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By Universitas Muhammadiyah Sidoarjo

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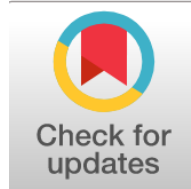
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Multimedia and Interactive Tools Foster Engagement in English as a Foreign Language Critical Reading

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Abstract

General Background: In English as a Foreign Language (EFL) education, critical reading is

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a core competency for developing higher-order thinking, yet many classrooms, particularly in East Kalimantan, still rely on outdated, passive methods. **Specific Background:** While multimedia and interactive tools offer potential for enhancing engagement, their integration into EFL critical reading remains inconsistent and often misaligned with learning goals. **Knowledge Gap:** Limited empirical studies apply the Triple E Framework—Engage, Enhance, Extend—in under-resourced, culturally diverse, and large EFL classrooms to specifically foster critical reading skills. **Aims:** This study investigates how multimedia and interactive tools, guided by the Triple E Framework, influence engagement, comprehension, and motivation in EFL critical reading. **Results:** Using a mixed-methods approach with 32 students, findings show that over half of the observed lecturers achieved an “exceptional connection” between learning goals and technology use, leading to improved focus, comprehension, and extended learning beyond class. **Novelty:** This research offers empirical validation of the Triple E Framework in large, diverse EFL contexts, linking teacher digital literacy to effective critical reading instruction. **Implications:** Results highlight the need for targeted professional development to equip educators with the skills to integrate technology purposefully, ultimately enhancing students’ readiness for academic and global communication.

Highlights:

- Empirical validation of Triple E Framework in large, diverse EFL classrooms.
- Teacher digital literacy as a key factor for effective technology integration.
- Multimedia tools boost engagement, comprehension, and learning extension.

Keywords: Triple E Framework, EFL, Critical Reading, Multimedia Tools, Student Engagement

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Introduction

In the context of English as a Foreign Language (EFL) education, critical reading represents an essential skill set that extends beyond mere textual comprehension. It involves the analysis, evaluation, and synthesis of ideas presented in written material, forming a key component in the development of higher-order thinking. As [1] notes, student engagement significantly enhances the development of these skills. In EFL classrooms, particularly in East Kalimantan—where improving educational standards in language learning is a pressing concern—critical reading takes on even greater importance due to students' varying levels of language proficiency.

However, many EFL students continue to struggle with deep engagement in reading activities. This difficulty often stems from limited exposure to authentic English texts, inadequate vocabulary, and instructional methods that emphasize passive learning, such as translation and rote memorization. These traditional approaches fall short in fostering critical thinking and meaningful interaction with texts. In East Kalimantan, the challenges are amplified by regional linguistic diversity, socio-economic barriers, and limited access to high-quality English learning resources. Even though urban areas like Samarinda and Balikpapan have relatively better educational infrastructure, many other regions still rely on outdated teaching methods that reduce student motivation and hinder the development of analytical reading skills.

In response to these issues, integrating innovative pedagogical strategies that emphasize active engagement has gained interest. Multimedia and interactive tools—such as videos, quizzes, online forums, and collaborative platforms—can transform traditional reading tasks into interactive experiences that cater to various learning styles. These technologies not only support comprehension through contextual cues and diverse content formats but also stimulate cognitive and social engagement among learners. Moreover, interactive digital tools promote collaboration, discussion, and critical reflection, fostering an environment where students are encouraged to question, analyze, and evaluate what they read.

To support the effective integration of such tools, the Triple E Framework according to Kolb as cited in [2] offers a structured model based on three core dimensions: Engage, Enhance, and Extend. This framework emphasizes the alignment between learning goals and the use of technology, aiming to increase the depth of student learning and participation. Its potential to address EFL learning challenges in East Kalimantan lies in its capacity to enhance classroom interaction, extend learning beyond the school environment, and promote consistent student involvement in reading tasks. These features make the Triple E Framework particularly relevant in regions where conventional approaches have yet to meet the needs of 21st-century learners.

Despite the promising potential of multimedia tools and the Triple E Framework, a considerable number of EFL students in East Kalimantan still face barriers to meaningful engagement with reading. These barriers include low language proficiency, a lack of access to rich reading materials, and teaching practices that do not foster critical thinking. Prior research [3] confirms that EFL learners often struggle with comprehension due to vocabulary limitations and minimal experience with authentic texts. These difficulties are exacerbated by socio-economic disparities that limit access to resources. Moreover, traditional instructional methods emphasize memorization over analysis, leading to low motivation and weak critical reading outcomes. To address these challenges, this study investigates how the use of multimedia and interactive tools—guided by the Triple E Framework—can foster critical reading skills, promote student engagement, and enhance motivation. It also explores how these tools affect students' ability to analyze and reflect on texts critically. However, the literature to date reveals several research gaps, including the limited application of the Triple E Framework specifically within EFL critical reading contexts, particularly in large classrooms; insufficient empirical studies addressing its efficacy in developing analytical reading skills; and a lack of attention to the cultural and linguistic diversity in EFL classrooms, especially in under-resourced regions.

The objective of this study is to assess the efficacy of multimedia resources and interactive tools in fostering student engagement in critical reading tasks within EFL classrooms in East Kalimantan. By focusing on the integration of these tools through the Triple E Framework, this research aims to identify the most effective engagement strategies that promote higher levels of reading comprehension, critical thinking, and student motivation. This study will assess how these strategies impact EFL learners' ability to critically engage with texts, enhancing their overall reading experience.

The urgency of this research lies in the critical need to improve the quality of English language education in East Kalimantan. Although demand for English proficiency continues to rise in Indonesia, many regions still struggle with outdated methods, limited resources, and low student engagement. These issues significantly impede the development of essential reading and thinking skills necessary for academic and professional success in today's globalized world. By addressing these problems through the thoughtful application of multimedia and interactive tools, this study can offer valuable insights into more effective teaching practices. The findings are expected to guide future pedagogical developments, ensuring that students in East Kalimantan receive more relevant and engaging language instruction that prepares them for global opportunities.

While various studies have examined the use of digital tools in language education, several gaps remain. First, there is a lack of empirical research that specifically applies the Triple E Framework in EFL critical reading

contexts, particularly in under-resourced and large-classroom environments such as those in East Kalimantan. Second, the majority of existing studies focus on general language learning outcomes rather than the development of specific higher-order skills like analysis, evaluation, and synthesis through critical reading. Third, the influence of cultural and linguistic diversity on the implementation of engagement frameworks in local EFL contexts remains underexplored. Finally, there is limited discussion about the challenges teachers face in aligning digital pedagogy with critical reading goals using the Triple E Framework. Addressing these research gaps will not only contribute to the theoretical understanding of technology-enhanced learning in EFL settings but also offer practical guidance for educators and policy-makers seeking to improve instructional quality in educationally developing regions.

Literature review

Student engagement, particularly in English as a Foreign Language (EFL) classroom, plays a critical role in enhancing both language proficiency and academic outcomes. Recent studies emphasize the importance of integrating interactive tools, multimedia, and innovative frameworks, such as the Triple E Framework, to foster a dynamic and engaging learning environment. This literature review synthesizes key research findings related to student engagement, multimedia tools, group discussions, and the application of the Triple E Framework in EFL critical reading. Furthermore, it explores existing gaps in literature and proposes areas for further investigation, especially concerning the specific context of EFL critical reading classrooms.

A. The Triple E Framework: Engagement, Enhancement, and Extension

The Triple E Framework, as developed by Kolb (2017), is a conceptual model that integrates technology into the learning process to enhance student outcomes. This framework focuses on three core components: Engagement, Enhancement, and Extension.

1. Engagement: In the context of the Triple E Framework, engagement refers to the extent to which students are behaviorally, emotionally, and cognitively involved in their learning. Research by [4] underscores the critical role engagement plays in determining academic success, with higher levels of engagement correlating with improved performance in various subjects. In EFL classrooms, this is particularly important as it directly impacts language acquisition and critical thinking skills. Engaging students emotionally and intellectually fosters a deeper connection to the material, improving their ability to analyze, interpret, and critically engage with texts. Multimedia tools such as interactive videos, digital storytelling, and language games are known to be effective in fostering engagement, as they offer diverse methods for students to interact with and experience language content.

2. Enhancement: The second component of the Triple E Framework, enhancement, emphasizes how technology can enhance the learning experience by offering students new ways to interact with content. [5] note that technology allows for personalized learning, catering to individual student needs and building on their existing knowledge. In EFL classrooms, interactive tools—such as online quizzes, annotation tools, and real-time feedback mechanisms—help improve student comprehension by allowing them to explore content in a more dynamic and individualized manner. For critical reading, enhancing the reading experience through these tools can foster more active learning, where students engage with the text beyond surface-level reading, encouraging analysis and deeper understanding.

3. Extension: Extension refers to the ability of technology to extend learning beyond the traditional classroom environment. This aspect of the Triple E Framework enables students to interact with learning materials and collaborate with peers outside of class time, providing opportunities for continued exploration and application of knowledge. [6] explores how technology facilitates this extension in STEM education by connecting students with real-world contexts, such as global issues or industry practices. In EFL critical reading, students can engage with authentic texts (e.g., news articles, blogs, academic papers) or participate in online discussions that extend beyond classroom discussions, enabling them to apply reading skills to real-world scenarios.

B. The Role of Interactive Tools and Group Discussions in EFL

The integration of interactive tools and group discussions has become increasingly common in EFL classrooms, particularly for improving engagement and learning outcomes. Research consistently shows that these strategies can significantly enhance students' language abilities, motivation, and critical thinking skills.

[7] highlights the effectiveness of gamification in the EFL classroom. Techniques such as point systems, leaderboards, and rewards create a more engaging and competitive environment that motivates students to actively participate. In addition to increasing engagement, gamification encourages collaboration, as students often work in teams to achieve collective goals. This collaborative aspect is essential in EFL learning, where peer interaction provides valuable opportunities for students to practice language skills in a social setting. Collaborative learning, facilitated by multimedia tools, helps students refine their language use, build confidence, and develop deeper insights into reading material.

Research which was conducted by [8] focuses on integrating interactive digital media into problem-based learning to foster collaboration and critical thinking. In EFL critical reading tasks, students can use digital tools to collaborate in small groups, analyzing complex texts and solving comprehension challenges. These activities

encourage students to critically assess and synthesize information, while also fostering communication skills. By integrating digital tools with collaborative learning strategies, EFL educators can create an interactive and supportive learning environment that promotes active engagement with texts.

[9] discusses the impact of synchronous and asynchronous multimedia on enhancing EFL students' listening comprehension and overall engagement. Multimedia resources, such as podcasts, videos, and interactive presentations, provide diverse entry points for students to engage with content. These tools cater to various learning styles, making them particularly effective for students with different needs and preferences. For example, students can engage with audio resources in their own time, participate in group discussions, and revisit the material as needed, all of which promote greater retention and comprehension of reading content.

Moreover, collaborative online discussions have been shown to improve oral fluency and build a sense of community in EFL classrooms. [10] emphasizes how group discussions, whether conducted synchronously or asynchronously, help students develop speaking skills, improve their language fluency, and foster a deeper sense of connection to the material. By encouraging students to engage in peer discussions, EFL teachers can enhance their students' confidence and fluency, ultimately improving their reading comprehension and critical thinking skills.

C. Critical Thinking through Group Discussions and Technology

Structured group discussions are another key element in fostering critical thinking in EFL classrooms. Research by [11] demonstrates that literature circles, which are structured, student-led discussions around reading materials, provide a platform for critical thinking. These discussions encourage students to question assumptions, analyze different perspectives, and develop their interpretations of texts. By incorporating literature circles and other collaborative strategies into the curriculum, teachers can provide students with opportunities to practice critical reading in a supportive and interactive environment.

[12] explore how podcasts—a form of multimedia—can stimulate critical listening and discussion in EFL classrooms. Their study shows that podcasts can serve as a valuable resource for improving listening comprehension while fostering discussions that encourage students to critically evaluate information. These discussions not only improve students' listening skills but also provide them with a platform for expressing and justifying their opinions, thereby enhancing their analytical abilities.

While there is significant research on student engagement and multimedia tools in language learning, there remain several gaps in the literature, particularly concerning the Triple E Framework and its application to EFL critical reading.

One major gap is the limited research on student engagement in large EFL classrooms. [13] notes that while student engagement in EFL settings has been widely studied, there is a lack of empirical research specifically addressing large classes. Understanding how the Triple E Framework can be applied in such contexts is crucial, as large classes are common in many educational systems. Further research could investigate how multimedia tools and interactive strategies can enhance engagement and improve critical reading outcomes in these settings.

Another gap is the limited exploration of how multimedia tools can be integrated into critical reading instruction. While much research has focused on the use of multimedia for language learning, few studies have specifically addressed its application in developing critical reading skills. More research is needed to understand how multimedia tools can be tailored to promote skills such as text analysis, evaluation, and synthesis.

Moreover, the role of peer interactions and social relationships in fostering engagement and critical thinking in EFL classrooms is an area that requires further exploration. While some studies have highlighted the importance of collaborative learning, there is a need for research that connects social dynamics to the principles of the Triple E Framework in the context of critical reading.

Lastly, teacher challenges in implementing the Triple E Framework in EFL classrooms remain underexplored. Although the benefits of multimedia tools are widely acknowledged, the practical challenges teachers face when integrating these tools into their classrooms have not been thoroughly examined. Research into these challenges could provide valuable insights into the training and support teachers need to effectively apply the Triple E Framework

Method

A. Methodology

This study employed a mixed-methods approach to investigate the impact of multimedia and interactive tools on student engagement in English as a Foreign Language (EFL) critical reading. A survey was conducted among EFL students to gauge their perceptions of multimedia tools, including their influence on engagement and motivation. Furthermore, focus group discussions involving students and teachers provided qualitative insights into their

experiences with these tools. This integrated approach facilitated a comprehensive understanding of how multimedia impacted critical reading, drawing upon previous studies that employed similar methodologies to explore technology integration in EFL classrooms. The study participants included English education students who had completed reading comprehension and critical reading courses. The number of students who participated exceeded 45.

B. Instrumen of Research

The research employed a mixed-methods approach, integrating both surveys and interviews to collect comprehensive data. The survey instrument was a structured questionnaire designed to assess the extent to which multimedia and interactive tools enhanced student engagement in English as a Foreign Language (EFL) critical reading practices. This questionnaire underwent a rigorous validation process to ensure reliability and accuracy, employing a closed-ended format with a four-point Likert scale to facilitate quantitative analysis.

In addition, semi-structured interviews were conducted to gain deeper insights into participants' perceptions of the impact of multimedia and interactive technologies on their engagement in critical reading within an EFL context. These interviews allowed for an in-depth exploration of personal experiences and attitudes, which were not fully captured through closed-ended survey items. The researcher recorded each interview session using both video and audio devices to ensure detailed data capture and accuracy in transcription and analysis. The interviews involved a purposive sample of approximately 3 to 7 participants, selected to provide diverse perspectives on the role of these technological tools in fostering active student engagement.

C. Data Collection

This study employed a mixed-methods approach, combining survey and interview techniques to collect both quantitative and qualitative data regarding the role of multimedia and interactive tools in enhancing student engagement in English as a Foreign Language (EFL) critical reading. Firstly, survey data collection was conducted by distributing a structured questionnaire to participants to collect quantitative data on their experiences with multimedia and interactive tools in EFL critical reading. Prior to distribution, the questionnaire underwent validation through a pilot study to verify question clarity, reliability, and consistency. Data collection was conducted either online or in person, depending on participants' availability and technological access, to optimize response rates and accessibility.

Secondly, interview data collection was conducted by conducting semi-structured interviews to obtain in-depth qualitative insights into participants' perspectives regarding the impact of multimedia and interactive technologies on their engagement in critical reading within an EFL context. The researcher selected a purposive sample of 3 to 7 participants representing diverse backgrounds and experiences. All interviews were recorded using both video and audio recording devices after obtaining participants' informed consent. These recordings facilitated accurate transcription and enabled the researcher to capture nuanced verbal and nonverbal responses, thereby enriching the data analysis process. By integrating these two methodological approaches, the study successfully gathered comprehensive data, yielding a robust understanding of how multimedia and interactive tools influenced student engagement in EFL critical reading contexts.

D. Data Validity

To ensure the validity of the collected data, this study employed multiple verification strategies throughout the research process. The questionnaire was meticulously crafted based on established theoretical frameworks and empirical literature pertaining to multimedia tools, interactive technologies, and student engagement in English as a Foreign Language (EFL) critical reading. Prior to administration, the survey instrument underwent rigorous expert review by three specialists in EFL pedagogy and educational technology. These experts evaluated its content relevance, conceptual coverage, item clarity, and response scale appropriateness. Similarly, the semi-structured interview protocol was scrutinized by a panel of six experts, comprising two qualitative research methodologists, three experienced EFL instructors, and one educational technology specialist. These experts assessed the interview questions for clarity, freedom from bias, logical sequencing, and their effectiveness in eliciting insightful responses regarding technological engagement in critical reading. This comprehensive validation process resulted in the iterative refinement of both research instruments, leading to improved question formulation for the survey and enhanced probing questions for the interviews. Consequently, the overall reliability and credibility of the study's findings were strengthened. The multi-layered validation approach ensured that the collected data accurately measured the intended constructs while upholding methodological rigor.

E. Data Analysis Technique

The data analysis for this study involved distinct techniques for the quantitative and qualitative data collected through the survey and interview methods, respectively. By applying these methods, the study aimed to produce a comprehensive understanding of how multimedia and interactive tools impacted student engagement in EFL critical reading. The quantitative and qualitative results were integrated to provide a comprehensive understanding

of the role of multimedia and interactive tools in EFL critical reading. Patterns and trends from the quantitative data were complemented by insights from the qualitative themes to explain how and why multimedia tools influenced engagement levels.

Results and Discussion

The Triple-E Framework proved highly effective in data analysis by categorizing data into three groups: exceptional connection, some connection, and low connection between learning goals and tools. These categories were determined based on scores from engagement, enhancement, and extension aspects. Firstly, exceptional connection between learning goals and tool, 2) some connection between learning goals and tool, and 3) low connection between learning goals and tool. These categories were determined based on scores derived from the engagement, enhancement, and extension aspects. An exceptional connection indicated that technology tools were utilized optimally, fully supporting the learning objectives and even enabling additional positive outcomes. In contrast, some connection suggested that while the tools were used effectively, they did not reach their full potential due to certain barriers or issues. This structured approach streamlined the evaluation process and provided valuable insights into the alignment of technology with learning goals. Furthermore, when technology tools were either not fully utilized or entirely unused despite being available, they were categorized as having a low connection. The application of the Triple-E Framework is further illustrated in the table 1, which features an adapted rubric. This simplified version is derived from Kolb's more detailed work (Kolb, 2017) and incorporates McKinley's adaptation tailored for adult educators

Engagement through technology
Students focus on assignment/activity/goals
Students are motivated
Student are active social learners
Enhancement of the learning goals
Students develop or demonstrate more sophisticated understanding of the learning goals
or content
Technology creates supports to make it easier to understand concepts or ideas
Extension of learning goals
There are opportunities for students to learn outside of typical school day
There is a bridge between students' school learning and everyday life experiences
Students build authentic life soft skills
Reading the results 13 - 18: Exceptional connection between learning goals and tool 7 - 12: Some connection between learning goals and tool 6 or below: Low connection between learning goals and tool

Table 1. *The application of the Triple-E Framework*

The study observed 32 undergraduate students from a private university in East Kalimantan, where lecturers utilized various technology tools, including laptops, smartphones, the Learning Management System (Cviolin), WhatsApp, and supplementary applications like Wordwall and Quizzes. Similarly, most students were equipped with smartphones and laptops during the observation period. There was a notable alignment between lecturers' and students' perspectives on the availability of technology tools for learning. Additionally, the university supported technological integration by providing free high-speed Wi-Fi access.

However, observations revealed that not all lecturers were able to fully harness the potential of the tools they utilized. This led to the creation of additional classifications, preceding the categories outlined in the Triple-E Framework, as detailed on table 2:

No	Classification	Frequency
1	Exceptional connection between learning goals and tool	13
2	Some connection between learning goals and tool	9
3	Low connection between learning goals and tool	10

Table 2. *Results on The Effectiveness of Technology Tools Use to Foster Learning Objectives*

The table illustrates that a larger number of observed lecturers established an exceptional connection between learning goals and tools compared to other categories. Specifically, approximately 13 lecturers, representing more

than half of the subjects, achieved scores ranging from 13 to 18 points. Meanwhile, 9 lecturers were classified as having some connection, with scores between 7 and 12 points. Additionally, only 10 lecturers were categorized as having a low connection, earning 6 points or fewer. These findings suggest that a significant portion of lecturers were able to effectively maximize the potential of technology tools in the classroom.

In addition, the result of interview regarding into perceptions of the impact of multimedia and interactive technologies on their engagement in critical reading within an EFL context.

"I find videos and animations used in class make the critical reading tasks more interesting and easier to understand (ST1)."

The student's statement underscores the potential of videos and animations to make critical reading more engaging and comprehensible. However, for maximum effectiveness, the use of multimedia must be balanced with strategies that promote critical thinking and textual analysis, ensuring that engagement transcends entertainment and leads to meaningful learning outcomes.

"Using interactive tools like quizzes or polls keeps me focused during reading activities and helps me better understand the material".(ST3)

The statement underscores the effectiveness of interactive tools like quizzes or polls in boosting student focus and understanding during reading activities. These tools enhance engagement by promoting active participation and providing immediate feedback, contributing to a more dynamic learning experience. However, it is crucial to balance technological interactivity with the cognitive demands of critical reading to ensure these tools support, rather than distract from, the primary goal of developing deeper comprehension skills.

"Group discussions through online platforms or interactive apps make me feel more involved in analyzing the text."(ST6)

Online group discussions enhance engagement and critical analysis by fostering collaboration and diverse perspectives. However, their effectiveness depends on platform usability, structured facilitation, and addressing challenges like unequal participation and distractions. Thoughtful integration is key to maximizing their impact.

Furthermore, teachers with exceptional connections successfully fostered engagement, enhancement, and extension in learning through effective technology integration. They utilized various tools available in schools, such as laptops, smartphones, and Wi-Fi, to their full potential. Students experienced high levels of engagement as they actively participated in learning activities through their own devices, ensuring alignment between the teaching methods and students' needs. These teachers captured students' attention by incorporating simple, relevant games tied to the learning material. Additionally, students were able to explore transdisciplinary aspects of learning as teachers leveraged technology to assist with information gathering. Learning extended beyond the classroom, as students were assigned projects to complete on the LMS platforms, such as WhatsApp or Civiolin.

The obtained results portrayed technology tools used by the observed teachers can effectively foster learning objectives being set, with several terms and conditions underlying it. The observations done employing the Triple-E framework has showed that the technology tools' effectiveness is highly influenced by the teachers' competence. The teachers' competence being highlighted in this context reflects digital literacy and modern classroom management [14]. The digital literacy in this scope indeed is wide, reflecting IOT comprehensions, technology integration in classroom, online assessment, and project-based. When these aspects are well occupied, the tendency of obtaining effectiveness in the integration of technology is getting high, vice versa [15], [16].

Conclusions

The findings of this study confirm that the integration of multimedia and interactive tools, when guided by the Triple E Framework (Kolb, 2017), significantly improves student engagement, motivation, and critical thinking in EFL critical reading contexts. The principles of Engagement, Enhancement, and Extension, as outlined in the framework, were reflected in the way technology facilitated students' focus on reading tasks, enriched their comprehension, and encouraged them to apply critical reading skills beyond the classroom. This aligns with (Khan et al., 2023) assertion that engagement is a key predictor of academic success and with (Amzil et al., 2023) emphasis on technology's role in enhancing personalized and meaningful learning.

The use of gamified tools and collaborative digital activities also supported Tiansoodeenon & Prasongngern (2025) and Heriyawati et al. (2024) findings on the power of interactive platforms to boost learner participation and higher-order thinking. Furthermore, as noted by [17] the implementation of group discussions and literature circles enabled students to process reading materials more critically through social learning environments.

While the results indicate that technology can support critical reading instruction effectively, this outcome is highly dependent on teacher competence in digital pedagogy[18] and classroom management. Teachers who demonstrated higher digital literacy were more successful in creating meaningful connections between tools and

learning goals. Therefore, this study reinforces the importance of professional development and training programs that equip educators with the skills needed to use technology purposefully and pedagogically.

In addressing the research gaps, this study contributes empirical evidence to the limited body of literature applying the Triple E Framework in large, under-resourced, and culturally diverse EFL classrooms. Future research should investigate longitudinal effects of technology integration and explore scalable models that strengthen teacher readiness, particularly in regions with limited infrastructure.

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