



Proceedings of the 1<sup>st</sup> International Conference on Humanities Studies

Online ISSN:xxxxxx

Volume: 1,2024

Publisher: Faculty of Adab and Humanities UINAM

## **TPACK STUDY IN INDONESIAN EFL CLASSROOMS: CHALLENGES AND OPPORTUNITIES**

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### **Abstract**

This research delves the challenges and opportunities faced in the application of Technological Pedagogical Content Knowledge (TPACK) by English as a Foreign Language (EFL) teachers in Indonesia. Recognizing the important role of integrating technology in education, especially in language learning, this research investigates how EFL teachers in Indonesia adapt and utilize TPACK in their teaching practices. Utilizing qualitative content analysis methodology, this research examines a variety of educational materials, including lesson plans, teaching materials, and interviews with EFL teachers. This approach allows for an in-depth exploration of the practical application of TPACK and the factors that influence its application in the Indonesian educational context. These findings reveal complex challenges, including limited resources, varying levels of digital literacy among teachers, and institutional constraints. However, this research also revealed significant opportunities such as increased student engagement, increased teaching adaptability, and the development of innovative teaching strategies facilitated by TPACK. The implications of this research are varied. For practitioners, this provides insight into effective strategies for integrating TPACK in challenging environments. For policymakers, this report highlights the need for infrastructure development and professional training to support teachers in this digital era. Finally, for the academic community, this contributes to the development of discourse regarding the role of technology in education, especially in the context of language learning in developing countries. This study not only highlights the current state of TPACK implementation in EFL classrooms in Indonesia, but also paves the way for future research in this important area of educational technology.

Keywords: TPACK, EFL Classroom, Pedagogy.

## Abstrak

*Penelitian ini bertujuan untuk mengeksplorasi tantangan dan peluang yang dihadapi dalam penerapan Technological Pedagogical Content Knowledge (TPACK) oleh guru Bahasa Inggris sebagai Bahasa Asing (EFL) di Indonesia. Menyadari peran penting pengintegrasian teknologi dalam pendidikan, khususnya dalam pembelajaran bahasa, penelitian ini menyelidiki bagaimana guru EFL di Indonesia mengadaptasi dan memanfaatkan TPACK dalam praktik pengajaran mereka. Memanfaatkan metodologi analisis konten kualitatif, penelitian ini mengkaji beragam materi pendidikan, termasuk rencana pembelajaran, materi pengajaran, dan wawancara dengan guru EFL. Pendekatan ini memungkinkan dilakukannya eksplorasi mendalam terhadap penerapan praktis TPACK dan faktor-faktor yang mempengaruhi penerapannya dalam konteks pendidikan Indonesia. Temuan-temuan ini mengungkapkan adanya tantangan-tantangan yang kompleks, termasuk keterbatasan sumber daya, tingkat literasi digital yang berbeda-beda di kalangan guru, dan kendala kelembagaan. Namun, penelitian ini juga mengungkap peluang signifikan seperti peningkatan keterlibatan siswa, peningkatan kemampuan beradaptasi pengajaran, dan pengembangan strategi pengajaran inovatif yang difasilitasi oleh TPACK. Implikasi dari penelitian ini beragam. Bagi para praktisi, hal ini memberikan wawasan tentang strategi efektif untuk mengintegrasikan TPACK dalam lingkungan yang menantang. Bagi para pembuat kebijakan, laporan ini menyoroti perlunya pembangunan infrastruktur dan pelatihan profesional untuk mendukung guru di era digital ini. Terakhir, bagi civitas akademika, hal ini berkontribusi terhadap berkembangnya wacana mengenai peran teknologi dalam pendidikan, khususnya dalam konteks pembelajaran bahasa di negara-negara berkembang. Studi ini tidak hanya menyoroti kondisi penerapan TPACK saat ini di ruang kelas EFL di Indonesia, namun juga membuka jalan bagi penelitian masa depan dalam bidang penting teknologi pendidikan ini.*

*Kata Kunci: TPACK, Kelas EFL, Pedagogy.*

## A. INTRODUCTION

The use of technology in the teaching and learning process has grown in importance in the ever-changing field of education. This paradigm change is particularly relevant to the field of teaching English as a Foreign Language (EFL), where the integration of technological, pedagogical, and content knowledge (TPACK) is essential to creating successful and interesting learning environments. The term "TPACK" refers to a framework in which teachers integrate technical knowledge (TK), pedagogical knowledge (PK), and content knowledge (CK) to improve teaching and learning. It was first proposed by Mishra and Koehler (Koehler, Mishra, Kereluik, et al., 2013; Herring et al., 2016). Given the variety of educational environments and disparities in technology infrastructure and experience, the adoption of TPACK brings special potential and problems in the Indonesian context, where English is taught as a foreign language (Harvey & Caro, 2017).

With its enormous archipelago and varied educational settings, Indonesia offers a distinctive setting for researching the application of TPACK in EFL classrooms. Although the nation's educational system has been digitally transformed, differences in teacher preparation and access to technology still exist. It is essential to comprehend how EFL teachers in Indonesia deal with these difficulties and take advantage of technological

advancements if we are to improve language instruction and get pupils ready for a globalized future (Mishra et al., 2022).

The purpose of this study is to explore the challenges and opportunities in the implementation of TPACK by EFL teachers in Indonesia. By employing a content analysis approach, this research aims to provide a comprehensive understanding of how TPACK is utilized in real-world classroom settings, identifying the barriers teachers face and the innovative strategies they employ. The study focuses on various educational materials and experiences of EFL teachers, offering insights into the practical applications of TPACK in Indonesian classrooms (Taopan, 2020).

This study adds to the expanding corpus of research on educational technology in language learning, especially as it relates to developing countries. It aims to provide evidence-based recommendations for improving technological integration in EFL education, as well as to enlighten educators, policymakers, and stakeholders about the current status of TPACK implementation in Indonesia. The study also hopes to spark more investigation and discussion on the use of technology in education, especially in environments with linguistic and cultural diversity like Indonesia.

Theoretically, this study provides additional comprehension of the TPACK framework in the context of EFL, especially in Indonesia. Through an analysis of TPACK implementation in a particular cultural and pedagogical context, the research responds to the continuing discussion on technology integration in language learning. It provides insights on the way content knowledge, pedagogy, and technology interact dynamically and specifically in the Indonesian setting. By doing so, this study contributes to the body of knowledge on technology integration in a variety of educational contexts by expanding on the TPACK literature that already exists.

Practically, the results of the research have important implications for Indonesian educational practitioners, including EFL instructors and curriculum developers. Through an analysis of the challenges and opportunities associated with TPACK implementation, the study provides useful advice on how to successfully incorporate technology into language instruction. By using these ideas in the classroom, teachers can improve learning outcomes and student engagement. The results of the study can also be used to guide the creation of materials and programs for teacher training, giving instructors the tools, they need to successfully incorporate technology into their classroom instruction.

Methodologically, this study shows how content analysis can be used in educational research, especially when it comes to integrating technology into language instruction. Through careful selection and analysis of a small number of highly relevant publications, the study demonstrates a concentrated and thorough method of conducting qualitative research. Future research in comparable settings can use this methodological approach as a model to see how to efficiently combine and analyze qualitative data in order to get relevant findings.

From the perspective of language policy, this study has significant implications for policy-makers and educational authorities in Indonesia. The research's conclusions can guide the creation of strategies and policies that encourage the use of technology in language instruction. Policymakers can develop more effective and contextually relevant language education policies by having a greater awareness of the specific needs and difficulties faced by EFL classrooms in Indonesia. This can entail making investments in technology infrastructure, giving educators chances for professional development, and creating curricula that effectively integrate TPACK principles.

Based on the explanation above, the researchers are interested in analyzing the challenges in integrating of technology, pedagogy, and content knowledge demonstrated in EFL teaching practices in Indonesia

## **B. LITERATURE REVIEW**

### **1. The Concept of Technological, Pedagogical, and Content Knowledge (TPACK)**

The PCK (Pedagogical Content Knowledge) framework by Shulman (1986, 1987 in Koehler, Mishra, & Cain, 2013)) served as the foundation for the TPACK theory. It describes the interrelated knowledge that teachers must possess in order to implement learning, specifically the knowledge of pedagogical materials and learning materials. Learning focuses on how instructors can impart to pupils the knowledge they have mastered. According to Yeh, Hsu, Wu, Hwang, and Lin (2014 in Hsu et al., 2015), the idea of PCK refers to a body of knowledge that is highly context-sensitive, cannot be understood in isolation from instructors' classroom and teaching experiences, and goes beyond a straightforward synthesis of subject-matter and pedagogical knowledge.

TPACK, initially conceptualized by Mishra and Koehler (2006 in Swallow & Olofson, 2017; Rosenberg & Koehler, 2015), represents a framework for understanding and describing the kinds of knowledge needed by a teacher for effective pedagogical practice in a technology-enhanced learning environment. It integrates three primary forms of knowledge: Content Knowledge (CK), Pedagogical Knowledge (PK), and Technological Knowledge (TK). The intersection of these three knowledge domains forms the basis of effective teaching with technology, encompassing seven knowledge domains: CK, PK, TK, Pedagogical Content Knowledge (PCK), Technological Content Knowledge (TCK), Technological Pedagogical Knowledge (TPK), and the amalgamation of all three, TPACK.

Several studies have explored the application and implications of TPACK in various educational settings. For instance, Voogt et al. (2013 in Sihombing et al., 2022; Haniefa & Samsudin, 2023)) investigated how teachers develop TPACK through professional development. Their findings highlighted the importance of contextual factors and the role of collaboration in developing TPACK expertise. Similarly, research by Archambault and Barnett (2010) examined online teaching and TPACK, revealing unique challenges and opportunities in virtual learning environments.

Recent debates in the field of TPACK focus on its applicability in rapidly changing technological landscapes and diverse educational contexts. There is ongoing discussion about the best ways to measure and develop TPACK among educators, with scholars proposing various models and assessment tools. Furthermore, the integration of emerging technologies such as artificial intelligence and virtual reality in education presents new challenges and opportunities for TPACK development (Cheung & Jang, 2020).

### **2. Implementation of TPACK in EFL Context**

#### **a. TPACK Framework in EFL Settings**

In the context of EFL, the TPACK framework, as conceived by Mishra and Koehler, assumes special dimensions. It is essential for EFL teachers to include technology not just for the purpose of delivering content but also to aid in language learning in environments with a variety of cultural backgrounds. Understanding how technological tools might enhance educational practices that meet the unique obstacles of language learning is necessary for this integration (Koehler & Mishra, 2009). TPACK expands upon the principles of constructivist learning theories and communicative language teaching (CLT) in the setting of EFL. Similar Studies done by Caner shows how TPACK in EFL creates interactive, learner-centered environments by fusing technology with CLT concepts.

Several research works have investigated the usefulness of TPACK in EFL instruction. For instance, a study by Chai, Koh, and Tsai (2013) investigated the ways in which EFL instructors in Asia incorporate TPACK into their lesson plans. According to their findings, instructors' opinions on pedagogy, technology, and material have a big impact on how TPACK is implemented. Case examples of effective TPACK integration in EFL classrooms were presented by Baxter and Ledbetter (2019), demonstrating increased language proficiency and student engagement.

b. Challenges in EFL Contexts

Challenges in implementing TPACK in EFL settings often include limited technological infrastructure, teachers' lack of confidence in using technology, and the need to align technology use with language learning objectives (Farhadi & Oztürk, 2023)). Additionally, cultural factors play a significant role in how technology is accepted and used in the classroom. Related to this issue, Professional development for EFL teachers in the realm of TPACK is critical. Studies like those by Lin, Wang, and Lin (2018) have shown that targeted training can significantly enhance EFL teachers' ability to effectively integrate technology. Such training often focuses on practical aspects of using digital tools and developing pedagogical strategies that align with language learning goals. Emerging trends in TPACK research within the EFL context involve exploring new technologies such as mobile learning, virtual reality, and AI-based language tools. There is also a growing focus on personalized learning and how TPACK can support differentiation in language instruction.

As an overview, (Hanik et al., 2022) added the analysis of challenges (Safitri, 2016) and opportunities (Taopan, 2020) on TPACK implementation can be seen in the following table (see also Humaera et al., 2023) :

NO	INDICATORS	DESCRIPTIONS	POINTS FOR ANALYSIS
1	Challenges in implementing TPACK	Measures the range and nature of challenges faced by EFL teachers in Indonesia in implementing TPACK.	<ul style="list-style-type: none"> <li>- <b>Technological Barriers:</b> Lack of access to necessary technology, outdated or unreliable equipment.</li> <li>- <b>Pedagogical Challenges:</b> Difficulty in integrating technology with effective language teaching methodologies.</li> <li>- <b>Resource Limitations:</b> Insufficient educational resources or support materials for TPACK implementation.</li> <li>- <b>Training and Support:</b> Lack of professional development opportunities or support for teachers in using technology effectively.</li> <li>- <b>Institutional Constraints:</b> Resistance from educational institutions or systemic barriers to implementing TPACK.</li> <li>- <b>Cultural Factors:</b> Influence of local cultural attitudes towards technology use in education.</li> </ul>
2	Opportunities in implementing TPACK	Assesses the identified opportunities and positive outcomes	<ul style="list-style-type: none"> <li>- <b>Enhanced Student Engagement:</b> Evidence of increased student interest and participation due to TPACK-based methodologies.</li> <li>- <b>Improved Learning Outcomes:</b></li> </ul>

		associated with TPACK implementation in EFL classrooms in Indonesia.	Improvement in language skills or overall academic performance. - <b>Teacher Professional Development:</b> Development of teachers' skills and competencies in technology integration. - <b>Innovative Teaching Strategies:</b> Adoption of new and effective teaching methods facilitated by TPACK. - <b>Collaboration and Networking:</b> Opportunities for teacher collaboration and professional networking enhanced by TPACK. - <b>Institutional Benefits:</b> Positive impacts on the educational institution, such as reputation or educational quality.
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Table 1: Indicators of Analysis

### C. RESEARCH METHOD

This study employs a qualitative research design under content analysis (Chatzidimou, 2013) as the primary methodological approach. The focus is on understanding the intricacies of TPACK implementation in the Indonesian EFL context through an in-depth examination of selected academic articles. The selection process involved a comprehensive review of academic literature. Initially, a pool of 90 articles was identified from various academic databases and journals. These articles were primarily sourced based on their relevance to the topic of TPACK implementation in EFL settings. The selection criteria included articles that specifically addressed the use of TPACK in the Indonesian EFL context, encompassing aspects such as technological integration, pedagogical strategies, and content delivery within English language teaching.

The inclusion criteria for the final selection were stringent to ensure the relevance and quality of the content. The articles were assessed based on several factors: Relevance to the TPACK framework within EFL teaching in Indonesia; Contribution to understanding the challenges and opportunities in implementing TPACK in this context; The methodological rigor and academic credibility of the study; Publication in peer-reviewed journals or reputable academic sources; Final Selection and Analysis; Out of the initial 90 articles, ten of them related to Indonesian context, three were meticulously chosen based on the above criteria. These articles represented a diverse range of perspectives and methodologies, providing a comprehensive view of the current state of TPACK implementation in Indonesian EFL classrooms. The content analysis involved a systematic examination of these articles. Key themes, patterns, and insights related to TPACK implementation were identified and categorized. The analysis focused on aspects such as: the challenges faced by teachers in integrating technology, pedagogy, and content knowledge; innovative strategies and practices adopted in the Indonesian EFL context; the impact of these practices on student learning and engagement.

The interpretative phase involved synthesizing the findings from the content analysis to draw meaningful conclusions about the implementation of TPACK in the Indonesian EFL context. This phase aimed to identify commonalities and differences across the selected articles, providing a nuanced understanding of the subject. The results of this analysis will contribute to a deeper understanding of how TPACK is implemented in Indonesian EFL classrooms, highlighting the practical challenges and opportunities faced

by educators. This, in turn, will inform recommendations for teachers, policymakers, and educational stakeholders aiming to enhance the integration of technology in language teaching.

#### **D. FINDINGS AND DISCUSSION**

This analysis based on the matrix of challenges and opportunities of TPACK implementation in EFL classroom for Indonesian context. For further description, it will be described in the following section.

##### **1. Challenges in Implementing TPACK**

Examining the challenges involved in bringing TPACK into practice highlights various important ideas mentioned in the articles. In the beginning, technological constraints present serious difficulties. These include teachers' deficiency in fundamental technology knowledge, unstable connections to the internet, and a lack of inspiration for developing purposeful technology-based assignments. These obstacles highlight the critical need for all-encompassing professional development programs that give teachers the technological know-how they need and give them the confidence to use these resources creatively in their teaching. (article 1 point 1).

Secondly, pedagogical challenges are evident, as teachers face difficulties in integrating technology into their pedagogical practices and creating engaging and meaningful learning experiences for students. This highlights the necessity for enhancing pedagogical competence to effectively integrate technology in teaching and learning (Article 1 point 3,4,5)

Furthermore, the effective integration of technology in education is hampered by resource constraints, such as poor IT literacy and unstable internet connectivity. Supporting the successful adoption of TPACK in educational contexts requires addressing these resource constraints. Furthermore, it is evident that teachers who are not proficient in using technology need sufficient training and assistance in order to improve their ability to incorporate technology into their lessons. Inadequate guidance and assistance may hinder the successful application of TPACK. (article 1 and 3)

Lastly, the integration of technology into learning settings is hampered by institutional considerations, such as the absence of support from stakeholders and educational institutions. For TPACK to be used successfully in educational settings, institutional support is necessary (articles 1 and 3). The analysis highlights the complex interplay of technological, educational, resource-related, training and support, and institutional elements that contribute to the obstacles encountered while using TPACK. Resolving these issues is essential to promoting the successful integration of technology in education and improving students' overall educational experience.

The findings regarding challenges in implementing TPACK shed light on critical issues that need to be addressed to effectively integrate technology into educational practices. The identified technological, pedagogical, resource-related, training and support, and institutional challenges underscore the complexity of implementing TPACK and the need for comprehensive solutions. Here are some critical opinions related to these findings: First, Comprehensive Professional Development. The results highlight how important it is to have comprehensive professional development programs in order to handle the pedagogical and technological difficulties. But it's crucial to make sure that these courses are continuous, customized to each student's requirements, and provide teachers the knowledge and self-assurance they need to

effectively incorporate technology into their lesson plans. Next, Allocation of Resources: Allocating resources strategically is necessary to address resource constraints like low IT literacy and erratic internet connectivity. Prioritizing infrastructure and resource investments would help educational institutions and legislators guarantee that all teachers and students have fair access to technology and dependable connectivity.

Third, Collaborative Support Systems. The results emphasize how crucial collaborative support networks are for teachers. To effectively integrate technology, networks, mentorship programs, and communities of practice can be established to offer continuous support, promote experimentation, and enable shared progress. The fourth is institutional support and policy. An important aspect in the effective application of TPACK is institutional considerations.

As a result, institutional support must include favorable policies, sufficient funding, and opportunities for professional growth. Establishing an atmosphere that supports technological integration and encourages innovation should be a top priority for educational establishments. The final strategy is the Student-Centered Approach, which must be maintained while tackling challenges. The ultimate goals of technology integration should be to improve student engagement, create meaningful learning opportunities, and get students ready for a world driven by technology. Ultimately, tackling the issues raised calls for a multifaceted strategy that includes institutional and policy support, professional development, resource allocation, collaborative support networks, and a strong dedication to student-centered learning. Teachers and educational institutions can work toward overcoming the obstacles and successfully using TPACK to improve the quality of education by addressing these crucial areas.

## **2. Opportunities in Implementing TPACK**

Several important insights are revealed when TPACK implementation opportunities are analyzed. First of all, pre-service teachers can improve the caliber of their instructional designs and teaching methods by incorporating TPACK into the teaching and learning processes. Secondly, students may achieve better learning outcomes as a result of the application of TPACK. The use of technology in the classroom can spark students' curiosity and alter teachers' perspectives, resulting in more dynamic and interesting learning environments for students. As elaborated in article 2 by Safitri, By implementing TPACK, educators may collaborate and network with one another, exchanging ideas, trying out novel strategies, and learning from one another. A strong educational community that is flexible, adaptable, and forward-thinking in its approach to teaching and learning in the twenty-first century can be fostered by this collaborative method.

Additionally, the implementation of TPACK can lead to the development of innovative teaching strategies that promote critical thinking, problem-solving, and collaborative learning among students. This can enhance student engagement and promote meaningful learning experiences that resonate with students, enhancing their understanding and retention of knowledge.

Lastly, the implementation of TPACK provides opportunities for teacher professional development, enabling educators to develop their pedagogical competence in using technology and integrating it into their teaching practices. This can be achieved through courses, workshops, and mentoring programs that focus on enhancing pedagogical development and developing TPACK knowledge and skills. In conclusion for these points, the analysis underscores the significant opportunities that



the implementation of TPACK presents for educators and students. These opportunities include improved learning outcomes, innovative teaching strategies, collaboration and networking, and teacher professional development. By embracing these opportunities, educators and educational institutions can work towards enhancing the quality of education and preparing students for a technology-driven future.

The findings regarding opportunities in implementing TPACK highlight the potential benefits for educators, students, and educational institutions. Otherwise, here are some critical opinions related to these findings: First, Sustainable Professional Development. While the opportunities for teacher professional development are evident, it's crucial to ensure that these opportunities are sustainable and ongoing. Professional development programs should be designed to support educators in continuously enhancing their TPACK knowledge and skills, adapting to evolving technology, and pedagogical trends. Second, Student-Centered Learning; Embracing the opportunities presented by TPACK implementation should prioritize student-centered learning experiences. The focus should be on creating engaging and meaningful learning experiences that resonate with students, enhance their understanding, and cater to diverse learning styles and needs. Third, Collaborative Learning Communities. The opportunities for collaboration and networking among educators should be leveraged to create robust learning communities. These communities should encourage knowledge sharing, experimentation, and the co-creation of innovative teaching strategies, fostering a culture of continuous improvement and shared growth.

Then, Equitable Access to Opportunities. It's essential to ensure equitable access to the opportunities presented by TPACK implementation. This includes providing support and resources for educators across diverse educational settings, including those in underserved communities, to ensure that all students benefit from enhanced learning experiences. Last, Alignment with Educational Goals. While pursuing opportunities for TPACK implementation, it's critical to align these efforts with broader educational goals and outcomes. The integration of technology should be purposeful, aiming to improve learning outcomes, foster critical thinking, and prepare students for the demands of the modern world. By critically addressing these aspects, educators and educational institutions can maximize the potential benefits of TPACK implementation and enhance the overall quality of education.

## **E. CONCLUSION**

In summary, there are a variety of opportunities and problems associated with the implementation of TPACK framework in the Indonesian EFL setting. Teachers have significant challenges, including inadequate technological proficiency, erratic internet access, and a dearth of creative methods for using technology into teaching. These difficulties are made much more difficult by a lack of institutional support and limited resources, which include poor facilities and little opportunities for educators to pursue professional development. These obstacles draw attention to the urgent need for all-encompassing approaches meant to improve teachers' technological and pedagogical proficiency as well as a more resolute commitment on the part of educational institutions to encourage and assist this integration.

However, the implementation of TPACK offers a number of chances to improve the quality of education. It provides a way to use technology-driven, interactive teaching

strategies that increase student engagement and are essential for getting students ready for a digitally connected world. Moreover, TPACK supports educators' professional growth by motivating them to use cutting-edge teaching techniques that enhance student engagement and meaning. Thus, the prestige and efficacy of the educational institution as a whole are enhanced in addition to the benefits to student results. As a result, despite certain obstacles in the way, TPACK integration in Indonesian EFL classrooms has the potential to significantly improve teaching and learning, making it well worth the combined efforts of educators, institutions, and policymakers.

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