

Inventigating EFL Learners' Conceptual Understanding of Technology: A Lesson from Rural Area Schools

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Abstract

This study investigates EFL learners' conceptual understanding of technology in rural area schools and examines how such understanding influences their use of digital tools for English language learning. The study is grounded in the concern that rural learners are often exposed to digital devices and online platforms, yet their use of technology may remain largely procedural rather than strategic and reflective. To address this issue, the study employed a qualitative research design involving 47 EFL learners who were familiar with online learning classrooms. Data were collected through semi-structured interviews and classroom observations and were analyzed using thematic analysis. The findings reveal that most learners conceptualized technology primarily as a practical resource for accessing English materials, checking vocabulary, using translation applications, improving pronunciation, and participating in online learning activities. However, their understanding was largely instrumental, with only a smaller number of learners demonstrating deeper awareness of how digital tools shape learning processes, communication, and knowledge access. The study also found that conceptual understanding significantly influenced how learners used technology to develop English language skills. Learners with stronger conceptual understanding tended to use digital tools more strategically, selecting them according to specific language learning purposes and engaging in more autonomous learning practices. In contrast, learners with weaker conceptual understanding used technology in a more procedural and dependent manner. The study concludes that conceptual understanding serves as an important link between technological access and meaningful language learning. It therefore suggests that rural EFL pedagogy should move beyond operational technology use and foster learners' critical, strategic, and reflective engagement with digital tools.

Keywords: Conceptual understanding; Digital tools; English language learning; Technology integration

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INTRODUCTION

The rapid expansion of digital technology has transformed English language education by widening access to information, communication, and multimodal learning resources. In EFL settings, technology is no longer viewed merely as a supplementary tool, but as a central medium through which learners can access authentic language input, practice communication, and participate in broader discourse communities. However, the educational benefits of technology are not distributed evenly across contexts. Rural schools often face persistent disparities in internet connectivity, electricity, device availability, and access to quality digital

resources, which shape how learners encounter and use technology in everyday learning (Mustafa & Hamad, 2024; Neupane, 2024; Rahman et al., 2021). In many of these contexts, students may be familiar with smartphones, social media, or basic applications, yet this familiarity does not necessarily indicate a deeper understanding of how technology can be used strategically to support English learning. As a result, a significant gap emerges between technological exposure and pedagogically meaningful use, especially for EFL learners in rural area schools who must navigate both language learning challenges and structural inequalities in digital access (Anwar et al., 2020; Barnhart et al., 2022; Bhowmik, 2021; Chiatoh & Chia, 2020).

This gap makes the issue of conceptual understanding of technology especially important. Conceptual understanding does not simply refer to the ability to operate devices, open applications, or follow digital instructions. Rather, it involves understanding what technology is, how it works, why it is designed in particular ways, and how it affects learning processes, knowledge access, communication patterns, and participation in society. In the context of rural EFL education, conceptual understanding means that learners can recognize the educational value of digital tools, evaluate their functions, and use them intentionally to achieve language learning goals (Mustafa & Hamad, 2024; & Neupane, 2024). Learners with such understanding do not merely consume content passively; they begin to understand why a language learning platform provides feedback, how an online dictionary differs from machine translation, or how digital media can be used to practice listening, speaking, reading, and writing. Without this deeper understanding, technology tends to remain procedural and teacher dependent, limiting students' capacity to become autonomous and reflective language learners. Thus, the problem is not only whether rural EFL learners have access to technology, but whether they can interpret and use technology as a meaningful resource for language development (Muslimin et al., 2023; Rahimi & Tafazoli, 2022).

The urgency of this issue became more visible during and after the COVID 19 pandemic, when online and blended learning exposed deep inequalities in educational readiness across rural and urban contexts. The pandemic showed that successful technology integration depends not only on the presence of digital tools, but also on infrastructure, teacher competence, institutional support, and learners' readiness to engage meaningfully with digital environments. In many rural schools, unstable internet connections, high data costs, limited technical support, and inadequate teacher preparation restricted technology use to basic tasks rather than deeper learning activities. Studies consistently show that the presence of devices alone does not guarantee transformative learning; rather, meaningful technology enhanced language education requires reliable access, pedagogically sound implementation, and sustained support systems for both teachers and learners (Ahmad, 2024; Bhowmik, 2021; Chiatoh & Chia, 2020; Fallatah, 2022; Jalil, 2023; Shin, 2020). For rural EFL learners, these barriers may result in surface level engagement with technology, where they know how to use tools functionally but do not fully understand how those tools can mediate interaction, organize knowledge, or expand opportunities for authentic English use.

In response to these challenges, the literature increasingly links conceptual understanding of technology with digital literacy, teacher preparation, and learner agency. Digital literacy in this sense is multidimensional. It includes not only operational competence, but also the ability to search, evaluate, create, and share information critically and responsibly (Shin, 2020; Uçar, 2023; Vega et al., 2023; Wah & Hashim, 2021). Likewise, pedagogical frameworks such as TPACK, TAM, TPB, and UTAUT help explain that technology use in EFL learning is shaped by perceptions of usefulness, ease of use, social influence, pedagogical fit, and infrastructural conditions. These frameworks suggest that learners' engagement with technology is most productive when supported by teachers who can connect content, pedagogy, and technology in coherent ways, and when learners are guided to understand the logic and purposes of the tools

they use (Dağgöl, 2022; Lisa et al., 2021; Muslimin et al., 2023, 2025; Rahim & Chandran, 2021; Rahman et al., 2021). In EFL classrooms, this understanding enables learners to move from simply following procedures to making informed choices about which digital resources are useful for vocabulary practice, reading comprehension, digital discussion, or multimodal expression. Therefore, conceptual understanding of technology is closely tied to the development of strategic, independent, and critical language learners.

This issue is particularly important for rural EFL learners because technology can function as a bridge to opportunities that are often limited in their immediate environment. Rural learners may have fewer chances to access authentic English materials, interact with proficient speakers, or participate in resource rich language environments (Omar & Alluqmani, 2021; Rinekso et al., 2021; Wei, 2022). When learners understand the purpose and affordances of digital tools, they can use technology to compensate for these limitations through mobile assisted learning, online dictionaries, digital storytelling, multimodal composing, and interactive platforms. Research shows that purposeful use of such tools can strengthen motivation, engagement, vocabulary learning, and broader language development, especially when learners use them strategically rather than mechanically (Alakrash & Razak, 2021; Alhuwaydi, 2022; Jiang et al., 2020; Knežević et al., 2021; & Lei et al., 2022). At the same time, the literature also reveals an important gap. Much existing research examines access, technology adoption, teacher readiness, or digital literacy in general, yet fewer studies focus specifically on how rural EFL learners themselves conceptualize technology and how this conceptual understanding shapes their language learning practices. This study addresses that gap by foregrounding rural learners' own understanding of technology, rather than treating technology use as a purely technical or infrastructural issue.

Based on this context, the present study aims to examine EFL learners' conceptual understanding of technology in rural area schools and to explore how this understanding supports or constrains their English language learning. The study is important because it shifts attention from simple access and operational use toward deeper issues of meaning, agency, and pedagogical value in technology enhanced EFL learning. Its novelty lies in three aspects: first, it focuses specifically on rural EFL learners rather than urban or tertiary populations that dominate much of the literature; second, it investigates conceptual understanding of technology as a distinct construct beyond digital access or basic digital literacy; and third, it connects learners' conceptual understanding with the practical demands of English language learning in resource constrained settings. By doing so, the study seeks to contribute a more context sensitive account of how rural learners engage with technology and how schools can support more meaningful, equitable, and effective technology integration in EFL education.

The objectives of this research are to identify the nature of rural EFL learners' conceptual understanding of technology and to analyze how such understanding influences their use of technology for English language learning. To attain these objectives, the study addresses the following research questions: How do EFL learners in rural area schools conceptualize technology in relation to English language learning? And in what ways does EFL learners' conceptual understanding of technology influence their use of digital tools to develop English language skills?

RESEARCH METHOD

Research Design

This study employed a qualitative research design to investigate EFL learners' conceptual understanding of technology in rural area schools and to explore how such understanding influenced their use of digital tools for English language learning. A qualitative approach was considered the most suitable design because the focus of the study was not on measuring the frequency of technology use or testing causal relationships, but on understanding learners' perceptions, interpretations, experiences, and meaning making in relation to

technology within their educational context. Since the objectives of the study were to identify how rural EFL learners conceptualized technology and to examine how that understanding shaped their learning practices, qualitative inquiry allowed the researcher to capture nuanced explanations that could not be fully revealed through numerical data alone.

The use of qualitative design was also appropriate because conceptual understanding is a complex and context bound phenomenon. Learners' views about technology are shaped by their learning experiences, access to digital resources, teacher guidance, and the realities of rural schooling. Therefore, an in depth approach was necessary to describe how students understood technology beyond simple operational use and how they connected it to their English learning activities. Through qualitative inquiry, the researcher was able to examine not only what learners did with technology, but also why they used it in certain ways, how they interpreted its value, and what meanings they attached to their experiences in online learning classrooms.

Although qualitative design offers rich and detailed insights, it also carries some limitations and potential biases. First, the findings are context specific and therefore may not be statistically generalizable to all rural EFL settings. Second, participants' responses may be influenced by social desirability, especially when discussing their experiences with online learning and technology use. Third, researcher subjectivity may affect data interpretation during coding and theme development. To address these limitations, several strategies were applied. The researcher used triangulation by combining interview and observation data so that findings were not based on a single source of evidence. Member checking was also used by clarifying key responses with participants to ensure that their views were accurately represented. In addition, the researcher maintained an audit trail of data collection and analysis procedures and used reflective notes to minimize personal bias during interpretation. These procedures strengthened the credibility and trustworthiness of the study.

Research Participants

The participants of this study were 47 EFL learners from rural area schools who were familiar with and actively engaged in online learning classrooms. These learners were selected because they had direct experience in using digital technologies for English language learning, making them relevant sources of information for understanding how rural students conceptualize technology in learning contexts. The sample size was considered appropriate for qualitative inquiry because it allowed the researcher to explore a range of learner experiences while still managing the depth of analysis required for interview and observation data.

The participants were selected using purposive sampling. This sampling technique was chosen because the study required participants who met specific criteria relevant to the research objectives. The selection criteria included: first, the learners had to be enrolled in a rural area school; second, they had to be studying English as a foreign language; and third, they had to have prior experience participating in online or technology supported learning classrooms. These criteria ensured that the participants were able to provide meaningful insights into the phenomenon under investigation.

Relevant demographic information was documented to provide contextual understanding of the participants. This included basic information such as their educational level, gender, and experience with online learning platforms or digital devices used in English classes. Rather than serving as the primary focus of analysis, these demographic details helped situate the findings within the broader realities of rural EFL education. The inclusion of 47 participants also enabled the researcher to identify both common patterns and individual variations in learners' conceptual understanding of technology.

Research Instruments

This study used interview and observation. These instruments were selected because they complemented one another in capturing both learners' articulated perspectives and their actual practices in technology mediated English learning. The interview provided access to participants' thoughts, beliefs, and personal experiences, while observation enabled the researcher to examine how those understandings were reflected in classroom behavior and online learning interaction.

The interview instrument was developed as a semi structured interview guide. This format was chosen because it allowed the researcher to prepare key questions aligned with the research objectives while also giving flexibility to probe emerging responses in greater depth. The interview questions focused on learners' understanding of technology, the ways they used digital tools in learning English, their reasons for choosing particular tools, and their perceptions of the benefits and challenges of technology use in rural online learning contexts. The interview guide was developed based on the conceptual framework of technology understanding, digital literacy, and technology enhanced language learning. Before being used in the field, the guide was reviewed to ensure that the questions were clear, relevant, and appropriate for the participants' linguistic and educational background.

Observation was used as a second instrument to document how learners engaged with digital tools in actual online learning classroom settings. An observation checklist and field note format were prepared to guide the process. The observation focused on aspects such as learners' interaction with learning platforms, their participation in online English activities, the types of digital tools they used, and the extent to which they demonstrated purposeful or strategic use of technology. Observation was important because it helped verify whether participants' interview responses were consistent with their actual behavior during online learning.

To ensure the validity and reliability, or more appropriately in qualitative research, the trustworthiness of the instruments, several steps were taken. First, the interview and observation instruments were aligned closely with the research questions and objectives to ensure content relevance. Second, the instruments were reviewed and refined before data collection to improve clarity and suitability. Third, triangulation between interview and observation was used to confirm recurring findings across different sources of data. Fourth, the researcher applied consistent procedures during data collection, including using the same interview guide framework for all participants and the same observation focus across learning situations. Finally, reflective memos were maintained during data collection to monitor possible researcher assumptions and maintain consistency in interpretation. These steps supported the credibility, dependability, and confirmability of the data.

Data Analysis

The data were analyzed using thematic analysis, which is a widely used technique in qualitative research for identifying, organizing, and interpreting patterns of meaning across data. This method was chosen because it was suitable for examining learners' perceptions and experiences regarding technology in English language learning and for generating themes that addressed the research objectives. The analysis was conducted in several stages. First, the interview transcripts and observation notes were organized and read repeatedly to achieve data familiarization. At this stage, the researcher immersed himself or herself in the data in order to gain an overall understanding of participants' views and classroom practices. Second, the researcher conducted initial coding by labeling meaningful segments of data related to learners' conceptual understanding of technology, their use of digital tools, their learning strategies, and the challenges they encountered. These codes were developed inductively from the data while remaining guided by the study objectives.

Third, the codes were compared and grouped into broader categories to identify recurring patterns. From these categories, the researcher generated themes that captured the central ideas emerging from the data. Examples of possible themes included technology as a learning aid, technology as access to language resources, limited understanding of tool functions, strategic digital use, and barriers to meaningful engagement. Fourth, the themes were reviewed and refined by checking their consistency across the full dataset and ensuring that each theme was supported by sufficient evidence from both interview and observation data. Finally, the themes were interpreted in relation to the research questions and discussed to explain how rural EFL learners conceptualized technology and how this conceptual understanding shaped their English learning experiences.

To enhance the rigor of data analysis, the researcher used several trustworthiness strategies. Triangulation was employed by comparing interview and observation findings. Member checking was conducted when necessary to confirm participants' intended meanings. Peer review or discussion with colleagues or supervisors helped evaluate the coding process and thematic interpretations. In addition, the researcher maintained an audit trail of coding decisions and analytical memos to ensure transparency throughout the analysis process.

Ethical considerations were carefully addressed because the study involved human participants. Prior to data collection, participants were informed about the purpose of the study, the procedures involved, and their rights as participants. Informed consent was obtained from all participants, and when necessary, permission was also secured from the school authorities and relevant guardians. Participation was entirely voluntary, and participants had the right to withdraw from the study at any stage without negative consequences. To protect privacy and confidentiality, participants' real names were not used in the research report; instead, pseudonyms or codes were assigned. All collected data, including interview recordings, transcripts, and observation notes, were stored securely and used only for research purposes. The researcher also ensured that the study did not disrupt participants' learning activities and that the reporting of findings remained respectful, accurate, and non harmful.

RESEARCH FINDINGS AND DISCUSSION

Research Findings

How do EFL learners in rural area schools conceptualize technology in relation to English language learning?

The interview and observation data suggest that EFL learners in rural area schools conceptualize technology primarily as a practical learning resource that helps them access English beyond the limitations of the classroom. Most participants described technology as a tool for opening learning videos, searching word meanings, using translation applications, listening to English pronunciation, and accessing materials that were not always available in printed textbooks or teacher explanations. In this sense, technology was not understood merely as a device such as a smartphone or laptop, but as a medium that enabled them to reach English content more quickly and more independently. For many learners, technology represented opportunity: it reduced the distance between rural schools and broader sources of language input, especially when classroom time, teaching resources, and exposure to authentic English were limited.

A second pattern found in the data is that learners tended to conceptualize technology in functional and immediate terms rather than in deeper critical or systemic ways. Many participants could explain what technology helped them do in English learning, such as completing assignments, checking vocabulary, joining online classes, or listening to spoken English. However, only a smaller group demonstrated a fuller conceptual understanding of technology as something that shapes how they learn, how information is organized, and how interaction occurs in digital environments. This means that most learners viewed technology as helpful and necessary, yet their understanding was still centered on direct usefulness rather

than on its design, limitations, or broader educational implications. Observation data reinforced this pattern, showing that learners were generally confident in using familiar applications, but they rarely articulated why a particular digital tool was more suitable than another for a specific learning purpose unless prompted during the interview.

The findings also indicate that learners conceptualized technology as a bridge to participation and communication in English. Several participants associated technology with the possibility of hearing native or fluent English speakers through videos, practicing pronunciation through audio tools, and interacting in online learning spaces without feeling as constrained as in face to face classroom situations. In this respect, technology was understood as an enabler of exposure and interaction, not only as an information source. Still, this conceptualization varied in depth. Some learners saw digital tools simply as ways to receive content, while others recognized that technology could create active learning spaces where they could ask questions, compare meanings, revise their language use, and participate in collaborative learning activities. Thus, the qualitative evidence suggests that rural EFL learners' conceptual understanding of technology falls on a continuum, ranging from basic instrumental awareness to a more reflective understanding of technology as a learning environment that influences access, communication, and language development.

The data show that EFL learners in rural schools conceptualize technology mostly as an accessible, supportive, and motivating aid for English learning, especially for vocabulary, pronunciation, translation, and material access. At the same time, the findings reveal that this understanding remains uneven. While most learners recognize the usefulness of technology, fewer appear to possess a fully developed conceptual understanding of how digital tools shape learning strategies, information quality, or autonomous learning behavior. This suggests that rural learners are already engaging with technology meaningfully, but they still need pedagogical support to move from operational use toward more reflective and critical understanding.

In what ways does EFL learners' conceptual understanding of technology influence their use of digital tools to develop English language skills?

The findings indicate that learners' conceptual understanding of technology strongly influences how intentionally and effectively they use digital tools to develop English skills. Learners who showed a clearer understanding of the purpose and affordances of digital tools were more likely to select technology strategically according to their language learning needs. For example, they distinguished between tools for vocabulary search, pronunciation practice, listening exposure, translation support, and classroom communication. These learners did not use technology only because the teacher asked them to do so; rather, they used it to solve language problems, confirm understanding, and continue learning outside formal classroom hours. Interview responses from this group revealed a stronger sense of learner agency, while classroom observations showed that they were more active in navigating between tools, reviewing content, and checking language forms independently.

By contrast, learners with a more limited conceptual understanding of technology tended to use digital tools in a procedural and dependent manner. They often relied on a single familiar application, especially translation tools or teacher assigned platforms, without critically considering the strengths or limitations of those tools. Their use of technology was usually task oriented rather than learning oriented. In other words, they used technology to finish assignments, submit work, or obtain quick answers, but not always to deepen comprehension or improve language accuracy. Observation data suggest that these learners participated in online learning routines, yet their engagement remained narrower because they were less likely to explore alternative resources, compare sources, or use digital tools for extended practice. This pattern shows that conceptual understanding affects not only access to technology, but also the quality of technology mediated learning behavior.

The influence of conceptual understanding was especially visible across the four English skills. Learners with stronger conceptual understanding reported using technology to listen to English through videos and audio materials, to speak by imitating pronunciation models or recording their voice, to read by accessing online texts and dictionaries, and to write by drafting responses, checking vocabulary, and revising their sentences with digital support. These learners appeared to understand that different tools served different learning purposes, and this understanding helped them use technology more efficiently and more confidently. In contrast, learners with weaker conceptual understanding often concentrated on translation and surface comprehension, which supported short term task completion but offered less evidence of broader skill development. Therefore, the findings suggest that conceptual understanding operates as a mediating factor between access to technology and meaningful language learning outcomes.

Another important influence concerns learner independence. The data show that when learners understand technology as a resource for exploration, feedback, and self improvement, they are more likely to become autonomous learners. They extend learning beyond scheduled lessons, revisit materials, search for examples, and practice at their own pace. This is particularly important in rural contexts, where exposure to English may be limited and classroom resources may not always be sufficient. Learners with stronger conceptual understanding were better able to use technology to compensate for these limitations, whereas those with weaker understanding remained more dependent on teacher direction. In this sense, conceptual understanding does not simply increase digital participation; it enhances the likelihood that technology will function as a meaningful bridge to language development.

Taken together, the findings suggest that EFL learners' conceptual understanding of technology influences their use of digital tools in three major ways: it shapes tool selection, determines the depth of engagement, and strengthens autonomous language learning. Learners who understand what digital tools are for and how they support learning are more likely to use them purposefully across listening, speaking, reading, and writing. Learners who lack that understanding may still use technology regularly, but their use tends to remain limited to routine, teacher guided, or assignment based activities. This finding underscores the importance of teaching not only with technology, but also about technology, so that rural EFL learners can make more informed and effective use of digital resources for English learning.

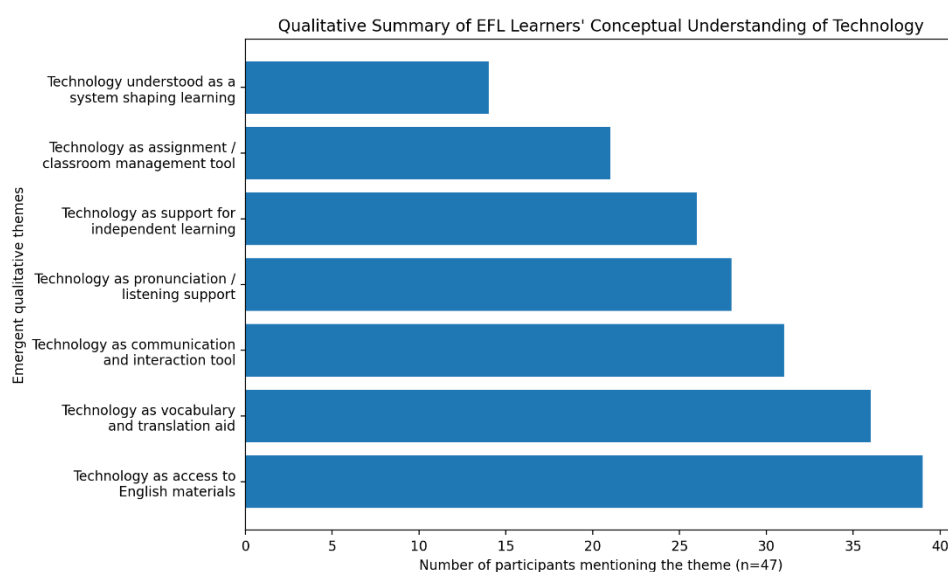


Figure 1. EFL Learners' Conceptual Understanding of Technology

Figure 1 shows that the most frequently mentioned theme was technology as access to English materials, followed by technology as vocabulary and translation aid and technology as a communication and interaction tool. These patterns support the finding that rural EFL learners mainly conceptualize technology in practical learning terms. At the same time, the lowest frequency appears in technology understood as a system shaping learning, which reflects the more limited number of learners who demonstrated deeper conceptual awareness beyond immediate use. This visual summary strengthens the qualitative interpretation that learners' understanding is meaningful but still largely instrumental.

Discussion

The findings of this study show that EFL learners in rural area schools conceptualize technology primarily as a practical resource that supports access to English learning materials, vocabulary assistance, pronunciation models, translation, and classroom participation. This finding is consistent with earlier research showing that technology is often first understood by EFL learners in functional terms, especially as a medium for gaining quick access to language input and learning support (Alakrash & Razak, 2021; Alhuwaydi, 2022; Omar & Alluqmani, 2021; Wei, 2022). In contexts where printed materials, authentic exposure, and direct interaction with proficient English users are limited, digital tools naturally become associated with opportunity and access. The present study confirms this tendency, but it also extends previous research by showing that for rural learners, technology is not merely a convenience. It is experienced as a compensatory mechanism that reduces the constraints of geographic isolation and limited school resources. In that sense, the rural context intensifies the perceived educational value of technology because learners rely on it to bridge gaps in learning opportunities that urban or better resourced students may not experience as strongly.

At the same time, the findings reveal that learners' conceptual understanding of technology remains largely instrumental rather than critical or systemic. Most participants could clearly describe what technology helped them do, such as joining online classes, checking vocabulary, or watching English videos, but fewer could explain why particular tools were more effective for certain learning purposes or how digital platforms shape learning behavior and knowledge access. This result supports the argument that digital competence should not be reduced to operational skills alone (Rahimi & Tafazoli, 2022; Rineks et al., 2021). It also resonates with studies on digital literacy and critical digital pedagogy which emphasize that meaningful technology use requires learners to understand not only how to use a tool, but also how digital environments structure participation, communication, and access to information (Ehret & Posada, 2022; Rajanthran et al., 2024). The current study therefore confirms prior claims that technological familiarity does not automatically produce critical understanding. However, it adds an important rural dimension by showing that even when learners are relatively active users of digital tools, their conceptualizations may still remain centered on immediate utility rather than deeper reflection. This finding extends the literature by suggesting that rural EFL classrooms need not only access oriented interventions, but also pedagogical support that helps learners think about technology more analytically.

Another important finding is that learners viewed technology as a bridge to participation and communication in English. Several participants associated technology with exposure to spoken English through videos, opportunities to imitate pronunciation, and the chance to participate in online interaction more comfortably than in conventional classrooms. This finding aligns with prior studies showing that mobile assisted and technology enhanced language learning can expand opportunities for listening, speaking, and multimodal engagement (Islam & Hasan, 2020; Jiang et al., 2020; Tatli et al., 2022; Vega et al., 2023). It also supports the idea that digital environments can encourage learner investment and participation when they provide accessible, multimodal pathways into language learning (Jiang et al., 2020). What this study adds is a clearer account of how rural learners themselves frame

that experience. Rather than seeing technology only as content delivery, many learners saw it as a means of entering English using communities, resources, and communicative spaces that were otherwise unavailable to them. This insight is important because it shifts the discussion from technology as infrastructure to technology as participation. It suggests that conceptual understanding in rural EFL settings is closely connected to learners' sense that technology opens doors to linguistic experiences beyond the classroom.

The second research question examined how conceptual understanding influences learners' actual use of digital tools, and the findings indicate that this influence is substantial. Learners with stronger conceptual understanding used technology more strategically, selecting different tools for vocabulary learning, pronunciation practice, listening exposure, reading support, and communication. This pattern is consistent with theoretical and empirical work suggesting that technology use becomes more meaningful when learners recognize the affordances and purposes of digital tools (Dağgöl, 2022; Lisa et al., 2021; Muslimin et al., 2023; Rahman et al., 2021). In other words, once learners understand that different technologies serve different pedagogical functions, they begin to use them intentionally rather than mechanically. This finding also supports digital literacy research that links informed tool use with learner autonomy and self regulation (Lei et al., 2022; Rinekso et al., 2021). The present study strengthens this literature by demonstrating that such strategic use is visible even in rural schools, provided that learners possess sufficient conceptual awareness. Thus, the results extend previous work by showing that conceptual understanding acts as a mediating layer between access and effective use. Access alone does not guarantee productive learning; it is learners' understanding of what technology can do for language learning that helps transform access into educational benefit.

In contrast, learners with weaker conceptual understanding tended to rely on technology in a procedural and dependent manner. They often used one familiar tool repeatedly, especially translation applications or teacher assigned platforms, without questioning the strengths or limitations of those tools. This finding echoes research on machine translation and digital reference tools, which shows that learners frequently depend on such tools for quick answers, sometimes at the expense of deeper comprehension, vocabulary development, or accuracy (Almusharraf & Bailey, 2023; Knežević et al., 2021). It also parallels studies of emergency online learning in which students participated in digital routines without necessarily engaging critically or strategically with the available technologies (Barnhart et al., 2022; Rahim & Chandran, 2021). However, the present study refines this understanding by showing that the difference between strategic and dependent use is closely tied to conceptual understanding. Learners did not simply differ in motivation or frequency of use. They differed in how they interpreted the educational role of technology. This point is analytically important because it suggests that superficial technology use in rural EFL classrooms is not only a matter of infrastructure or digital exposure, but also of conceptual development. Learners may have access to tools and still use them in limited ways if they are not guided to understand why, when, and how those tools support learning.

The findings further indicate that conceptual understanding promotes learner autonomy, which is particularly valuable in rural contexts. Learners with stronger conceptual understanding reported continuing to learn outside scheduled lessons, revisiting materials, practicing pronunciation independently, and using digital resources to solve language problems at their own pace. This finding confirms studies showing that digital literacy and technology supported learning can strengthen independent learning habits, motivation, and self directed engagement in EFL contexts (Mohammed & Ali, 2021; Wei, 2022; Zhang & Hasim, 2023). At the same time, the study highlights that autonomy is not generated by technology itself. It emerges when learners understand technology as a resource for exploration, feedback, and self improvement. This insight extends earlier research by connecting rural EFL learners'

autonomy directly to their conceptualization of technology rather than merely to the availability of digital tools. Pedagogically, this means that teachers in rural schools should not focus only on introducing applications or assigning online tasks. They should also help learners evaluate tools, compare functions, reflect on outcomes, and understand the logic behind technology use in language learning. In this way, the study contributes to the broader literature by showing that conceptual understanding is a crucial foundation for equitable and meaningful technology integration in rural EFL education.

CONCLUSIONS

This study concludes that EFL learners in rural area schools conceptualize technology mainly as a practical and supportive resource for English language learning. They most commonly associate technology with access to learning materials, vocabulary support, pronunciation models, translation, and participation in online learning activities. These findings indicate that rural learners already recognize the usefulness of technology in overcoming limitations related to classroom resources and exposure to English. However, their understanding remains uneven. While many learners demonstrate functional awareness of what technology helps them do, fewer show a more reflective understanding of how digital tools shape learning processes, information access, and communicative participation. The study therefore confirms that conceptual understanding of technology among rural EFL learners exists on a continuum, from instrumental use to more critical and strategic awareness.

The study also concludes that conceptual understanding significantly influences how learners use digital tools to develop English language skills. Learners with stronger conceptual understanding use technology more purposefully across listening, speaking, reading, and writing, and they are more likely to become autonomous learners who continue learning beyond teacher directed tasks. By contrast, learners with weaker conceptual understanding tend to use technology in routine and dependent ways, often for task completion rather than deeper language development. The novelty of this study lies in showing that in rural EFL settings, conceptual understanding functions as an important link between technological access and meaningful learning use. Accordingly, the study implies that rural EFL pedagogy should move beyond simply providing devices or platforms and should instead develop learners' critical and strategic understanding of digital tools. Future research may build on this study by examining similar issues in different rural regions, by including teachers' perspectives, or by exploring how specific pedagogical interventions can strengthen learners' conceptual understanding of technology over time.

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DECLARATION OF USING AI TOOLS

In preparing this article, the authors used AI assisted writing support to help organize ideas, improve language clarity, and refine academic expression. All AI generated suggestions were carefully reviewed, revised, and validated by the authors, and the authors take full responsibility for the content, interpretation, and final accuracy of the manuscript.

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