INEQUALITY IN ACCESS TO TECHNOLOGY AND ITS IMPLICATIONS FOR ENGLISH LANGUAGE LEARNING IN 3T AREAS

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ABSTRACT

Inequality in access to technology remains a significant challenge in education, particularly in Indonesia's 3T (underdeveloped, frontier, and outermost) regions. This article discusses inequality in access to technology and its implications for English language learning in 3T areas, highlighting how limitations in digital infrastructure, internet access, and availability of technological devices affect the English language learning process. Through a qualitative approach based on literature studies and educational policy analysis, this research reveals that the technological gap has a direct impact on students' low exposure to authentic learning resources, limited use of digital learning media, and minimal development of English communication skills. In addition, teachers in 3T areas face pedagogical challenges due to limited technology training and institutional support. These findings indicate that technological inequality not only widens the gap in education quality but also hinders the equitable distribution of English language skills as a global competency. Therefore, sustainable policy interventions are needed, including strengthening digital infrastructure, providing learning devices, and increasing teacher capacity, in order to create more inclusive and equitable English language learning in 3T regions.

Keywords : *Inequality in Access to Technology; English Language Learning; 3T Regions; Digital Divide; English Language Education.*

INTRODUCTION

Technological advancement has transformed educational practices worldwide, particularly in the field of English language learning. Digital technologies provide learners with access to authentic language input, interactive learning environments, and opportunities for autonomous and collaborative learning. However, these benefits are not equally distributed. Unequal access to technology has created what scholars describe as the *digital divide*, which remains a major obstacle to educational equity. Van Dijk (2006) clearly states that *"the digital divide is not merely a gap in physical access to technology, but also a divide in skills, usage, and outcomes"* (p. 221). This suggests that technological inequality affects not only availability but also learners' ability to benefit meaningfully from digital resources.

In the context of education, technological inequality significantly influences learning outcomes. Warschauer (2003) emphasizes that *"inequitable access to information and communication technologies can reinforce existing social inequalities and limit students' academic development"* (p. 45). Students who lack access to digital tools are deprived of opportunities to develop essential skills needed in modern learning environments, including language proficiency, critical thinking, and digital literacy. This condition is particularly detrimental for language learning, where exposure, repetition, and interaction are crucial.

In Indonesia, the issue of unequal access to technology is most evident in the *3T areas* (*Tertinggal, Terdepan, dan Terluar*). These regions are characterized by limited infrastructure, poor internet connectivity, inadequate educational facilities, and restricted access to digital devices. According to Farhatin (2025), *"digital transformation in education in Indonesia presents serious challenges, especially in the 3T regions, which still face significant limitations in digital infrastructure, technological devices, and digital literacy"* (p. 1498). Such conditions place students in 3T areas at a structural disadvantage compared to their peers in urban settings.

The implications of this inequality are particularly severe for English language learning. English instruction increasingly depends on technology-based approaches such as multimedia learning, online listening materials, digital dictionaries, and language learning applications. Warschauer and Healey (1998) argue that *"technology enhances second language acquisition by increasing learners' exposure to the target language and providing opportunities for authentic communication"* (p. 57). However, when technological access is limited, these pedagogical advantages become inaccessible, resulting in reduced language exposure and slower language development among students in remote areas.

Furthermore, teacher readiness and digital competence play a crucial role in integrating technology into English language teaching. Gena and Wismadewi (2025) note that *"digital inequality in language education encompasses disparities in infrastructure, teachers' digital skills, and learners' ability to engage with technology-mediated instruction"* (p. 3). In many 3T areas, teachers receive limited training in educational technology, which further restricts effective English instruction. As a result, students experience a compounded disadvantage caused by both infrastructural limitations and pedagogical constraints.

Consequently, inequality in access to technology not only affects the quality of English language learning in 3T areas but also perpetuates broader educational and social inequalities. Students in these regions are less prepared to compete academically and professionally in an increasingly globalized world where English proficiency and digital competence are essential. Therefore, it is crucial to examine the extent of technological inequality in 3T regions and its

implications for English language learning, in order to develop more inclusive, context-appropriate, and equitable educational strategies.

METHOD

Research Design

This study employs a qualitative descriptive research design to explore inequality in access to technology and its implications for English language learning in 3T areas. Qualitative research is appropriate because it allows for an in-depth understanding of participants' experiences, perceptions, and challenges related to technology use in English language education. As Creswell (2014) states, *"qualitative research is an approach for exploring and understanding the meaning individuals or groups ascribe to a social or human problem"* (p. 4). This design enables the researcher to capture the contextual realities of English language teaching and learning in underdeveloped regions.

Research Site and Participants

The research is conducted in a 3T area in Indonesia, selected due to its limited technological infrastructure and relevance to the research focus. The participants consist of English teachers and students at the secondary school level. Teachers are selected because they play a crucial role in integrating technology into instruction, while students are included to capture learners' experiences and challenges in accessing technology for English learning. Participants are chosen using purposive sampling, ensuring that those involved have direct experience with technology use (or lack thereof) in English language learning.

Data Collection Techniques

Data are collected through semi-structured interviews, classroom observations, and document analysis.

1. Semi-Structured Interviews

Interviews are conducted with English teachers and selected students to explore their experiences, perceptions, and difficulties related to access to technology. Semi-structured interviews allow flexibility while ensuring that key topics such as availability of devices, internet access, and digital learning practices are consistently addressed. According to Kvale (2007), *"interviews are particularly useful for obtaining detailed descriptions of participants' lived experiences."*

2. Classroom Observations

Classroom observations are used to examine how English instruction is conducted in practice and to identify the extent to which technology is integrated into teaching and learning activities. Observation enables the researcher to capture real classroom conditions that may not be fully articulated in interviews.

3. Document Analysis

Relevant documents such as lesson plans, teaching materials, school policies, and curriculum guidelines are analyzed to support and triangulate the findings from interviews and observations.

Data Analysis

The data are analyzed using thematic analysis. The process involves several steps: data familiarization, coding, categorization, theme development, and interpretation. Braun and Clarke (2006) explain that *"thematic analysis is a method for identifying, analyzing, and reporting*

patterns (themes) within data" (p. 79). Through this process, recurring themes related to technological inequality, instructional challenges, and impacts on English language learning are systematically identified.

Trustworthiness of the Study

To ensure the credibility and trustworthiness of the findings, the study applies triangulation by comparing data from interviews, observations, and documents. Member checking is also conducted by sharing preliminary findings with participants to confirm accuracy. Lincoln and Guba (1985) assert that *"trustworthiness in qualitative research is established through credibility, transferability, dependability, and confirmability"* (p. 290).

Ethical Considerations

Ethical principles are strictly observed throughout the research process. Participants are informed about the purpose of the study and provide informed consent prior to data collection. Confidentiality and anonymity are ensured by using pseudonyms and omitting identifying information. Participants are also informed that their participation is voluntary and that they may withdraw from the study at any time without consequences.

RESULTS AND DISCUSSIONS

Based on data collected through interviews, classroom observations, and document analysis, the study identified several major themes related to inequality in access to technology and its implications for English language learning in 3T areas.

Limited Access to Technological Infrastructure

The findings reveal that access to technological infrastructure in the studied 3T area is severely limited. Most schools experience unstable or nonexistent internet connectivity, and access to digital devices such as laptops, projectors, and tablets is minimal. Many students rely solely on basic mobile phones, often shared among family members.

Teachers reported that unreliable internet access makes it difficult to use online learning platforms or digital English learning materials. One teacher stated that English lessons are often conducted using traditional methods because *"internet access is unpredictable and digital devices are not available for classroom use."* This condition restricts both teachers and students from engaging in technology-enhanced language learning.

Chinh, et. al (2014) yang menyatakan bahwa *inequality in access to English language learning is strongly influenced by disparities in educational resources, teacher quality, and learning facilities between urban and rural areas*. Their study reveals that students in disadvantaged regions experience limited exposure to qualified English teachers, insufficient learning materials, and minimal opportunities to practice English, which ultimately hinders their language development. Similarly, the findings of the present study indicate that students in 3T areas face comparable challenges, particularly in terms of limited technological infrastructure and restricted access to digital English learning resources, resulting in lower quality English language learning outcomes.

Low Digital Literacy Among Teachers and Students

Another significant finding is the low level of digital literacy among both teachers and students. Although some teachers are familiar with basic technology use, most lack sufficient training in integrating digital tools into English language instruction. Students also reported limited experience using educational technology, particularly for language learning purposes.

Classroom observations showed that English instruction rarely involved multimedia content, audio-visual materials, or interactive digital activities. This lack of digital competence further reinforces inequality, as students in 3T areas are not exposed to learning practices commonly used in more developed regions.

Furthermore, the findings of this study are also consistent with the research conducted by Michael (2018), who emphasizes that *closing the digital divide is essential for providing equitable English language learning opportunities for underserved populations*. Michael (2018) argues that limited access to digital technology restricts learners' exposure to authentic English input, online learning platforms, and interactive communication tools, thereby constraining their language development. Similarly, the present study demonstrates that students in 3T areas experience restricted access to technology, which limits the use of digital resources in English instruction and contributes to unequal learning outcomes compared to students in more advantaged regions.

In addition, the findings of this study are aligned with the research of Tawfik, Reeves, and Stich (2016), who state that *educational technology, while intended to enhance learning opportunities, can unintentionally exacerbate social and educational inequalities when access, support, and implementation are uneven*. Their study highlights that students from disadvantaged backgrounds often benefit less from educational technology initiatives due to limited access to devices, insufficient infrastructure, and lack of pedagogical support. Similarly, the present study reveals that in 3T areas, the introduction of technology in English language education does not automatically lead to improved learning outcomes; instead, without adequate access and teacher preparedness, technology may reinforce existing inequalities rather than reduce them.

Impact on English Language Learning Quality

This limited exposure to authentic English input also reduces students' opportunities to develop communicative competence in real-life contexts. Without access to audio-visual materials and interactive platforms, learners rarely encounter natural pronunciation, varied accents, or contextualized language use, which are essential for developing listening comprehension and oral fluency. As a result, students tend to rely heavily on rote memorization and translation-based learning, rather than engaging in meaningful communication.

Furthermore, the absence of technology-supported learning environments constrains the implementation of student-centered approaches in English classrooms. Teachers reported that time constraints and lack of digital resources hinder their ability to design interactive learning activities such as listening exercises, role plays, or collaborative projects. Consequently, classroom interaction is minimal, and students often assume passive roles as recipients of information rather than active language users. This learning environment limits students' confidence and willingness to communicate in English.

In addition, the monotonous nature of textbook-centered instruction contributes to low learner motivation. Students expressed that English lessons felt repetitive and disconnected from real-world usage, which diminished their interest in learning the language. This finding suggests that technological inequality not only affects linguistic development but also impacts students' affective factors, such as motivation, engagement, and self-efficacy. Over time, these limitations may hinder students' long-term language achievement and reduce their readiness to participate in higher education and global communication contexts.

Discussion

The findings of this study confirm that inequality in access to technology significantly affects English language learning in 3T areas. These results align with Van Dijk's (2006) assertion that the digital divide involves not only physical access but also disparities in skills and educational outcomes. In the present study, limited infrastructure combined with low digital literacy created multiple layers of disadvantage for both teachers and learners.

This layered inequality manifests in restricted pedagogical practices, limited learner engagement, and reduced opportunities for meaningful language use. Teachers are often unable to integrate digital tools into English instruction due to inadequate infrastructure and insufficient training, resulting in predominantly teacher-centered and textbook-based learning environments. Consequently, students receive minimal exposure to authentic English input and interactive learning activities, which are essential for developing communicative competence.

Moreover, the findings support Warschauer's (2003) argument that unequal access to information and communication technologies reinforces existing educational disparities. In 3T areas, students are excluded from technology-enhanced language learning experiences that could foster autonomy, motivation, and proficiency in English. This exclusion not only affects immediate learning outcomes but also limits students' long-term academic and professional opportunities in an increasingly digital and globalized world.

Overall, the study demonstrates that technological inequality functions as a structural barrier to equitable English language education. Without targeted interventions addressing infrastructure development, digital literacy training, and pedagogical support, students in 3T areas will continue to face systemic disadvantages compared to their peers in more technologically privileged contexts.

The lack of technological access supports Warschauer's (2003) argument that *"inequitable access to ICT can reinforce existing educational and social inequalities"* (p. 45). Students in 3T areas are excluded from digital learning opportunities that could enhance their English proficiency, thus widening the gap between them and students in urban schools.

This widening gap is evident in students' limited exposure to communicative language practices and technology-mediated learning environments that are increasingly common in urban schools. While students in urban contexts benefit from multimedia resources, online language platforms, and opportunities for virtual interaction in English, learners in 3T areas remain confined to traditional instructional methods. As a result, they develop English skills at a slower pace and face greater challenges in achieving communicative competence.

Moreover, the exclusion from digital learning opportunities negatively affects students' motivation and confidence in using English. Without access to engaging and interactive learning tools, English learning is often perceived as difficult and irrelevant to real-life communication. Over time, this condition contributes to lower participation, reduced learner autonomy, and diminished aspirations for further education. Therefore, the lack of technological access not only reinforces educational inequality but also perpetuates long-term social disparities, as students in 3T areas are less prepared to compete academically and professionally in a globalized, English-mediated world.

The findings also resonate with Farhatin (2025), who found that schools in 3T regions face persistent challenges related to internet connectivity, availability of devices, and digital competence. Similarly, Gena and Wismadewi (2025) emphasize that digital inequality in language education includes limitations in infrastructure and teachers' ability to integrate technology into

instruction. The present study further demonstrates that these challenges directly affect students' exposure to authentic English language input and communicative learning opportunities.

Moreover, the absence of technology-supported English instruction contradicts the pedagogical potential described by Warschauer and Healey (1998), who argue that technology facilitates language acquisition by increasing exposure and interaction. In the studied 3T context, this potential remains largely unrealized due to systemic constraints.

Overall, the findings suggest that inequality in access to technology not only limits instructional practices but also reduces students' motivation, engagement, and language development. Without targeted interventions, students in 3T areas will continue to face disadvantages in English language learning and broader educational outcomes.

This persistent disadvantage highlights the systemic nature of technological inequality in education. The absence of targeted interventions such as improved infrastructure, teacher professional development, and context-sensitive technological solutions prevents meaningful changes in English language instruction. Consequently, students in 3T areas remain marginalized within the educational system, with limited access to learning experiences that foster communicative competence and digital literacy.

Furthermore, the long-term implications of this inequality extend beyond the classroom. Limited English proficiency and insufficient digital skills restrict students' opportunities for higher education, employment, and participation in global communication networks. As English and technology increasingly function as gatekeepers to academic and professional advancement, students in technologically disadvantaged regions face compounded barriers that reinforce cycles of educational and social inequality. Therefore, addressing technological inequality in 3T areas is not only an educational imperative but also a critical step toward promoting social equity and inclusive development.

Furthermore, the findings of this study are also consistent with the research conducted by Ikhlas (2018), which states that *the effectiveness of learning outcomes is strongly influenced by the appropriateness of instructional models and students' cognitive characteristics*. Ikhlas (2018) found that problem-based learning significantly improves students' learning outcomes when supported by instructional strategies that actively engage learners. Similarly, the present study indicates that the absence of supportive learning tools, including technology, limits the implementation of student-centered approaches in English language learning. As a result, students in 3T areas experience fewer opportunities for active engagement, which negatively affects their learning outcomes.

In addition, the findings of this study are in line with the research conducted by Sari, et.al (2025), which states that *the development of 21st-century skills requires learning strategies that integrate critical thinking, collaboration, creativity, communication, and the effective use of technology within the curriculum*. Their study emphasizes that curriculum implementation without adequate technological support limits students' ability to develop these essential skills. Similarly, the present study demonstrates that inequality in access to technology in 3T areas constrains the integration of technology-supported learning strategies in English language instruction, thereby limiting students' opportunities to develop communicative competence, critical thinking, and digital literacy as key components of 21st-century skills.

Furthermore, the findings of this study are in line with the research conducted by Ikhlas (2021), entitled *"Mathematics Online Learning via WhatsApp: How Effective?"*. The study reports that online learning through simple and widely accessible platforms such as WhatsApp can support

learning continuity; however, its effectiveness is highly dependent on students' access to devices, internet connectivity, and learning support. Ikhlas (2021) emphasizes that limited technological access and uneven digital readiness reduce students' engagement and learning outcomes. Similarly, the present study shows that in 3T areas, limited access to technology constrains the effectiveness of English language learning, even when low-cost digital platforms are utilized. This indicates that technology alone is insufficient to improve learning outcomes without adequate infrastructure and learner readiness.

This study demonstrates that technological inequality in 3T areas has profound implications for English language learning. Limited infrastructure, low digital literacy, and lack of pedagogical support restrict the use of technology in English classrooms, resulting in reduced learning quality and opportunities. These findings highlight the urgent need for context-appropriate technological support, teacher training, and policy interventions to promote more equitable English language education.

CONCLUSIONS

This study concludes that inequality in access to technology significantly affects the quality and effectiveness of English language learning in 3T areas. Limited technological infrastructure, including unstable internet connectivity and insufficient access to digital devices, restricts the integration of technology into English language instruction. As a result, teaching practices in these regions remain largely traditional and textbook-centered, limiting students' exposure to authentic and interactive English language input.

Furthermore, the study reveals that low levels of digital literacy among both teachers and students exacerbate the impact of technological inequality. Teachers in 3T areas often lack adequate training and professional development opportunities to effectively incorporate digital tools into English language teaching. Consequently, students are deprived of meaningful learning experiences that could enhance their listening, speaking, reading, and writing skills through technology-supported instruction.

The findings also demonstrate that technological inequality contributes to broader educational disparities. Students in 3T areas experience reduced motivation, limited language practice opportunities, and lower English proficiency compared to students in more technologically advantaged regions. This situation reinforces existing social and educational inequalities, supporting previous research that highlights the role of the digital divide in perpetuating unequal learning outcomes.

In conclusion, addressing inequality in access to technology is essential for improving English language learning in 3T areas. Efforts to provide adequate infrastructure, enhance teacher digital competence, and develop context-appropriate technological solutions are urgently needed to promote equitable, inclusive, and effective English language education for learners in underserved regions.

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