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WHEN ACCESS IS NOT ENOUGH: DIGITAL PEDAGOGY AND ACCESSIBILITY IN INDONESIAN EFL LEARNING ENVIRONMENTS

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Abstract: Digital technologies have transformed English language education, yet technological access alone does not ensure meaningful participation in digital learning environments. This quantitative descriptive study investigated accessibility challenges experienced by Indonesian EFL students in digital English language learning platforms. The study addressed three research questions concerning the overall level of accessibility challenges, the contribution of technological, individual, pedagogical, and interactional dimensions, and the most influential dimension affecting students' learning experiences. Data were collected from 78 undergraduate students in an English Language Education program at Universitas Lancang Kuning using a 20-item Likert-scale questionnaire distributed through purposive sampling. The instrument demonstrated acceptable reliability with Cronbach's Alpha exceeding 0.70. Data were analyzed using descriptive statistical procedures with SPSS version 26. The findings revealed a moderate overall level of accessibility challenges (M = 3.00). Among the examined dimensions, pedagogical factors emerged as the most prominent challenge (M = 3.13), followed by engagement and interaction (M = 3.02), technological factors (M = 2.92), and individual factors (M = 2.82). The findings indicate that instructional design and interactional quality influence students' digital learning experiences more strongly than technological infrastructure alone. The study reconceptualizes accessibility as a pedagogical and experiential construct, emphasizing the importance of interaction-rich digital pedagogy and responsive instructional practices in EFL contexts. Limitations include the use of self-reported data and single-site sampling.
Keywords: *digital accessibility, digital pedagogy, EFL learning, online learning, higher education*

INTRODUCTION

The rapid digital transformation of education has profoundly altered the ways knowledge is accessed, constructed, and shared in contemporary academic environments. In the field of English language education, technological advancement has reshaped instructional practices and redefined the learning experiences of students in English as a Foreign Language contexts. Digital platforms now function not only as supplementary tools but also as primary environments where language learning activities take place. Within higher education institutions, the expansion of online learning ecosystems has increased flexibility, expanded access to learning resources, and enabled instructional continuity across geographical and temporal boundaries. This transformation became particularly visible during the global shift to online education following the COVID 19 pandemic, when universities were required to migrate rapidly to digital learning environments (Ismiatun & Suhartoyo, 2022; Duraipandi & Murugan, 2024).

As digital learning environments continue to evolve, they increasingly shape the structure and dynamics of English language instruction. Learning management systems, video conferencing platforms, and large scale online learning ecosystems have enabled participation in learning activities that can occur anytime and

anywhere, thereby expanding opportunities for language exposure and practice (Zhao, 2024; Yaqoob et al., 2023). In EFL programs, lecturers have widely adopted learning management systems and synchronous communication tools such as Moodle and other conferencing platforms to facilitate teaching and interaction in digital classrooms (Masitoh et al., 2024; Ndayambaje et al., 2024). When integrated within blended learning approaches, digital platforms have the potential to increase learner autonomy, encourage interaction, and provide multimodal access to authentic language resources such as online videos and social media content (Đinh, 2025; Burgos & Anthony, 2024). However, despite these advantages, scholars increasingly emphasize that digital access alone does not guarantee meaningful learning experiences. Effective digital learning environments require sufficient digital literacy among learners and instructors, reliable infrastructure, and pedagogically appropriate learning design (Burgos & Anthony, 2024; Ndayambaje et al., 2024). Without these supporting elements, digital learning environments may reproduce inequalities in access and engagement, raising questions about the quality and inclusivity of technology mediated language education (Zhao, 2024).

A growing body of research has emphasized the pedagogical potential of digital platforms in facilitating English language learning. Previous studies consistently report that digital learning environments may increase learner autonomy, support collaborative learning, and expand access to authentic language resources when integrated into well-designed instructional frameworks (Burgos & Anthony, 2024; Hamid & Awhinawhi, 2025). Digital platforms also provide opportunities for synchronous and asynchronous communication that may strengthen students' communicative competence and engagement in language learning activities (Duraipandi & Murugan, 2024; Islam, 2022). In addition, recent studies highlight that online learning ecosystems allow students to access learning materials flexibly across geographical and temporal boundaries, thereby supporting continuity in English language instruction (Yaqoob et al., 2023; Zhao, 2024).

However, despite these reported advantages, findings across previous studies remain inconclusive regarding whether technological access alone can ensure meaningful learning experiences in digital EFL environments. While Burgos and Anthony (2024) emphasize the positive contribution of digital literacy to language learning outcomes, Cui and Wang (2023) argue that many students continue to experience limited peer interaction and reduced collaborative engagement in online classrooms. Similarly, Xu et al. (2024) report that collaborative online learning environments may enhance student participation, whereas Jannah et al. (2024) found that students' willingness to communicate in digital EFL contexts frequently remains constrained by interactional limitations and reduced social presence. These contrasting findings indicate that accessibility in digital language learning involves not only technological availability but also pedagogical and interactional dimensions that shape students' participation experiences.

Another important issue identified in previous research concerns instructors' pedagogical readiness in managing digital learning environments. Several studies suggest that digital language instruction frequently emphasizes platform utilization without sufficiently integrating interactive learning design, responsive feedback, and communicative engagement strategies (Prasetya, 2024; Rababah & Rababah, 2024). In EFL contexts, where language learning depends heavily on interaction and guided participation, limited pedagogical adaptation may reduce the effectiveness and inclusivity of digital learning experiences.

Another crucial component shaping accessibility in digital English learning is learner engagement and interaction. Studies grounded in the Community of Inquiry framework emphasize that meaningful learning in digital environments requires the presence of cognitive, social, and teaching dimensions that support interaction and collaborative learning (Hamid & Awhinawhi, 2025; Huiliang & Guiyue, 2024). However, several studies report that online EFL learning environments often experience reduced peer interaction, limited collaborative engagement, and weaker learning communities compared to traditional classroom contexts (Cui & Wang, 2023; Guntur et al., 2023). These conditions may negatively influence learners' emotional engagement and communicative confidence, particularly when students feel isolated or disconnected from their peers and instructors. As a result, interactional challenges are increasingly recognized as a central aspect of accessibility in digital language learning environments.

Although digital learning challenges have been widely examined in previous scholarship, existing studies predominantly emphasize technological barriers such as internet access, device

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availability, and platform usability while paying comparatively less attention to pedagogical and interactional dimensions of accessibility in digital EFL learning environments (Abbasi et al., 2023; Jannah et al., 2024). Moreover, accessibility has frequently been treated as a technical issue rather than as a multidimensional pedagogical construct that shapes students' meaningful participation and engagement in digital learning processes. Empirical investigations focusing specifically on Indonesian higher education EFL contexts also remain limited. Consequently, there is a need for context-specific research that examines accessibility through technological, pedagogical, individual, and interactional dimensions simultaneously in order to provide a more comprehensive understanding of digital language learning experiences.

In Indonesian higher education contexts, disparities in. digital infrastructure, instructional readiness, and students' technological familiarity may further influence the accessibility and quality of online English language learning experiences.

Table 1. *Summary of previous studies on digital accessibility in EFL learning*

Authors	Research Focus	Main Findings	Research Limitation
Burgos & Anthony (2024)	Digital literacy in EFL learning	Digital literacy improved English proficiency	Focused mainly on technological benefits
Cui & Wang (2023)	Student engagement in online learning	Peer interaction remained limited in digital classrooms	Did not examine pedagogical accessibility
Jannah et al. (2024)	Willingness to communicate in digital EFL contexts	Students experienced interactional constraints	Focused only on communication aspects
Xu et al. (2024)	Collaborative online EFL learning	Online collaboration increased participation	Accessibility dimensions were not comprehensively explored
Prasetya (2024)	Online learning readiness	Students experienced instructional difficulties in online learning	Limited focus on interactional quality

The synthesis presented in Table 1 demonstrates that previous studies have predominantly examined technological, engagement, or communication aspects separately. Limited attention has been given to accessibility as a multidimensional pedagogical construct integrating technological, instructional, interactional, and learner-related dimensions simultaneously, particularly within Indonesian higher education EFL contexts.

This gap indicates the need for more comprehensive investigations into how accessibility challenges shape students' digital language learning experiences.

This study was guided by the following research questions: (1) What is the overall level of accessibility challenges experienced by Indonesian EFL students in digital English language learning environments? (2) To what extent do technological factors, individual factors, pedagogical factors, and engagement and interaction contribute to students' accessibility challenges in digital learning environments? (3) Which dimension of accessibility challenges most strongly influences students' learning experiences in digital EFL contexts?

Responding to this research gap, the present study investigates the accessibility challenges experienced by Indonesian EFL students in using digital English language learning platforms. By employing a quantitative descriptive research design, this study examines the level and dimensions of accessibility challenges that shape students' learning experiences in digital environments.

The novelty of this study lies in its attempt to reconceptualize accessibility not merely as a technological issue but as a pedagogical and experiential phenomenon that emerges from the interaction between instructional practices, learner readiness, and digital learning environments. Through this perspective, the study contributes to a deeper understanding of how accessibility influences digital language learning in higher education contexts.

The findings of this study are expected to contribute both theoretically and practically to the field of English Language Teaching. Theoretically, the study expands current discussions on digital accessibility by positioning

it as a pedagogical construct that influences learners' participation and engagement in digital learning environments.

Practically, the results provide insights for educators, institutions, and policymakers regarding the importance of designing digital learning environments that promote interaction, feedback, and inclusive participation. In the broader context of English language teaching, these findings highlight the need for pedagogically informed digital instruction that aligns technological integration with the communicative nature of language learning. Such efforts are essential to ensure that digital learning environments support not only access to technology but also meaningful and equitable language learning experiences.

METHOD

This study employed a quantitative descriptive research design to investigate accessibility challenges faced by Indonesian EFL students in using digital English language learning platforms. The design was selected to capture students' perceptions through numerical data and to describe the level and dimensions of accessibility challenges without manipulating variables. This approach was considered appropriate because the study aimed to describe students' perceptions and accessibility experiences without manipulating variables or testing causal relationships within digital learning environments.

The participants of this study were undergraduate students enrolled in the English Language Education program at the Faculty of Education and Vocational Studies, Universitas Lancang Kuning. The population consisted of 102 students from the second, fourth, and sixth semesters. Based on Isaac and Michael's sampling table using a 5% margin of error and a 95% confidence level, 78 students were selected as the research sample. The participants were selected purposively to represent different academic levels and learning experiences in digital EFL learning contexts.

Data were collected using a questionnaire designed to measure students' accessibility challenges in digital English language learning platforms. The questionnaire consisted of 20 items distributed across four dimensions: technological factors, individual factors, pedagogical factors, and engagement and interaction. Each item was measured using a five point Likert scale, ranging from 1 strongly disagree to 5 strongly agree.

The instrument was adapted and developed based on previous studies concerning digital learning accessibility, online EFL learning environments, and student engagement in technology-mediated language education. Prior to data collection, the questionnaire was reviewed to ensure clarity, relevance, and alignment with the research objective.

The internal consistency of the questionnaire was examined using Cronbach's Alpha reliability analysis. The results indicated that the instrument exceeded the acceptable threshold of 0.70, confirming that the questionnaire was sufficiently reliable for measuring students' accessibility challenges in digital English language learning platforms.

Content validity was established through expert judgment involving two lecturers in English Language Education and one lecturer in Educational Technology. The experts evaluated the relevance, clarity, and appropriateness of each questionnaire item in relation to the research objectives. The Content Validity Index (CVI) reached 0.85, exceeding the recommended threshold of 0.78. Based on the experts' feedback, three questionnaire items were revised to improve clarity and alignment with the accessibility dimensions examined in the study.

The questionnaire was administered online using Google Forms to facilitate accessibility and participation. Participants were informed about the purpose of the study and assured that their responses would be used solely for academic purposes. Participation was voluntary, and respondents completed the questionnaire independently within the allocated time.

To provide a clearer overview of the research process, the procedural steps of the study are summarized in Figure 1.

This study was conducted in accordance with ethical research principles approved by the Faculty of Education and Vocational Studies, Universitas Lancang Kuning. Participants were informed about the purpose of the study, voluntary participation, anonymity, and confidentiality prior to completing the questionnaire. All responses were used solely for academic research purposes.

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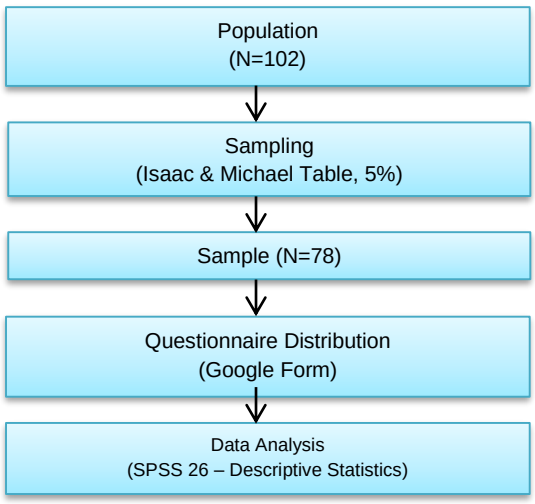


Figure 1. *Research procedure*

As illustrated in Figure 1, the study began with identifying the research population consisting of 102 undergraduate students enrolled in the English Language Education program. Using the Isaac and Michael sampling table with a five percent margin of error, 78 students were selected as the research sample. Data were then collected through an online questionnaire distributed via Google Forms. Finally, the collected data were analyzed using SPSS version 26 through descriptive statistical procedures to examine students' accessibility challenges in digital English language learning platforms.

The collected data were analyzed using SPSS version 26. Descriptive statistical analysis was applied to determine the mean scores, standard deviations, modes, and medians of students' responses. The mean scores were interpreted using the Likert scale classification adapted from Katz and Kahn to categorize the level of accessibility challenges into low, moderate, and high categories. Descriptive statistical outputs including mean scores, standard deviations, medians, and modes were interpreted to identify patterns and variations in students' accessibility experiences across the four examined dimensions.

RESULTS AND DISCUSSION

This section presents and discusses the findings of the study concerning accessibility challenges faced by Indonesian EFL students in using digital English language learning platforms. The results are organized to address the research objective by examining the overall level of accessibility challenges and the dimensions that contribute to students' experiences in digital English language learning. Quantitative findings are interpreted and discussed in relation to pedagogical practices in EFL contexts and supported by relevant empirical studies.

Overall accessibility challenges in digital english language learning

The analysis of students' responses reveals that accessibility challenges in digital English language learning occur at a *moderate level*. The descriptive statistics indicate that students were generally able to access and use digital learning platforms for English language instruction. However, the learning process was not entirely seamless, as students still encountered several constraints that influenced their engagement, participation, and comfort in digital learning environments. Although digital platforms enabled the continuation of learning activities, the overall experience suggests that access alone did not guarantee fully effective learning interaction.

Another important pattern emerging from the dataset concerns the variation in students' accessibility experiences**.** The central tendency of the responses shows that many students selected neutral positions in several questionnaire items. This pattern indicates that students' perceptions of accessibility were not uniformly positive or negative. Some students appeared to adapt effectively to digital learning environments and were able to navigate online platforms with relative ease. Others experienced difficulties related to understanding instructions, interacting with learning materials, or maintaining consistent participation during online learning activities. These variations demonstrate that accessibility is shaped by multiple factors that influence students differently.

The results demonstrate that digital English learning platforms were functionally accessible**,** yet students still experienced moderate accessibility challenges that affected the depth of engagement and the overall quality of their learning participation. Table 1 presents a more detailed statistical overview of students' responses regarding overall accessibility challenges.

Table 1. *Descriptive statistics of overall accessibility*

Statistic	Value
Number of Participants (N)	78
Minimum Score	1.60
Maximum Score	4.40
Mean	3.00
Median	3.00
Mode	3.00
Standard Deviation	1.03
Variance	1.06

Interpretation	Moderate Level

The results presented in Table 1 indicate that the *mean score of 3.00* places students' accessibility experiences within the moderate category. This value suggests that students generally managed to access digital platforms and participate in learning activities, but their experiences were accompanied by recurring obstacles that limited optimal engagement. The median and mode values of 3.00 further reinforce the interpretation that the majority of responses were centered around a neutral perception of accessibility. This means that students neither perceived digital learning environments as fully supportive nor entirely problematic.

The minimum score of 1.60 and maximum score of 4.40 illustrate the wide range of experiences among participants. While some students reported relatively low levels of difficulty in accessing digital learning platforms, others experienced more pronounced challenges that influenced their ability to participate comfortably in online learning environments. This range highlights that accessibility in digital English learning is not experienced uniformly across students.

The standard deviation value of 1.03 indicates moderate variability in students' responses regarding accessibility experiences in digital English language learning environments. This variability suggests that although students generally experienced accessibility challenges at a moderate level, their experiences differed depending on individual learning conditions, digital familiarity, and interactional experiences within online learning environments.

From an interpretative perspective, these results indicate that accessibility in digital English language learning extends beyond the basic ability to log into online platforms or access learning materials. Rather, accessibility reflects students' capacity to actively participate, sustain interaction, and engage meaningfully with digital learning tasks. Even when technological access is available, limitations in engagement, interaction, or instructional clarity may still influence the overall effectiveness of the learning experience.

Consequently, the findings suggest that improving accessibility in digital English language learning requires a broader pedagogical perspective. Digital learning environments should not only ensure technological availability but also support interaction, instructional clarity, and learner engagement so that students can experience digital platforms as effective spaces for language learning rather than merely as tools for course delivery.

Accessibility Challenges Across Dimensions

To obtain a more comprehensive understanding of the nature of accessibility challenges experienced by students in digital English language learning, the analysis was further conducted across four dimensions. These dimensions include technological factors, individual factors, pedagogical factors, and engagement and interaction. Each dimension represents a different aspect of the learning environment that may influence students' ability to access and participate in digital English learning activities. By examining these dimensions separately, the analysis provides a clearer picture of which aspects of digital learning environments most strongly influence students' accessibility experiences.

The results indicate that accessibility challenges were distributed across all four dimensions, with varying degrees of intensity. Although each dimension falls within the moderate category, differences in the mean values reveal that certain aspects of the learning environment contributed more significantly to students' accessibility difficulties than others. This multidimensional analysis therefore allows for a deeper understanding of the specific areas where students encounter barriers when participating in digital English language learning.

Among the four dimensions analyzed, pedagogical factors emerged as the most prominent accessibility challenge, followed by engagement and interaction, technological factors, and individual factors.

Table 2 presents a detailed descriptive summary of accessibility challenges across the four dimensions.

Table 2. *Accessibility challenges across dimensions*

Dimension	N	Mean	Median	Standard Deviation	Minimum	Maximum	Interpretation
Pedagogical factors	78	3.13	3.10	0.98	1.80	4.60	Moderate

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Engagement and interaction	78	3.02	3.00	0.95	1.70	4.50	Moderate
Technological factors	78	2.92	2.90	0.93	1.60	4.30	Moderate
Individual factors	78	2.82	2.80	0.91	1.50	4.20	Moderate

The standard deviation values across the four dimensions indicate moderate variability in students' responses. This finding suggests that accessibility challenges were experienced differently among participants depending on their technological readiness, interactional engagement, and perceptions of instructional support within digital learning environments.

The statistical results demonstrate that pedagogical factors recorded the highest mean score of 3.13, indicating that teaching related aspects played a significant role in shaping students' accessibility experiences. Several students reported difficulties related to receiving immediate feedback during online classes, accessing learning materials efficiently, and understanding instructions delivered through digital platforms. These issues suggest that the effectiveness of digital English learning is strongly influenced by how instructional activities are structured and delivered within the online environment.

In contrast, engagement and interaction recorded the second highest mean value of 3.02, indicating that interactional aspects of digital learning environments also posed notable challenges for students. Although digital platforms allow communication between lecturers and students, the level of interaction often remained limited compared to face to face learning settings. Reduced opportunities for discussion, collaborative tasks, and spontaneous communication may have contributed to a weaker sense of classroom participation and reduced opportunities for practicing communicative language skills.

Technological factors recorded a mean score of 2.92, indicating that technical aspects of digital learning environments contributed to accessibility challenges but were not the most dominant barriers. Students reported occasional difficulties related to device compatibility, such as malfunctioning cameras or microphones, which sometimes limited their participation in synchronous learning sessions. Internet connectivity also emerged as a recurring issue in certain learning situations. Nevertheless, many students demonstrated adaptability by switching devices, reconnecting networks, or using alternative technological solutions to remain engaged in online learning activities.

Meanwhile, individual factors recorded the lowest mean score of 2.82, although they still fell within the moderate challenge category. This dimension reflects students' personal readiness to engage in digital learning environments, including their digital skills, confidence in navigating online platforms, and ability to manage independent learning tasks. Some students reported uncertainty when using unfamiliar digital tools, which occasionally affected their participation during online classes. These findings suggest that learners' digital competence plays a supporting role in determining how effectively they can engage in technology mediated language learning environments.

To further clarify the relative prominence of these accessibility challenges, the dimensions were ranked according to their mean values. Table 3 presents the ranking of the four dimensions based on the degree of challenge reported by the students.

Table 3. *Ranking of accessibility challenge dimensions*

Rank	Dimension	Mean
1	Pedagogical factors	3.13
2	Engagement and interaction	3.02
3	Technological factors	2.92
4	Individual factors	2.82

The ranking presented in Table 3 highlights an important pattern in the findings. Pedagogical factors and interaction related aspects appear to have a stronger influence on students' accessibility experiences than technological or individual factors. This pattern indicates that the effectiveness of digital English language learning environments depends not only on the availability of technology but also on how learning activities are designed and facilitated by instructors.

From an interpretative perspective, these results suggest that accessibility in digital English learning environments is shaped primarily by instructional design and interactional quality. When learning activities provide limited feedback, restricted interaction opportunities, or unclear

guidance, students may experience difficulties in sustaining engagement even when technological access is available. Consequently, improving accessibility in digital English language learning requires greater attention to pedagogical practices that promote interactive learning, clear instructional support, and active student participation.

Engagement and interaction in digital english language learning

This subsection focuses specifically on examining how engagement and interaction shape students' accessibility experiences in digital English language learning environments. While previous analyses have identified pedagogical and technological conditions that influence accessibility, the present subsection concentrates on the interactional dimension of the learning process. Engagement and interaction are particularly important in English language learning because language development depends on communicative practice, feedback exchange, and collaborative participation during learning activities.

The analysis of questionnaire items related to engagement and interaction reveals that students experienced noticeable limitations in communicative participation during digital learning sessions. Students indicated that opportunities to interact with lecturers and peers were not always consistent across learning activities. Although online classes allowed students to attend lectures and complete assignments, the interactive components of the learning process were often less dynamic than those experienced in traditional classroom environments. These conditions suggest that digital platforms supported the continuity of instruction but did not always foster sustained communicative engagement.

The data indicate that students were able to participate in digital English learning activities, yet the intensity and quality of interaction remained limited, particularly in peer collaboration and spontaneous communication during online classes.

To provide a clearer representation of students' responses across the engagement and interaction indicators, Figure 2 presents the distribution of responses for the major items representing this dimension.

Table 4**.** *Distribution of engagement and interaction indicators in digital english learning*

Indicator	Mean Score	Interpretation
Opportunities to interact with lecturers during online classes	3.05	Moderate
Opportunities to interact with peers during digital learning activities	2.98	Moderate
Participation in collaborative learning tasks	3.04	Moderate
Sense of connection with the learning community	2.99	Moderate
Opportunities to ask questions and receive immediate responses	3.06	Moderate

The illustration demonstrates that the mean values of all engagement indicators cluster around the moderate category. This pattern indicates that interaction opportunities were present within the digital learning environment but were not consistently strong enough to create highly interactive learning experiences. Among the indicators, interaction with lecturers and opportunities to ask questions during online sessions showed slightly higher values compared to peer interaction and sense of community. This suggests that instructor led communication was more dominant than student to student interaction within the digital classroom.

From an analytical perspective, these findings highlight an important characteristic of digital English language learning environments. Interaction in online classes tends to be structurally mediated by the instructional design of the course. When interaction opportunities depend primarily on lecturer initiated communication, students may participate as recipients of information rather than as active contributors to collaborative dialogue. Consequently, peer based communicative practice may occur less frequently than expected in language learning contexts.

Another observation emerging from the data concerns students' perceived sense of connection with the academic learning community. The relatively lower mean score for this indicator suggests that students may experience a degree of social distance when participating in digital learning environments. Although digital platforms allow communication through messaging systems, video conferencing tools, and discussion forums, these channels may not fully replicate the immediacy and spontaneity of face to face classroom interaction.

From a pedagogical perspective, these results indicate that interactional engagement in digital

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English learning environments depends heavily on how learning activities are structured and facilitated. When digital classes emphasize content delivery without incorporating collaborative tasks, discussion based learning, or peer interaction opportunities, students may experience limited communicative engagement. This condition is particularly significant in English language learning, where frequent interaction and communicative practice are essential for developing speaking confidence and linguistic competence.

Overall, the findings of this subsection suggest that digital English language learning environments can maintain instructional continuity and provide access to course materials, yet they may still struggle to support the interactive and socially embedded nature of language learning. Strengthening interactional design through collaborative learning activities, structured discussion opportunities, and responsive communication mechanisms may therefore enhance engagement and improve the overall accessibility of digital EFL learning environments.

Returning to RQ1, the findings indicate that Indonesian EFL students experienced moderate accessibility challenges in digital English language learning environments (M = 3.00). Regarding RQ2, all four dimensions contributed to students' accessibility experiences, although pedagogical factors and engagement-related dimensions emerged more prominently than technological and individual factors. Concerning RQ3, pedagogical factors were identified as the most influential dimension shaping students' accessibility experiences in digital EFL contexts.

The findings of this study reveal that accessibility challenges in digital English language learning environments are multidimensional and cannot be explained solely through technological availability. Although students generally maintained functional access to digital learning platforms, the overall accessibility level remained moderate, indicating that several factors continued to influence the effectiveness of their learning experiences. The results highlight three central patterns. First, accessibility in digital English learning is shaped not only by technological infrastructure but also by pedagogical practices, interactional quality, and learner readiness. Second, pedagogical factors emerged as the most prominent source of accessibility challenges among the four examined dimensions. Third, interactional limitations within digital classrooms affected students' engagement and sense of participation in the learning community. These findings collectively suggest that digital accessibility in EFL contexts should be understood as a pedagogical and experiential phenomenon rather than a purely technical issue.

The moderate level of overall accessibility challenges suggests that digital English learning environments operate effectively at a functional level but do not always provide optimal conditions for meaningful language learning. Students were generally able to log into digital platforms, access learning materials, and complete assigned tasks. However, their experiences often involved recurring constraints related to instructional clarity, communication dynamics, and interactional participation. This finding supports the growing body of scholarship emphasizing that digital learning environments frequently maintain instructional continuity while simultaneously revealing pedagogical limitations in online teaching practices (Seitova & Zhumatayeva, 2022; Mazlan et al., 2022). In EFL learning contexts, these limitations become particularly significant because language acquisition relies heavily on guided practice, immediate feedback, and communicative interaction.

One of the most notable findings of this study concerns the dominance of pedagogical factors as the primary accessibility challenge. Students reported difficulties related to feedback availability, clarity of instructional guidance, and lecturers' readiness to manage digital learning environments. These conditions indicate that the effectiveness of digital English learning depends strongly on how technology is integrated within pedagogically meaningful instructional frameworks. Previous research has similarly emphasized that digital pedagogy involves more than simply transferring instructional materials to online platforms. Rather, effective digital language teaching requires structured interaction, responsive assessment practices, and carefully designed learning activities that support language development (Insani et al., 2024; Kumar et al., 2022). When digital platforms are used primarily as repositories of learning materials without pedagogical adaptation, students may experience access to content without fully engaging in the communicative processes that facilitate language acquisition.

The second key pattern emerging from the findings relates to interactional limitations in digital learning environments. Although students were able to participate in online classes,

opportunities for spontaneous communication and collaborative learning were perceived as limited. Interaction with lecturers appeared to occur more frequently than peer interaction, indicating that digital classroom communication remained largely instructor centered. This finding resonates with earlier studies that highlight the importance of interactional design in sustaining learner engagement within online learning environments (Xu et al., 2024; Yuan et al., 2025). Without consistent opportunities for dialogue, discussion, and collaborative tasks, digital learning environments may reduce students' communicative participation, even when technological tools are available.

From a theoretical perspective, these results also align with research grounded in the Community of Inquiry framework, which emphasizes the importance of teaching presence, cognitive presence, and social presence in digital learning environments. When social presence is weakened, learners may experience reduced emotional engagement and a diminished sense of belonging within the learning community (Community of Inquiry Perspectives in English Language Practice and Social Media, 2023; Kanno, 2020). In the context of English language learning, this issue becomes particularly critical because interaction and communicative participation play central roles in developing speaking confidence, language fluency, and collaborative learning practices.

Although technological and individual factors were not the most dominant challenges in this study, they remain important elements in understanding accessibility in digital English learning environments. Students reported occasional difficulties related to device functionality and internet connectivity. Nevertheless, many participants demonstrated adaptive strategies such as switching devices or reconnecting networks in order to maintain participation. These findings suggest that students possess a certain degree of technological resilience and adaptability. However, the presence of such adaptive behaviors also indicates underlying institutional gaps in providing consistent technological support for digital learning environments (Seitova & Zhumatayeva, 2022). Furthermore, students' varying levels of confidence in navigating digital platforms highlight the continuing importance of digital literacy as a prerequisite for effective participation in technology mediated language learning contexts (Jeong, 2023; Kumar et al., 2022).

The findings of this study contribute to addressing an important gap in existing research on digital language learning accessibility. Previous studies have frequently emphasized technological barriers as the primary obstacle to online education. In contrast, the results of the present study demonstrate that pedagogical design and interactional quality may exert an even stronger influence on students' learning experiences. This perspective challenges the conventional assumption that improving infrastructure alone will automatically enhance digital learning outcomes. Instead, the results indicate that accessibility must be conceptualized as a multidimensional construct that integrates technological, pedagogical, interactional, and individual dimensions.

The novelty of this study lies in its reconceptualization of accessibility in digital English language learning as a pedagogical and experiential construct. Rather than treating accessibility as a purely technological issue related to internet connectivity or device availability, the study demonstrates that accessibility is closely connected to instructional practices and interactional dynamics within digital classrooms. By identifying pedagogical factors as the most influential dimension affecting accessibility, this research extends current discussions in English language teaching by highlighting the central role of digital pedagogy in shaping students' learning experiences. This contribution is particularly important for higher education contexts where digital learning environments are increasingly integrated into language instruction.

The findings of this study have several implications for English language teaching in digital environments. First, educators should move beyond viewing digital platforms merely as technological tools and instead treat them as pedagogical spaces that require intentional instructional design. Digital learning activities should incorporate collaborative tasks, discussion based interaction, and responsive feedback mechanisms to sustain communicative engagement among learners. Second, teacher training programs should emphasize the development of digital pedagogical competence so that instructors can effectively manage interaction, provide meaningful feedback, and design engaging learning experiences within online environments. Third, institutions should consider accessibility not only in terms of infrastructure provision but also in relation to pedagogical

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support systems that facilitate interactive and inclusive learning environments.

While this study provides important insights into accessibility challenges in digital English learning environments, several areas remain open for further investigation. Future research may explore accessibility through mixed method or longitudinal approaches in order to capture the evolving nature of students' experiences in digital learning contexts. Investigating lecturers' perspectives on digital pedagogical readiness would also provide valuable insights into how instructional practices influence accessibility in online classrooms. In addition, future studies may examine accessibility challenges in diverse educational settings such as secondary education, rural institutions, or mobile assisted language learning environments. Expanding research across these contexts will contribute to a more comprehensive understanding of how digital learning environments can be designed to support equitable, interactive, and pedagogically effective English language learning experiences.

The findings of this study contribute to extending current discussions on digital accessibility in EFL learning environments by emphasizing the importance of pedagogical and interactional dimensions beyond technological availability alone. From the perspective of the Community of Inquiry framework, the results suggest that accessibility is closely associated with teaching presence and social presence, particularly through instructional clarity, interactional engagement, and feedback responsiveness within digital classrooms. Limited opportunities for collaborative interaction and communicative participation may weaken students' sense of connection with the learning community, thereby influencing the effectiveness of digital language learning experiences.

The findings also align with perspectives derived from the Technology Acceptance Model (TAM), which emphasizes that learners' engagement with digital platforms is influenced not only by technological usefulness but also by users' experiences and perceptions during the learning process. In this study, pedagogical factors emerged as more influential than technological factors, suggesting that students' accessibility experiences are shaped more strongly by instructional design and interactional quality than by technological infrastructure alone. Consequently, accessibility in digital EFL learning should be reconceptualized as a multidimensional pedagogical construct integrating technological, instructional, interactional, and experiential dimensions.

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CONCLUSION

The findings of this study highlight that accessibility in digital English language learning environments cannot be understood solely through the lens of technological availability. The results demonstrate that although Indonesian EFL students generally maintained functional access to digital learning platforms, accessibility remained at a moderate level due to the interaction of pedagogical, interactional, technological, and individual factors. Among these dimensions, pedagogical factors emerged as the most influential challenge, followed by engagement and interaction, indicating that instructional design, feedback availability, and communicative opportunities played a more decisive role in shaping students' learning experiences than technological infrastructure alone. These findings reinforce the argument that meaningful digital language learning requires more than access to platforms; it requires pedagogically informed digital environments that support interaction, feedback, and learner engagement. The novelty of this study lies in its reconceptualization of accessibility in digital EFL learning as a pedagogical and experiential construct rather than a purely technical condition, thereby extending existing scholarship that predominantly focuses on infrastructural barriers. From an English language teaching perspective, the study suggests that educators and institutions must align technological integration with communicative pedagogical practices in order to sustain meaningful learner participation and language development in digital classrooms. Strengthening digital pedagogical competence among instructors, designing interaction rich learning activities, and fostering inclusive digital learning environments are therefore essential steps toward improving accessibility in EFL education. Future research is recommended to explore accessibility in broader educational contexts such as secondary schools, rural or low infrastructure learning environments, and mobile-assisted language learning settings, as well as to investigate lecturers' digital pedagogical readiness and students' long-term learning experiences through mixed-method or longitudinal research designs.

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