



Beyond Access: Exploring the Dimensions of Digital Inequality among English Education Students in Islamic Higher Education

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Abstract: *The integration of digital technology in higher education has significantly reshaped learning practices and academic engagement. However, the benefits of digital transformation are not evenly distributed among students, leading to persistent inequalities known as the digital divide. This study explores the dimensions and determinants of digital inequality among Tadris Bahasa Inggris (English Education) students at the Islamic Institute of Miftahul Ulum Tanjungpinang. Using a qualitative case study approach, data were collected through observations, semi-structured interviews, and document analysis involving 15 undergraduate students. The findings reveal that while students have sufficient access to digital devices and the Internet, disparities exist in digital literacy, motivation, and the quality of technology use. Five main factors contribute to the digital divide: differences in digital competence, psychological barriers, limited institutional support, unequal technological engagement, and overreliance on artificial intelligence. These findings confirm that digital inequality has shifted from physical access to differences in digital engagement and benefits, aligning with Van Dijk's (2005) multidimensional model. The study emphasizes the need for comprehensive digital literacy programs, curriculum integration of technology, and supportive institutional policies to foster equitable digital learning environments. Theoretically, this research extends the discussion on the second-level digital divide within the context of English language education in Islamic higher education, offering insights for developing inclusive and technology-enhanced pedagogical practices.*

Keywords: *Digital Divide; Digital Literacy; English Education; Islamic Higher Education; Technology Enhanced Learning.*

1. INTRODUCTION

The digital revolution has transformed various aspects of human life, including the field of education. Digital technology has reshaped the way teaching and learning are conducted, offering new opportunities for flexibility, accessibility, and innovation in the learning process. In higher education, especially in English language teaching programs, technology plays an essential role in facilitating communication, collaboration, and access to authentic learning materials. However, the integration of technology into education is not always evenly distributed across social, economic, and institutional contexts. This imbalance has led to what scholars identify as the *digital divide*, a phenomenon describing unequal access to and use of information and communication technologies (ICT) (Van Dijk, 2005; Hargittai, 2002).

Despite the rapid advancement of ICT infrastructure in Indonesia, disparities in digital competence and utilization persist among students in tertiary institutions. Previous studies have largely focused on digital inequality in urban versus rural contexts or between developed and developing regions (Ragnedda & Ruiu, 2017; Song, Wang, & Bergmann, 2020). However, limited research has explored how this phenomenon manifests within specific academic disciplines—particularly within English Education programs in Islamic higher education contexts. This indicates a significant research gap in understanding how students' digital

readiness, motivation, and institutional support interact to shape learning outcomes in language education.

The urgency of addressing the digital divide in higher education is twofold. Scientifically, it is essential to understand the socio-technical dynamics that influence access to and engagement with technology in academic learning environments. Practically, as universities increasingly shift toward digital and hybrid learning models, unequal access and skill levels among students can exacerbate educational inequalities (Van Deursen & Van Dijk, 2014). Moreover, in the era of the Industrial Revolution 5.0, digital competence has become a fundamental skill for both academic success and future employability (Shin et al., 2021). Therefore, understanding and mitigating the digital divide among students is a critical step toward achieving inclusive and equitable education.

This study aims to explore the phenomenon of the digital divide among English Education (Tadris Bahasa Inggris) students at the Islamic Institute of Miftahul Ulum Tanjungpinang. Specifically, it investigates the forms of digital inequality experienced by students, the contributing factors, and the impact of these inequalities on their learning engagement and academic performance. Furthermore, this study seeks to propose strategies that can help reduce the gap by improving students' digital literacy, institutional support, and technological access.

The findings of this study contribute to both theoretical and practical domains. Theoretically, it enriches the discourse on digital inequality by contextualizing it within English language education in an Islamic higher education setting, a domain that remains underexplored. Practically, the study offers evidence-based recommendations for developing digital literacy programs and integrating technology-enhanced learning in curriculum design. By addressing the identified gaps, this research contributes to advancing the understanding of how higher education institutions can foster digital equity and improve educational quality in the digital era.

2. LITERATURE REVIEW

Theoretical Framework

The concept of the *digital divide* initially emerged in the mid-1990s, referring to disparities between individuals who have access to digital technology and those who do not (National Telecommunications and Information Administration [NTIA], 1995, as cited in Shin et al., 2021). In its early stage, access was understood mainly in physical and infrastructural terms—whether individuals or communities possessed devices and Internet connections (Wise,

2007, as cited in Selwyn, 2004). However, scholars have since recognized that digital inequality extends beyond physical access to include differences in digital skills, motivation, and meaningful use of technology (Van Dijk, 2005; Hargittai, 2002; Van Deursen & Van Dijk, 2014).

Van Dijk (2005) proposed a hierarchical model of the digital divide consisting of four progressive dimensions: motivational access, material or physical access, skills access, and usage access. Similarly, Van Deursen and Van Dijk (2014) emphasized that digital inequality involves not only who has technology but also how effectively it is used to achieve learning outcomes. Other scholars have categorized the digital divide into three levels: access (first-level divide), use and skills (second-level divide), and outcomes or benefits derived from ICT (third-level divide) (Song et al., 2020; Ragnedda & Ruiu, 2017). These models highlight that addressing digital inequality requires a multidimensional approach encompassing infrastructure, skills, and social capital.

Empirical Studies on the Digital Divide

Empirical research on the digital divide has revealed various determinants influencing access and engagement with technology. Shin et al. (2021) classified these determinants into three main categories: sociodemographic factors, digital literacy, and motivational needs. Studies have shown that gender, age, income, education, and geographic location play significant roles in shaping individuals' access to and proficiency with digital tools (Castells, 2001; Wessels, 2013, as cited in Piatak et al., 2018). Vicente Cuervo and López Menéndez (2006) as well as Lindblom and Räsänen (2017) found that higher income levels correlate positively with ICT use, while lower socioeconomic groups experience more barriers to digital participation. Furthermore, Van Deursen (2015, as cited in Elena-Bucea et al., 2020) identified educational attainment as a strong predictor of Internet-based learning activities.

In the field of education, several studies have addressed how digital inequality affects academic performance and engagement. Calderón Gómez (2020) found that disparities in digital skills among university students influence their ability to critically engage with online learning resources. Correa (2016, as cited in Calderón Gómez, 2020) observed that even when students have similar access to technology, differences in confidence and digital literacy lead to unequal learning outcomes. Likewise, Ragnedda and Ruiu (2017) demonstrated that the benefits of digital technology are not automatically realized without adequate skills and motivation to use ICT purposefully. In Indonesia, recent studies have also revealed that despite increasing Internet penetration, many university students still face difficulties in using

technology effectively for academic purposes, especially in teacher education programs (Valdez & Javier, 2020).

Research Gap

While prior research has provided valuable insights into the global and national dimensions of digital inequality, few studies have explored how these disparities manifest within specific academic disciplines, particularly in English language education at Islamic higher education institutions. Existing literature has primarily focused on general digital access or infrastructure, overlooking the pedagogical and linguistic implications of the digital divide for English language learners. Moreover, there is limited empirical evidence explaining how students' psychological factors—such as confidence, motivation, and anxiety toward technology—interact with institutional policies to shape digital learning experiences. This study thus addresses a crucial gap by examining the multifaceted nature of digital inequality among English Education students in a localized Indonesian context.

Summary and Contribution

The literature collectively emphasizes that the digital divide is no longer simply a matter of having or not having access to technology, but of how individuals engage with and benefit from it. This study contributes to the growing body of research by contextualizing the digital divide within the domain of English language education, where digital literacy is increasingly essential for both teaching and learning. By focusing on students of *Tadris Bahasa Inggris* at IAI Miftahul Ulum Tanjungpinang, this research extends the discussion from theoretical frameworks toward practical implications, highlighting the intersection of technology, pedagogy, and equity. The findings are expected to provide a nuanced understanding of digital inequality and inform strategies for fostering inclusive, technology-enhanced learning environments in higher education.

3. METHOD

Research Design

This study employed a qualitative research design with a case study approach. Qualitative research aims to explore and understand social phenomena in depth, focusing on participants' experiences and perspectives within their natural context (Bogdan & Biklen, 2016; Rukajat, 2018). The case study design was chosen to allow an in-depth exploration of the multifaceted nature of the digital divide among English Education students. According to Yin (2013), case studies are particularly appropriate for examining contemporary issues within real-life contexts when the boundaries between the phenomenon and its context are not clearly

defined. This approach enables researchers to capture complex interactions between students, technology, and institutional structures. The present study adopted an intrinsic case study (Mulyana, 2018), focusing on understanding the unique characteristics of the digital divide within the Tadris Bahasa Inggris program at IAI Miftahul Ulum Tanjungpinang.

Research Site and Duration

The study was conducted at the English Education (Tadris Bahasa Inggris) Program, Faculty of Education, Islamic Institute of Miftahul Ulum, Tanjungpinang, Indonesia. The research took place over a four-month period, from March to July 2024. During this period, the researchers conducted several stages of data collection, including proposal preparation, field observation, interviews, and data analysis.

Participants

Participants consisted of undergraduate students enrolled in the Tadris Bahasa Inggris program during the 2023–2024 academic year. A purposive sampling technique was employed to select participants who met specific inclusion criteria, ensuring that the data obtained were relevant and representative of the phenomenon under study. The criteria included: (1) active student status in the English Education program, (2) at least six semesters of study experience, (3) ownership and regular use of digital devices (smartphone or laptop), (4) prior experience with online or technology-assisted English learning, and (5) willingness to participate in in-depth interviews and observations. A total of 15 students participated in this study, representing both male and female students with diverse digital experiences.

Instruments and Data Collection

Data were collected using three primary techniques: observation, semi-structured interviews, and document analysis. Observation enabled the researchers to capture authentic behaviors and digital practices in both academic and non-academic settings (M. Djunaidi Ghoni, 2012; Sukardi, 2014). The interviews provided detailed insights into students' experiences, challenges, and attitudes toward technology, while documentation—such as students' screen-time reports and assignment samples—was used to triangulate and validate findings (Arikunto, 2006). The semi-structured interview format allowed flexibility to probe emerging themes while maintaining consistency across participants. All interviews were conducted in Bahasa Indonesia, recorded with participants' consent, and later transcribed for analysis.

Data Analysis

The collected data were analyzed using thematic and content analysis techniques. Thematic analysis followed the procedures outlined by Braun and Clarke (2006), including

familiarization with the data, coding, identification of themes, and interpretation of patterns. Content analysis was applied to documents and observational notes to identify recurring categories and relationships between variables. To ensure credibility and trustworthiness, data triangulation was employed by cross-verifying information obtained from multiple sources (Moleong, 2014). The interactive model of Miles and Huberman (1992) guided the analytical process, consisting of three interconnected phases: data reduction, data display, and conclusion drawing/verification. This iterative process allowed continuous refinement of emerging findings to produce a comprehensive understanding of the digital divide phenomenon.

4. RESULTS AND DISCUSSION

Results

The analysis revealed that the digital divide among Tadris Bahasa Inggris students at IAI Miftahul Ulum Tanjungpinang is not rooted in a lack of access to technology, but rather in the quality of digital engagement and utilization. All participants reported owning smartphones and laptops, and most had stable Internet access through home Wi-Fi or campus facilities. However, the data showed that the majority of students spent more than six hours per day on social media platforms such as TikTok, Instagram, and WhatsApp, primarily for social interaction and entertainment purposes rather than academic learning. This indicates a behavioral gap between access and purposeful use of digital tools.

Five main factors contributing to digital inequality were identified: (1) human resource and skill disparities, (2) psychological barriers, (3) institutional policy limitations, (4) technological engagement patterns, and (5) the influence of artificial intelligence (AI) on learning behavior. The first factor—differences in digital literacy—emerged as the most significant. While some students demonstrated strong digital competence, others struggled with basic technological tasks, such as using learning management systems or creating digital learning materials. Students reported limited exposure to structured digital literacy training within their academic program.

Psychological factors also contributed to the divide. Several participants expressed anxiety, self-doubt, and lack of motivation when using new technologies. This emotional resistance led to avoidance behavior, reducing their engagement with digital learning platforms. In addition, institutional policies and limited pedagogical integration of technology further exacerbated the gap. Students perceived that the curriculum and teaching methods remained largely traditional, relying heavily on printed materials and lectures rather than interactive digital resources.

Another notable finding was the students' reliance on AI-powered tools for completing academic tasks. While AI applications provided convenience and instant feedback, their overuse reduced opportunities for critical thinking and independent learning. Several students admitted depending on AI for translation, grammar checking, and even essay writing. Observational data confirmed that assignments often exhibited uniform structures and impersonal language patterns, suggesting limited original input from students. This phenomenon reflects what Van Deursen and Van Dijk (2014) describe as a second-level digital divide, where disparities arise not from access, but from the quality and depth of digital use.

Despite these challenges, participants also proposed practical strategies to overcome the digital divide. They emphasized the need for structured digital literacy workshops, peer collaboration, improved access to updated computer laboratories, and curriculum reforms that integrate technology-enhanced English learning. The students' perspectives indicate strong awareness of the issue and willingness to adapt if institutional support is strengthened.

Discussion

The findings highlight that digital inequality among English Education students is multidimensional, aligning with Van Dijk's (2005) hierarchical model of digital access and use. Although physical and infrastructural access was no longer a major barrier, disparities persisted in motivational, skills-based, and usage dimensions. This pattern supports previous studies by Hargittai (2002) and Ragnedda and Ruiu (2017), who emphasized that digital divides evolve from access-related issues into more complex socio-cognitive and behavioral gaps.

The students' tendency to use technology primarily for social and entertainment purposes rather than academic engagement echoes findings by Calderón Gómez (2020), who noted that young people's digital behavior often prioritizes leisure activities over productive or educational use. This behavioral trend reflects what Van Deursen and Van Dijk (2014) describe as usage inequalities—differences in how digital tools are employed to achieve meaningful outcomes. In the context of this study, the imbalance between social and academic digital use underscores the need to cultivate digital discipline and metacognitive awareness among students.

Psychological barriers identified in this research, such as anxiety and lack of self-confidence, align with Correa's (2016) observation that affective factors can significantly influence individuals' digital participation. Students' fear of making mistakes or being judged for technological incompetence often discourages them from experimenting with digital tools. Addressing this requires pedagogical approaches that foster supportive learning environments where mistakes are treated as learning opportunities rather than failures.

Institutional factors also play a crucial role. The lack of curriculum integration and faculty digital competence mirrors concerns raised by Valdez and Javier (2020), who argued that institutional readiness is pivotal in reducing educational digital gaps. Universities that provide structured digital training and incorporate technology into coursework tend to cultivate students who are not only consumers but also creators of digital content. In this study, the absence of institutional initiatives limited students' opportunities to develop higher-order digital skills relevant to their future roles as English educators.

The findings concerning students' overreliance on AI tools raise a new dimension of digital inequality in the age of intelligent technologies. While AI can enhance efficiency and accessibility, it also risks fostering intellectual passivity when used uncritically. As Fuchs (2021) suggests, digital competence in the AI era must encompass not only operational skills but also critical awareness of algorithmic bias, data ethics, and intellectual autonomy. In the context of English language learning, overdependence on AI for translation and composition may hinder linguistic development and creative expression.

From a broader perspective, this study reinforces the argument that bridging the digital divide requires multidimensional interventions encompassing technical, pedagogical, and socio-psychological aspects. Enhancing digital literacy through workshops and training programs is necessary but insufficient without curricular reforms that embed technology into language learning tasks. Peer collaboration, mentoring, and reflective digital practices can also promote more equitable participation. Moreover, institutional commitment to continuous technological infrastructure development is essential to sustain long-term progress.

Overall, this research contributes to the theoretical discourse on digital inequality by contextualizing it within an Islamic higher education setting—an area rarely explored in prior studies. It provides empirical evidence that the digital divide is not only a technological issue but also a cultural and pedagogical challenge shaped by institutional norms and learner identities. Practically, the findings highlight the importance of integrating digital competence as a core learning outcome in English Education curricula to prepare graduates for the demands of the digital and post-digital workforce.

5. CONCLUSION

This study investigated the phenomenon of the digital divide among *Tadris Bahasa Inggris* students at the Islamic Institute of Miftahul Ulum Tanjungpinang. The findings reveal that digital inequality no longer centers on access to devices or Internet connectivity but rather on disparities in digital literacy, motivation, and purposeful engagement with technology.

While most students possess smartphones, laptops, and stable Internet connections, their use of technology is often dominated by social and entertainment activities rather than academic applications. The analysis identified five major contributing factors—digital skills, psychological barriers, institutional policies, patterns of technology use, and overreliance on artificial intelligence—each of which influences students’ ability to utilize digital resources for learning effectively. Theoretically, this study enriches the discourse on second- and third-level digital divides by demonstrating how they manifest in the specific context of English language education. It confirms that digital inequality is a multidimensional and evolving issue encompassing cognitive, affective, and institutional dimensions. Practically, the findings emphasize the need for comprehensive strategies to enhance students’ digital competence through structured training, supportive teaching environments, and curriculum reform. Higher education institutions should integrate digital literacy as a core component of teacher education programs and provide equitable access to technological resources to ensure that all students can participate meaningfully in digital learning. Scientifically, this research contributes to the growing body of knowledge on digital inclusion by situating the discussion within an Islamic higher education context—an area that remains underexplored in global scholarship. It highlights how cultural, institutional, and pedagogical factors intersect with technological access to shape students’ learning experiences. The insights from this study may serve as a reference for educators, curriculum designers, and policymakers in developing more inclusive, technology-driven language education models. Future research should expand on these findings by employing longitudinal or mixed-method approaches to explore how digital competence evolves over time and how interventions affect students’ learning outcomes. Further investigations could also examine faculty readiness, gender dynamics, or cross-institutional comparisons to provide a more comprehensive understanding of digital inequality in higher education. Addressing these areas will contribute to creating a more equitable and resilient digital learning ecosystem that supports both academic excellence and social inclusion.

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