: 20 years of technologies for language learning. Language Learning & Technology, 20(2), 5–12. https://doi.org/10.10125/44457

Golonka, E. M., Bowles, A. R., Frank, V. M., Richardson, D. L., & Freynik, S. (2014).

ISSN 2338-4778 (Print)
ISSN 2548-4192 (Online)

Technologies for foreign language learning: A review of technology types and their effectiveness. Computer Assisted Language Learning, 27(1), 70–105. https://doi.org/10.1080/09588221.2012.700315

Huang, F., Qi, J., & Xie, A. (2022). Sustaining teaching with technology after the quarantine: Evidence from Chinese EFL teachers' technological, pedagogical and content knowledge. Sustainability, 14(14), 8774. https://doi.org/10.3390/su14148774

Kencana, N. (2024). Teachers' and students' perspectives on technology integration in EFL instruction: Strategies for fostering autonomy and overcoming challenges in Indonesian high schools. Al-Ishlah: Jurnal Pendidikan, 17(1), 152–164. https://doi.org/10.35445/alishlah.v14i1.973

Li, Y., Wang, Q., & Lei, J. (2020). Exploring technology professional development needs of digital immigrant teachers and digital native teachers in China. International Journal of Information and Communication Technology Education, 16(3), 15–29. https://doi.org/10.4018/IJICTE.2020070102

Mollaei, F., & Riasati, M. J. (2013). Teachers' perceptions of using technology in teaching EFL. International Journal of Applied Linguistics and English Literature, 2(1), 13–22. https://doi.org/10.7575/ijalel.v2n1p13

Nasution, S. A., Daulay, S. H., & Rahman, B. I. (2023). Teaching English to young learners in rural areas: Teachers' challenges. TELL-US Journal, 9(1). https://doi.org/10.22202/tus.2023.v9i1.65

Ningsih, F. R., & Daulay, S. H. (2023). Teachers' talk in teaching English: Roles and challenges. TELL-US Journal, 9(2). https://doi.org/10.22202/tus.2023.v9i2.6765

Nurlela, N., Niswa, K., & Daulay, S. H. (2024). The influence of digital technology with application-based interactive multimedia learning in improving junior high school students' English vocabulary. English Teaching and Linguistics Journal (ETLiJ), 5(2), 175–181.

Nurraida, N., Islami, C. M., & Daulay, S. H. (2024). Enhancing educational factors to address language dilemmas in the ELT class. PEBSAS: Jurnal Pendidikan Bahasa dan Sastra, 2(2), 1–9.

Sari, M., & Masruddin, M. (2025). Teacher Strategies in Navigating Curriculum Transition: From K13 to the Merdeka Curriculum in Primary Schools. International Journal of Asian Education, 6(1), 151-163.

Waly, M. M., & Ashadi, A. (2024). Unleashing the potentials: Nurturing students' 4Cs skills through project-based learning with ICT in EFL classrooms. Journal of Foreign Language Teaching and Learning. https://doi.org/10.18196/ftl.v0i0.23208

Wang, J. (2024). In-service teachers' perceptions of technology integration in English as a foreign language classroom in China: A multiple-case study. ECNU Review of Education, 7(2), 333–356. https://doi.org/10.1177/20965311231193692