BRIDGING THE DIGITAL DIVIDE: INTEGRATING TECHNOLOGY INTO ENGLISH LANGUAGE EDUCATION IN RURAL AREA

Sitti Maryam Hamid[1], **Andi Bulkis Maghfirah Mannong**[2]
[1,2]English Education Department, Universitas Muhammadiyah Makassar, Indonesia

Nico Irawan[3]
[3]Graduate School, Stamford International University, Thailand
sittimaryamhamid@unismuh.ac.id

Abstract: This study explores the use of digital technology in English language education in three rural regions of South Sulawesi, Indonesia. The research addresses the persistent digital divide and investigates how infrastructure, teacher practices, student digital literacy, and community support interact to affect learning outcomes. Using a qualitative case study approach, data were collected through semi-structured interviews with three English teachers, focus group discussions with 75 students, classroom observations, and document analysis. Thematic analysis was employed to identify key patterns. Results indicate that inadequate infrastructure, including limited internet connectivity and device availability, significantly impedes digital instruction. Nonetheless, teachers showed strong agency and resilience, employing low-tech solutions such as mobile messaging, offline resources, and community-supported learning hubs. Students exhibited varying levels of digital literacy, with those more competent in digital tools showing higher motivation and engagement. Community involvement and institutional leadership played critical roles in enabling or constraining technology adoption. The study also found that professional development enhanced teachers' capacity to implement digital tools effectively. These findings suggest that bridging the digital divide requires holistic, context-sensitive strategies that incorporate infrastructure development, teacher training, and local stakeholder collaboration. This research contributes to the growing body of knowledge on educational technology in under-resourced settings and offers practical implications for policy and practice aimed at enhancing equitable access to English language education in rural areas.
Keywords: English language education, rural schools, digital divide, teacher resilience, student digital literacy

1. INTRODUCTION

The use of technology in English language education within rural and remote areas of developing countries has garnered increasing attention, particularly in the wake of educational disruptions. In many rural contexts, technology serves as a pivotal tool to enhance English language instruction, but its effective use depends significantly on teachers' perceptions and their preparedness to use various digital tools. Several studies have indicated that teachers generally recognize the potential of technology to enrich the teaching process, although they often encounter significant challenges in its implementation. For example, research suggests that teachers' perceptions of technology's value greatly influence their willingness to adopt it in rural educational settings, where resources may be scarce (Nxumalo & Nxumalo, 2023).

Moreover, Khusuma's study on EFL teachers during the pandemic illustrated that many were unprepared for online instruction, facing issues related to inadequate infrastructure and insufficient training for effective technology use (Kusuma, 2022). Similarly, other studies indicate that proper training and professional development are critical for teachers to navigate technology-mediated education successfully (Cahapay & Labrador, 2021; Ruthmann & Mantie, 2017). These findings emphasize

the necessity for targeted support systems, including the provision of professional development opportunities to build teachers' competencies in using technology for English language education (Laila et al., 2023).

In contexts like Indonesia, the digital divide further complicates the use of technology and amplifies educational inequities. Access to technology is often significantly lower in rural areas compared to urban centers, leading to disparities in the availability and quality of educational resources (Safira et al., 2024; Shahnaz & Gandana, 2021). This contrast means that urban schools can use advanced digital teaching tools while rural counterparts may struggle with basic infrastructure, impacting instructors' capability to deliver quality education and students' learning experiences (Peng, 2024). The lack of experienced educators and resources in rural areas perpetuates a cycle of educational disadvantage, which hampers English language learning outcomes (Febriana et al., 2018; Laila et al., 2023).

Furthermore, the interplay between socio-economic factors and technology access highlights broader implications of the digital divide on educational equity. In the Indonesian context, research has documented that inadequate school facilities, including a lack of internet connectivity and insufficient learning materials, disproportionately affect rural students, leading to lower English proficiency rates compared to their urban peers (Myriam et al., 2023; Yusuf et al., 2023). The challenges posed by the digital divide are logistical and deeply intertwined with systemic issues within the educational framework that require a multifaceted approach to address.

The use of digital technology in education, particularly in rural Indonesia, presents a complex array of barriers and facilitators that significantly affect both educators' and students' experiences. Identified barriers include infrastructure challenges, teacher readiness, access to technology, and socio-cultural factors. For instance, a study by Pradana and Josiah highlights that unreliable internet connectivity, insufficient digital devices, and inconsistent electricity supply are critical infrastructural barriers that hinder technology adoption in rural schools (Pradana & Josiah, 2024). Additionally, teacher readiness has been identified as a pivotal factor; many educators lack the necessary skills to effectively integrate digital tools into their teaching, which can lead to hesitancy or resistance to adopting these technologies.

Furthermore, socio-cultural attitudes towards technology in rural areas can contribute to resistance. Although the study by Atmojo and Fridayani primarily focuses on micro-enterprises rather than education, it does mention cultural resistance and limited awareness about technology as challenges affecting technology adoption in rural settings (Atmojo & Fridayani, 2023). This combination of infrastructural inadequacies, lack of training, and cultural resistance creates a significant hurdle for effectively adopting digital technologies in rural educational contexts.

On the other hand, facilitators for technology adoption include the potential for improved student engagement and learning outcomes when technology is successfully integrated. For example, Pradana and Josiah indicate that successful technology use in some schools has led to improved student interest and participation (Pradana & Josiah, 2024), while Rabani et al. outline how technology can improve education quality and address access disparities across regions. Additionally, initiatives focusing on teacher training and capacity building have shown promise in enhancing educators' confidence and competence in using digital tools.

The role of national education policies in Indonesia is crucial to supporting technology-enhanced learning, especially in remote regions. The introduction of the Merdeka Curriculum, which emphasizes flexible learning paths and the use of digital competencies, reflects a national commitment to modernizing educational practices to meet contemporary demands (Azmi et al., 2023). However, the implementation of such policies is often contingent upon adequate infrastructural support and training programs tailored to rural contexts. Findings from Sumarno highlight that successful technology use requires coordinated efforts among governmental bodies to ensure resources are effectively distributed and educators are adequately prepared (Sumarno, 2023).

Moreover, national policies must also address the digital divide that exists between urban and rural areas. As highlighted by Nurcahyoko et al., enhancing literacy and digital skills in rural regions is imperative to bridge educational disparities and improve learning outcomes (Nurcahyoko et al., 2024). Governmental interventions, such as financing initiatives to expand internet access and providing digital devices to schools in remote areas, are essential to fostering an environment conducive to technology adoption.

The use of educational technology into language teaching, particularly in under-resourced areas, can be effectively explained through several theoretical frameworks. One prominent model is the SAMR (Substitution, Augmentation, Modification, Redefinition) model, which provides a structured approach for educators to evaluate how technology can transform the learning experience. According to Boateng & Kalonde (2024), this model not only encourages progressive technology adoption but also facilitates increased student engagement through interactive learning experiences. The stages of SAMR allow teachers to start from simple tool substitutions and gradually move towards redefining tasks that were previously inconceivable without technology (Boateng & Kalonde, 2024). This transformation is particularly impactful in rural settings where traditional methods may be insufficient to engage students.

Another relevant framework is the bioecological systems theory, as suggested by Bond and Bedenlier, which emphasizes the interconnectedness of students, teachers, and technology within their learning environments. This perspective helps in understanding how micro-level factors, such as teacher preparedness and student motivation, can influence the effective use of technology in educational practices (Bond & Bedenlier, 2019). By considering these interactions, educators can create more tailored and supportive learning experiences that address the unique challenges faced in rural areas, thus promoting a better use process.

Evaluations of the impact of technology use on language learning outcomes and student engagement in rural settings show mixed but promising results. For instance, Kaziya's systematic review highlights that while technology can foster collaboration and improve critical thinking, the benefits are contingent on adequate infrastructure and ongoing teacher development (Kaziya, 2025). Moreover, other research demonstrates that technology provides motivation and opportunities for authentic learning, although it also raises concerns about potential distractions and misuse by students. This duality underscores the importance of strategic implementation to maximize benefits while minimizing drawbacks.

Additionally, the work by Parkes et al. finds that while technology has the potential to enhance access to education for students from rural and remote areas, its effectiveness often hinges on how it is integrated into the educational framework (Parkes et al., 2015). When technology is used thoughtfully, it can significantly enrich

the learning experience and boost engagement, allowing for interactive and personalized learning opportunities. Conversely, inadequate implementation can exacerbate existing educational inequities, leading to higher attrition rates and decreased engagement. Finally, this study illustrates that while barriers do exist in rural areas, successful technology use can enhance language learning outcomes and student engagement when approached with thoughtful strategies and resources.

2. METHODOLOGY

The present research employed a qualitative case study methodology, a widely acknowledged approach particularly effective for investigating technology use within rural educational contexts. This approach was deliberately selected due to its ability to deeply explore complex, context-specific issues that quantitative methodologies might not adequately address (SAGNAK & Baran, 2021). The case study methodology was especially appropriate considering the nuanced and multifaceted experiences of participants in remote Indonesian regions, where conventional educational practices may face considerable limitations due to infrastructural and resource constraints.

Data were collected from three geographically isolated regions in South Sulawesi, Indonesia: Salubarana' Lembang Buakayu village, Leon Ratte Buttu village, and Dengngo' Lembang Bau village within the Bonggakaradeng District. These locations were specifically chosen due to their significant infrastructural limitations, notably limited internet connectivity and scarce educational resources, which exemplify the typical barriers to effective technology use in rural Indonesian educational contexts. Such deliberate site selection enabled the research to capture authentic representations of the challenges and adaptations related to technology-based education in remote environments (Findley et al., 2024).

The participants consisted of three English teachers and seventy-five secondary-level students drawn from three public junior high schools located within the Tana Toraja region. Employing purposive sampling, participants were intentionally selected based on their direct involvement with technology-based English instruction. This sampling strategy was crucial to ensure that the collected data would be deeply relevant and provide substantial insights into the central research questions, allowing researchers to capture diverse yet pertinent perspectives reflective of the research focus (Findley et al., 2024).

To comprehensively explore the use of technology within these rural educational settings, multiple data collection methods were used, including semi-structured interviews, focus group discussions, classroom observations, and document analysis. Semi-structured interviews were conducted with the English teachers, as these provide significant flexibility and depth, allowing participants to elaborate on their experiences, perceptions, and strategies regarding technology use in their educational practices. Interviews followed predetermined but open-ended questions, enabling a nuanced exploration of the teachers' experiences while permitting the discussion to naturally progress based on participant responses (SAGNAK & Baran, 2021).

Focus group discussions involving students were also conducted to provide deeper insights into student perceptions, experiences, and attitudes toward digital technologies within their learning environments. This format was chosen for its

capacity to elicit interactive and candid discussions among students, enriching the data with collective perspectives and peer reflections on the use of technology in language education (Nguyen et al., 2024).

Classroom observations supplemented interview data by providing an opportunity to directly witness teacher-student interactions, technology usage patterns, and practical instructional challenges and adaptations. Observations were structured to capture both synchronous online sessions and blended learning scenarios, highlighting variations in technology use practices and their effectiveness within constrained environments.

Furthermore, document analysis was conducted on relevant instructional materials, including lesson plans, educational digital resources, and institutional policies governing technology use within schools. This analysis offered retrospective insights, highlighting how technological use was planned, documented, and implemented within the educational practices at these institutions. Such analysis was pivotal for understanding formal and informal frameworks guiding technology use, aligning with previous studies emphasizing the utility of document analysis in educational research (Nihishova & Kryvonosova, 2020).

Data analysis was performed using thematic analysis, an established qualitative method recognized for systematically identifying, analyzing, and reporting patterns within collected data. Following the structured process outlined by Galatzan et al., (2024), thematic analysis allowed for the identification of recurrent themes across various data sources, elucidating underlying phenomena related to infrastructural constraints, pedagogical adaptations, student engagement, and institutional dynamics influencing technology use.

To enhance the trustworthiness and credibility of the qualitative findings, multiple strategies recommended by Zeighami et al., (2021) were employed. Credibility was assured through member checking, wherein participants reviewed the interpreted findings for accuracy and authenticity, thereby confirming the validity of interpretations and reducing researcher bias (Anim-Wright, 2024). Dependability and confirmability were achieved through meticulous documentation of research procedures, data collection methods, and analytical decisions, maintaining transparent and auditable records to facilitate external review and replication (Bingham, 2023).

Additionally, methodological triangulation was conducted by integrating multiple data sources including interviews, focus groups, observations, and document analyses to confirm and cross-validate findings, thus strengthening the comprehensiveness and robustness of the conclusions drawn (Drozdikova–Zaripova & Sabirova, 2020). Such triangulation provided an enriched perspective on technology use practices and highlighted consistencies and discrepancies across various data sources.

Ethical considerations were rigorously observed throughout the research process due to the vulnerability and geographic isolation of the participants. Ensuring informed consent was prioritized, clearly communicating research aims, methods, potential risks, and participants' rights, particularly crucial given the educational and infrastructural limitations potentially affecting participants' full comprehension (Molyneux et al., 2021). Maintaining confidentiality was similarly emphasized, with strict measures implemented to secure participant identities and data, addressing ethical obligations and preventing potential negative social repercussions within close-knit rural communities (Alves et al., 2022).

Moreover, a reflexive research approach was adopted, acknowledging researcher positionality and potential power dynamics within the research context. This reflexivity involved continuous self-assessment to ensure ethical interactions with participants, promoting mutual respect and transparent communication throughout the study (Love & McDonnell, 2024). Additionally, researchers consistently assessed and mitigated any potential adverse impacts on participants, proactively safeguarding their well-being and interests, aligning with ethical research responsibilities underscored by Dickins (2025).

Overall, the methodological rigor, careful participant selection, comprehensive data collection strategies, and meticulous ethical adherence significantly contributed to the integrity and depth of this qualitative case study. Through these systematic and ethically sound approaches, the research aimed to generate substantial insights into the complexities and potentialities of technology use within rural English language education in Indonesia.

3. RESULTS

3.1 Infrastructure Limitations in Rural Schools

3.1.1 Access to Devices and Connectivity

The research revealed that a pervasive lack of technological infrastructure significantly hindered the use of digital tools in English language education. In the studied regions of Bonggakaradeng District, South Sulawesi, most schools lacked adequate digital devices such as laptops, tablets, or projectors. Internet connectivity was sporadic and often unreliable, consistent with findings by Coker (2021), who described geographic digital divides as a major impediment to effective teaching in rural environments. Many students reported needing to travel long distances to reach areas with stable connections, a factor that limited both the duration and consistency of digital engagement.

"Sometimes I have to walk to the hill near our village just to get a signal strong enough to download my homework," said one student from Leon Ratte Buttu.

Classroom observations confirmed these accounts, with several teachers seen relying solely on printed materials and verbal explanations due to the absence of digital presentation tools. Document analysis revealed that lesson plans rarely included multimedia components, and when they did, teachers annotated the plans with notes such as "if signal allows" or "alternative: voice note."

This infrastructural inadequacy aligns with the assertions of Bahri et al. (2024), who noted that digital literacy deficits in rural settings are primarily rooted in insufficient exposure to digital tools. Furthermore, socio-economic constraints exacerbated the situation, as many families lacked access to smartphones or home internet (Fu et al., 2023). These combined limitations severely impacted the ability of both teachers and students to engage meaningfully with online English instruction.

3.1.2 Effects on English Language Instruction Due to infrastructural barriers, English instruction in the observed schools was largely constrained to low-tech or offline modes. Teachers reported difficulty in accessing multimedia resources or engaging students in interactive digital tasks. These conditions reinforced prior observations by Muhaimin et al., (2020) that poor access to digital

content diminishes opportunities for active language learning and creative task design.

"I often record voice instructions and send them via WhatsApp when the internet is too weak for a video call," shared one English teacher in Salubarana' Lembang Buakayu.

Observations supported this claim, as teachers were frequently seen using voice recordings in lieu of live instruction. Students played these messages during break time using shared devices. Lesson documents analyzed showed that digital materials were frequently substituted with printouts or audio files to circumvent technical limitations. As one lesson plan noted, "send PDF and audio on Monday; collect responses on Thursday."

Consequently, teaching remained highly traditional and text-dependent, contributing to lower student engagement and reduced linguistic input exposure.

Table 1. Summary of Infrastructural Challenges in the Three Study Sites

Region	Internet Availability	Device Access	Power Stability
Salubarana' Lembang Buakayu	Intermittent	Shared mobile devices	Frequent power outages
Leon Ratte Buttu	Weak signal, patchy	Limited school devices	Occasional blackouts
Dengngo' Lembang Bau	Very limited or none	Personal phones only	Unreliable and unstable

3.2 Teacher Adaptation and Improvisation

3.2.1 Contextual Strategies and Creativity Despite these limitations

English teachers exhibited resilience and adaptability. One common strategy was the use of mobile messaging applications like WhatsApp to deliver assignments and voice-recorded instructions. This aligns with Gupta & Hayath (2022), who emphasized the utility of mobile technology in bypassing infrastructural barriers. Teachers also shared content using USB drives or preloaded SD cards, allowing students to access materials offline at home or in community centers.

"I download videos and give them to students using USB or Bluetooth sharing. That way, they can watch the lessons even without the internet," explained a teacher from Dengngo' Lembang Bau.

Observation notes showed that several teachers had developed their own bank of short videos, stored on personal flash drives, which they distributed weekly. In some schools, classroom walls displayed printed screenshots from these videos to reinforce vocabulary. Document analysis of instructional materials indicated a shift from synchronous to asynchronous models, with lesson pacing adjusted to accommodate technological limitations.

Community collaboration was another recurring theme. Teachers worked with local leaders to create shared digital access points. In some cases, they transformed village offices or community halls into temporary learning hubs. Such collaborative adaptation echoes the observations of Shea et al., (2023), who highlighted how

community-driven solutions can sustain learning continuity in technology-poor environments.

3.2.2 Professional Development and Capacity Building Teachers

Who had previously attended digital literacy workshops showed higher levels of confidence in using technology for instruction. This reflects Koh & Daniel (2022) assertion that targeted professional development enhances pedagogical innovation. In the studied regions, teachers with professional development backgrounds were more likely to integrate multimedia elements into lessons, even in constrained conditions.

"After attending a training held by the education department, I learned to use Canva and simple video editing tools to make my English lessons more interactive," said one English teacher from Tana Toraja.

Observation data revealed that these teachers incorporated visual elements like flashcards designed via Canva into their printed materials. Some even produced short English vocabulary videos using mobile apps. Analysis of training certificates and teacher portfolios confirmed the positive correlation between professional development exposure and instructional innovation.

Training was often informal or peer-led, with educators forming small networks to share tools and teaching strategies. This self-organized professional learning community approach supports the findings of Jobst et al., (2022), which link positive teacher attitudes and peer collaboration to improved technology use.

Table 2. Teacher Adaptation Strategies

Strategy	Description	Tools Used	Reported Effectiveness
Mobile Messaging	Sending assignments and instructions via WhatsApp	WhatsApp, voice notes	High in asynchronous learning
Offline Media Distribution	Using USB/SD cards for lesson materials	USB drives, SD cards	Medium to high
Community Learning Hubs	Partnering with local centers for student access	Village halls, borrowed devices	High when supported locally
Peer Collaboration	Teachers share resources and training informally	Print materials, informal mentoring	Medium

3.3 Student Digital Literacy and Motivation

3.3.1 Variations in Digital Literacy Levels Student

Students' responses showed diverse levels of digital literacy. Some students were adept at navigating messaging apps or downloading files but struggled with academic applications or structured digital learning platforms. These findings are in line with Wahyuni et al., (2023), who reported a gap between social and academic digital skills among rural learners. The disparity hindered students' ability to complete online tasks efficiently and often necessitated teacher intervention.

"I can use Instagram and TikTok easily, but I don't know how to use Google Classroom or Zoom unless someone helps me," explained a student from Salubarana' Lembang Buakayu.

Observational data showed that during blended learning sessions, students frequently assisted each other in accessing and interpreting digital content. This peer-supported learning was critical to navigating mobile-based platforms. Document analysis of student assignments revealed inconsistencies in formatting and submission types, reflecting varied familiarity with digital tools.

Students with stronger digital literacy exhibited higher levels of motivation and engagement, supporting Rusli et al., (2023) claim that digital competency enhances academic participation. Conversely, those lacking confidence in navigating technology were more likely to disengage, a trend corroborated by Nacaroğlu et al. (2025).

3.3.2 Motivational Factors and Barriers Despite infrastructural constraints

Students expressed enthusiasm for learning English through digital means. Interactive elements such as videos and gamified quizzes significantly increased their interest. Fayanto et al., (2023) observed similar results, linking user-friendly digital platforms to improved student motivation.

"When we get English games or quizzes online, it's fun and I feel like I learn faster," said a student from Bonggakaradeng District.

Observations supported this sentiment; students showed higher attentiveness and participation when visual or interactive content was introduced. However, document analysis of attendance logs and task submissions indicated that access remained inconsistent across socioeconomic lines. Students from lower-income households often shared devices with siblings or had limited data access. These barriers not only reduced their engagement but also highlighted the intersection of technological and economic inequality in rural learning environments (Sarier & Uysal, 2022).

Table 3. Student Digital Literacy and Motivation Patterns

Digital Skill Level	Engagement Indicator	Barriers Faced
High	Proactive in accessing materials	Device sharing, mobile data costs
Medium	Participates with support	Limited app use, uncertain with navigation
Low	Reluctant or inconsistent usage	Low confidence, no guidance or access

3.4 Institutional and Community Support

3.4.1 Role of School Leadership School

Administrators played a pivotal role in either enabling or hindering technology use. Schools with proactive leadership exhibited more innovation in mobilizing limited resources. These leaders-initiated collaborations with local government

offices and NGOs to secure digital tools and training. Such practices align with Alajmi (2022) findings on the importance of digital leadership in enhancing institutional readiness.

"Our school head worked with an NGO to provide internet vouchers for students. It helped a lot during the online class period," reported a teacher from Tana Toraja.

Observation data showed that such schools had more structured lesson dissemination systems, often including printed schedules and packet delivery routines. Document analysis of school policies reflected the presence of technology-related provisions, particularly in those schools with active leadership.

Leadership styles varied, but distributed leadership models appeared most effective. In schools where teachers were empowered to take initiative, more creative solutions emerged. This reflects the framework proposed by Korumaz & GÖLÇEK (2021), which associates collaborative leadership with enhanced teacher engagement in technology use.

3.4.2 Community Involvement and Policy Support Local

Local communities played an essential role in supporting technology-mediated education. Parents and community leaders collaborated with schools to improve internet access, offer safe learning spaces, and provide device-sharing opportunities. These initiatives demonstrate how grassroots involvement can complement formal policy efforts (Kelly et al., 2022).

"The village chief let us use the meeting hall and solar panel to charge our devices and watch the lessons together," noted one student.

Observations in these community spaces showed students studying in small groups, often around a single mobile phone. Document analysis included community meeting minutes and partnership agreements showing coordinated efforts to sustain learning access.

Moreover, community-driven support structures contributed to sustained student participation. Digital literacy programs hosted at village centers offered students hands-on experience, reinforcing school-based learning. The effectiveness of such community-based interventions echoes Sayuti et al., (2020) argument that inclusive planning and localized solutions are key to educational success in rural settings.

Table Summary: Institutional and Community Support in Technology Integration

Category	Key Insights	Examples / Evidence
Role of School Leadership	School leaders greatly influenced the success of tech integration; proactive leadership led to innovative resource mobilization and system structuring.	- School head collaborated with NGO for internet vouchers in Tana Toraja

While national policies like the Merdeka Curriculum aimed to promote digital competencies, their implementation in rural areas was uneven due to infrastructural gaps. Nevertheless, when local efforts were aligned with broader policy objectives, outcomes improved. This emphasizes the need for bottom-up policy adaptation to ensure contextually relevant applications of digital initiatives.

In summary, the research highlights that while substantial infrastructural barriers persist in rural Indonesia, the adaptive responses of educators, the enthusiasm of students, and the commitment of local communities collectively demonstrate a resilient and resourceful approach to integrating technology into English language education. These findings call for sustained multi-stakeholder engagement and targeted investments to bridge the digital divide and enhance educational equity in marginalized regions.

4. DISCUSSION

The findings from this study underscore the significant role that infrastructural limitations play in shaping educational outcomes in rural Indonesian schools, particularly in relation to English language acquisition. The research corroborates the assertion of Fargas & Bagley (2021) that financial and infrastructural constraints in small rural schools limit the availability of comprehensive educational programs. In the context of the study regions, the lack of reliable internet, digital devices, and access to modern teaching tools, as highlighted by Pradana & Josiah (2024), mirrors the widespread challenges faced by rural schools globally. These limitations not only inhibit the effective use of technology but also curtail pedagogical innovation and access to high-quality language instruction. Song (2023) and Zhao et al., (2022) further emphasize that these inadequacies, compounded by low teacher capacity and systemic underfunding, restrict the creation of linguistically rich learning environments necessary for language development.

The persistent digital divide highlighted by Zhao et al., (2022) and observed in this study manifests in limited student access to digital content and a lack of supportive educational ecosystems. The disparities between rural and urban learners, as illustrated in Peng (2024), are stark, and without targeted interventions, they are likely to widen. Teachers in the studied regions reported that traditional instruction dominated their practice due to insufficient digital resources, echoing the assertions by Coker (2021) and Muhaimin et al., (2020) that infrastructural deficiencies perpetuate rudimentary instructional methods.

Yet, despite these structural challenges, the data from this research also revealed the central role of teacher agency and resilience in sustaining educational technology initiatives. Janes and Chen (2024) define teacher agency as the ability to influence one's professional environment, a quality that emerged strongly among participating educators. These teachers adapted resourcefully, utilizing mobile phones, preloaded media, and asynchronous communication methods like WhatsApp to ensure learning continuity. Their behavior exemplifies the findings of Quinn et al., (2020), who argue that online professional development can empower rural educators to navigate limited-resource contexts effectively.

This resilience, as Hong (2023) discusses, allows educators to maintain commitment despite adverse conditions. Teachers in the study showed creativity in forming learning communities, collaborating with peers, and working with local institutions, embodying the capacity for sustained engagement noted by Burke & Buchanan (2022). Randolph et al., (2024) and Chen et al., (2022) also emphasize the significance of remote coaching and ongoing training in building teacher capacity. The success of these educators in creating meaningful learning experiences with minimal infrastructure reflects the importance of nurturing local competencies and supporting continuous development initiatives tailored to rural realities.

Furthermore, the role of digital literacy in student engagement and academic participation emerged as a crucial theme. Students with basic familiarity with digital tools were more motivated and performed better in their English studies, supporting Wahyuni et al., (2023) and Rusli et al., (2023), who argue that digital competency enhances academic outcomes. Conversely, students with low digital literacy struggled to use educational platforms effectively, often becoming disengaged. These findings align with those of Nacaroğlu et al., (2025), who observed similar patterns among marginalized learners.

Bridging the divide between informal digital habits and academic digital literacy is therefore essential. Gautam & Mani (2024) illustrate how mobile technologies serve as effective informal learning tools, particularly in underserved communities. The students in this study, while comfortable with social media and mobile apps, often lacked the digital competencies needed for structured academic engagement. As such, institutional strategies must involve integrated digital literacy curricula, as advocated by Maldon & Pedlow (2023), to formalize and elevate these informal skills. Programs that focus on practical applications and align with academic expectations, such as those proposed by Adeleye et al., (2024) and Dwiyasa et al., (2022), can bridge this gap and enhance student confidence and participation.

Community involvement was also shown to be integral to the success of digital learning initiatives. The active participation of parents, village leaders, and NGOs in supporting internet access, providing shared devices, and establishing learning hubs reflects Puspita (2024) emphasis on community-driven digital ecosystems. Such support not only extended the reach of instructional content but also fostered a sense of shared responsibility for educational outcomes. Intergenerational learning and family involvement, as Wu et al., (2024) suggest, further enhanced student motivation and commitment to learning.

The findings reinforce the need for holistic, context-sensitive solutions that consider both infrastructural needs and social ecosystems. Adeleye et al., (2024) propose a multi-stakeholder collaboration model to foster inclusive digital literacy, which this study finds particularly relevant. Community-based digital learning programs, tailored to local contexts and resources, can ensure greater relevance and sustainability, as observed in Eden et al., (2024). Furthermore, efforts to align technological skills training with local employment opportunities, as Santa (2022) recommends, can make learning more meaningful and outcome-oriented.

Effective use of informal and formal learning experiences, as suggested by Asmayawati (2023), also provides rural learners with accessible pathways to digital proficiency. In the study, informal methods such as mobile learning and peer support played a foundational role in shaping students' engagement. Formalizing these experiences through extracurricular programs, collaborative inquiry (Chen et al., 2025) , and academic workshops can consolidate student competencies and reduce the digital learning gap.

Policy implications from the study strongly support existing literature on the necessity of targeted infrastructure and teacher training investment. Wagg & Simeonova (2021) contend that digital learning initiatives require foundational infrastructure to be effective. This includes reliable internet, electricity, and device availability, which remain glaringly absent in the observed regions. Detlor & Julien (2020) emphasize the role of educator professional development, a finding substantiated by the correlation in this study between training and teacher confidence.

The strategic allocation of educational funding toward underserved regions is also critical. Targeted investments in digital resources, as proposed by Adeleye et al., (2024), can enable equitable access and create conditions necessary for sustainable educational technology use. In addition, the findings echo Eden et al., (2024) in calling for participatory policy design. The alignment of national policy with local needs ensures that technological interventions are contextually relevant and widely accepted. Community involvement in planning, as observed in Sayuti et al., (2020), fosters ownership and encourages long-term engagement with educational initiatives.

Ultimately, addressing educational inequalities in rural areas demands comprehensive and inclusive strategies. These should integrate local knowledge, empower educators, involve families and communities, and be supported by national policies that prioritize rural educational development. The convergence of teacher agency, student digital literacy, community support, and infrastructural investment, as showed in this study, offers a roadmap for closing the rural-urban education gap in the context of English language learning through technology.

5. CONCLUSION

This study investigated the use of technology in English language education across three remote regions in South Sulawesi, Indonesia, focusing on infrastructure, teacher practices, student digital literacy, and community support. The findings affirm that significant infrastructural barriers, including inconsistent internet connectivity, lack of devices, and unreliable electricity, persistently hinder digital learning in rural schools. However, the study also reveals the resilience and agency of teachers who adopt creative low-tech strategies, collaborate with communities, and continuously develop their digital competencies to deliver effective instruction. Students, despite varied digital literacy levels, showed high motivation to engage with digital tools, especially when content was interactive and accessible. Community and institutional support further influenced the success of technology use, with active school leadership and external partnerships playing a pivotal role.

The implications of these findings emphasize the need for targeted interventions in rural education policy, particularly in infrastructure investment, professional development for teachers, and the implementation of localized digital literacy programs. The study contributes to the existing literature by offering empirical insights into the nuanced dynamics of technology-enhanced language learning in under-resourced settings. It highlights the interconnected roles of infrastructure, teacher adaptability, student engagement, and community support in shaping equitable access to English language education. Future research could explore longitudinal impacts of community-based digital interventions or examine scalable models for technology use in similar rural contexts.

REFERENCES

Adeleye, O. O., Eden, C. A., & Adeniyi, I. S. (2024). Educational Technology and the Digital Divide: A Conceptual Framework for Technical Literacy Inclusion. *International Journal of Science and Research Archive*, *12*(1), 150–156. https://doi.org/10.30574/ijsra.2024.12.1.0405

Alajmi, M. (2022). The Impact of Digital Leadership on Teachers' Technology

Integration During the COVID-19 Pandemic in Kuwait. *International Journal of Educational Research*, *112*, 101928. https://doi.org/10.1016/j.ijer.2022.101928

Alves, H., Gibbs, L., Chavez, K. M., Brito, I. d. S., & Sheikhattari, P. (2022). Children and Adolescents' Voices and the Implications for Ethical Research. *Childhood*, *29*(1), 126–143. https://doi.org/10.1177/09075682211061230

Asmayawati, A. (2023). Diversity of Learning Opportunities and Learning Innovation in Mattering Digital Literacy: The Role of Digital Storytelling. *International Journal of Current Science Research and Review*, *06*(11). https://doi.org/10.47191/ijcsrr/v6-i11-27

Atmojo, M. E., & Fridayani, H. D. (2023). Bridging the Urban-Rural Divide: Exploring the Potential of Smart Technologies for Rural Micro-Enterprises in Yogyakarta City, Indonesia. *E3s Web of Conferences*, *440*, 2005. https://doi.org/10.1051/e3sconf/202344002005

Azmi, C., Hadiyanto, H., & Rusdinal, R. (2023). National Curriculum Education Policy "Curriculum Merdeka and Its Implementation." *International Journal of Educational Dynamics*, *6*(1), 303–309. https://doi.org/10.24036/ijeds.v6i1.437

Bingham, A. J. (2023). From Data Management to Actionable Findings: A Five-Phase Process of Qualitative Data Analysis. *International Journal of Qualitative Methods*, *22*. https://doi.org/10.1177/16094069231183620

Boateng, S., & Kalonde, G. (2024). *Exploring the Synergy of the SAMR (Substitution, Augmentation, Modification, and Redefinition) Model and Technology Integration in Education: The Key to Unlocking Student Engagement and Motivation*. *1*(1), 37–46. https://doi.org/10.33422/aretl.v1i1.185

Bond, M., & Bedenlier, S. (2019). Facilitating Student Engagement Through Educational Technology: Towards a Conceptual Framework. *Journal of Interactive Media in Education*, *2019*(1). https://doi.org/10.5334/jime.528

Burke, P. F., & Buchanan, J. (2022). What Attracts Teachers to Rural and Remote Schools? Incentivising Teachers' Employment Choices in New South Wales. *Australian Journal of Education*, *66*(2), 115–139. https://doi.org/10.1177/00049441211066357

Cahapay, M. B., & Labrador, M. G. P. (2021). Barriers and Enablers of Emergency Remote Education Amid COVID-19 Pandemic: Perspectives of English Language Teachers. *International Journal of Educational Studies*, *4*(4), 159–164. https://doi.org/10.53935/2641-533x.v4i4.168

Chen, F., Zhang, Y., & Chen, G. (2025). Exploring the Effects of Technology-Supported Collaborative Inquiry and Students' ICT Competency on Scientific Literacy and Subject Knowledge in Rural Science Classrooms. *Education and Information Technologies*. https://doi.org/10.1007/s10639-025-13512-w

Chen, Y., Cao, L., Guo, L., & Cheng, J. (2022). Driving Is Believing: Using Telepresence Robots to Access Makerspace for Teachers in Rural Areas. *British Journal of Educational Technology*, *53*(6), 1956–1975. https://doi.org/10.1111/bjet.13225

Coker, H. (2021). Harnessing Technology to Enable the Flow of Professional Capital: Exploring Experiences of Professional Learning in Rural Scotland. *Professional Development in Education*, *47*(4), 651–666. https://doi.org/10.1080/19415257.2021.1876148

Detlor, B., & Julien, H. (2020). Success Factors Affecting Digital Literacy Training Initiatives Led by Local Community Organizations. *Proceedings of the Association for Information Science and Technology*, *57*(1). https://doi.org/10.1002/pra2.331

Dickins, K. A. (2025). Ethical Considerations for Conducting Community-Engaged Research With Women Experiencing Homelessness and Incarcerated Women. *Ethics & Human Research*, *47*(1), 20–33. https://doi.org/10.1002/eahr.60005

Drozdikova–Zaripova, A. R., & Sabirova, E. G. (2020). Usage of Digital Educational Resources in Teaching Students With Application of "Flipped Classroom" Technology. *Contemporary Educational Technology*, *12*(2), ep278. https://doi.org/10.30935/cedtech/8582

Dwiyasa, A., Kumala, F. N., & Andriani, K. F. (2022). Analysis of Information Processing Capabilities and Digital Data on Digital Literacy Skills of Elementary School Students. *Jurnal Pendidikan Dasar Nusantara*, *8*(1), 28–37. https://doi.org/10.29407/jpdn.v8i1.18278

Eden, C. A., Chisom, O. N., & Adeniyi, I. S. (2024). Promoting Digital Literacy and Social Equity in Education: Lessons From Successful Initiatives. *International Journal of Management & Entrepreneurship Research*, *6*(3), 687–696. https://doi.org/10.51594/ijmer.v6i3.880

Fargas, M., & Bagley, C. (2021). Is Small Beautiful? A Scoping Review of 21st-Century Research on Small Rural Schools in Europe. *European Educational Research Journal*, *21*(5), 822–844. https://doi.org/10.1177/14749041211022202

Fayanto, S., Ulfa, S., Praherdhiono, H., Shinta, N. D., Takda, A., Sahara, L., & Balulu, N. (2023). Design of Exo Physics Book Based on Mobile Application as a Means of Literacy Learning Media for Remote Areas in Indonesia. *Journal of Learning for Development*, *10*(3), 411–426. https://doi.org/10.56059/jl4d.v10i3.846

Febriana, M., Nurkamto, J., Rochsantiningsih, D., & Muhtia, A. (2018). Teaching in Rural Indonesian Schools: Teachers' Challenges. *International Journal of Multicultural and Multireligious Understanding*, *5*(5), 11. https://doi.org/10.18415/ijmmu.v5i5.305

Findley, M. G., Ghosn, F., & Lowe, S. (2024). Vulnerability in Research Ethics: A Call for Assessing Vulnerability and Implementing Protections. *Proceedings of the National Academy of Sciences*, *121*(34). https://doi.org/10.1073/pnas.2322821121

Galatzan, B. J., Johnson, E. A., Judson, T., & Shan, L. (2024). Linguistic Dissection of Nursing Handoffs: Implications for Patient Safety in <scp>varied-acuity</Scp> Hospital Settings. *Journal of Clinical Nursing*, *33*(8), 3077–3088. https://doi.org/10.1111/jocn.17190

Gautam, S., & Mani, I. (2024). Smartphones in the Hands of Rural Women: Embracing

Informal Learning for Digital Literacy. *Adult Learning*, *36*(2), 120–130. https://doi.org/10.1177/10451595241263142

Gupta, S. K., & Hayath, M. (2022). Lack of It Infrastructure for ICT Based Education as an Emerging Issue in Online Education. *Technoarete Transactions on Application of Information and Communication Technology(Ict) in Education*, *1*(3). https://doi.org/10.36647/ttaicte/01.03.a004

Hong, Z. (2023). Strategies for Enhancing the Resilience of Rural Teachers From the Perspective of Chinese Rural School Principals, in the Post-Pandemic Period. *Environment and Social Psychology*, *8*(3). https://doi.org/10.54517/esp.v8i3.1963

Janes, S., & Chen, J. (2024). Enacting Teacher Emotion, Agency, and Professional Identity: A Netnography of a Novice Chinese Language Teacher's Crisis Teaching. *Australian Journal of Applied Linguistics*, *7*(1), 1333. https://doi.org/10.29140/ajal.v7n1.1333

Jobst, S., Lindwedel, U., Marx, H., Pazouki, R., Ziegler, S., König, P., Kugler, C., & Feuchtinger, J. (2022). Competencies and Needs of Nurse Educators and Clinical Mentors for Teaching in the Digital Age – A Multi-Institutional, Cross-Sectional Study. *BMC Nursing*, *21*(1). https://doi.org/10.1186/s12912-022-01018-6

Kaziya, K. (2025). *A Systematic Review of Technology Integration in Mathematics Education: Perspectives From Rural Zambia in Kalomo District*. https://doi.org/10.21203/rs.3.rs-6374363/v1

Kelly, W., McGrath, B., & Hubbard, D. (2022). Starting From 'Scratch': Building Young People's Digital Skills Through a Coding Club Collaboration With Rural Public Libraries. *Journal of Librarianship and Information Science*, *55*(2), 487–499. https://doi.org/10.1177/09610006221090953

Koh, J. H. L., & Daniel, B. K. (2022). Shifting Online During COVID-19: A Systematic Review of Teaching and Learning Strategies and Their Outcomes. *International Journal of Educational Technology in Higher Education*, *19*(1). https://doi.org/10.1186/s41239-022-00361-7

Korumaz, M., & GÖLÇEK, E. (2021). BÖTE Mezunu Okul Müdürlerinin Teknoloji Liderliği Deneyimleri: Olgubilimsel Bir Araştırma. *Eğitim Bilimleri Dergisi*, *53*(53), 113–140. https://doi.org/10.15285/maruaebd.714794

Kusuma, I. P. I. (2022). How Does a TPACK-related Program Support EFL Pre-service Teachers' Flipped Classrooms? *LEARN Journal: Language Education and Acquisition Research Network*, *15*(2), 300–325. https://www.scopus.com/inward/record.uri?eid=2-s2.0-85134421859&partnerID=40&md5=9ae4c3eb8f3810e1c54c6eca195e42d0

Laila, F. N., Prastiwi, Y., & Fauzıatı, E. (2023). Challenges of Teaching English for Elementary School Student in Indonesian Rural Areas. *Jpi (Jurnal Pendidikan Indonesia)*, *12*(3), 436–443. https://doi.org/10.23887/jpiundiksha.v12i3.57804

Love, G., & McDonnell, L. (2024). Presence as Politics in Qualitative Research Ethics: Feminist Engagements With "Risk" and Vulnerability. *Qualitative Inquiry*, *31*(5),

403–415. https://doi.org/10.1177/10778004241256141

Maldon, J., & Pedlow, M. (2023). Partnering to Enhance the Postgraduate Student Experience. *Ascilite Publications*, 492–497. https://doi.org/10.14742/apubs.2023.644

Molyneux, S., Sukhtankar, P., Thitiri, J., Njeru, R. W., Muraya, K., Sanga, G., Walson, J. L., Berkley, J. A., Kelley, M., & Marsh, V. (2021). Model for Developing Context-Sensitive Responses to Vulnerability in Research: Managing Ethical Dilemmas Faced by Frontline Research Staff in Kenya. *BMJ Global Health*, *6*(7), e004937. https://doi.org/10.1136/bmjgh-2021-004937

Muhaimin, M., Asrial, A., Habibi, A., Mukminin, A., & Hadisaputra, P. (2020). Science Teachers' Integration of Digital Resources in Education: A Survey in Rural Areas of One Indonesian Province. *Heliyon*, *6*(8), e04631. https://doi.org/10.1016/j.heliyon.2020.e04631

Myriam, A., Omer, A. J. C., Olivia, R., Bodomalala, R. V., Ngbolua, K.-N., & Rahelivololoniaina, R. (2023). Factors Influencing English Language Learning in the Rural Malagasy Context: A Case Study of the Ambohidratrimo and Atsimondrano Districts. *Matondang Journal*, *2*(2), 70–83. https://doi.org/10.33258/matondang.v2i2.903

Nacaroğlu, O., KIZKAPAN, O., & Demir, H. (2025). Middle School Students' Motivations and Learning Competencies in Science: Mediating Role of Digital Literacy. *Psychology in the Schools*, *62*(5), 1475–1487. https://doi.org/10.1002/pits.23400

Nguyen, V. K., Doan, T. T., Bui, A. P., Thuy, H. T. T., & Kim, H. B. (2024). Technological Factors Affecting Communication Quality at Ho Chi Minh City University of Industry and Trade. *International Journal of Public Administration in the Digital Age*, *11*(1), 1–11. https://doi.org/10.4018/ijpada.354150

Nihishova, A., & Kryvonosova, E. (2020). Design and Implementation of Technologies for Professionally Oriented Adult Education. *International Journal of Current Approaches in Language Education and Social Sciences*, *2*(1). https://doi.org/10.35452/caless.2020.20

Nurcahyoko, K., Anniurwanda, P., & Sudirjo, E. (2024). Investigating the Factors Influencing Literacy Skills Among Young Students in Rural Areas of Indonesia. *Language Circle Journal of Language and Literature*, *18*(2), 333–341. https://doi.org/10.15294/lc.v18i2.50287

Nxumalo, Z. G., & Nxumalo, M. L. (2023). Primary School Teachers' Views on Integrating Technology in English Language Instruction in Rural School Contexts in the Lubombo Region of Eswatini. *International Journal of Current Science Research and Review*, *06*(11). https://doi.org/10.47191/ijcsrr/v6-i11-07

Parkes, M., Gregory, S., Fletcher, P., ADLINGTON, R. M., & Gromik, N. (2015). Bringing People Together While Learning Apart: Creating Online Learning Environments to Support the Needs of Rural and Remote Students. *Australian and International Journal of Rural Education*, 66–78. https://doi.org/10.47381/aijre.v25i1.96

Peng, J. (2024). Analysis of the Current Situation of Rural English Education Under the Difference Between Urban and Rural Areas in China. *Lecture Notes in Education Psychology and Public Media*, *43*(1), 75–80. https://doi.org/10.54254/2753-7048/43/20240657

Pradana, M. R. A., & Josiah, T. (2024). Application of Technology in Educational Management in Rural Schools. *Ensiklopedia Jurnal Pendidikan Dan Inovasi Pembelajaran Saburai*, *4*(01), 37–43. https://doi.org/10.24967/esp.v4i01.3183

Puspita, I. L. (2024). Impact of Digital Literacy Programs on Information Access in Rural African Communities in Indonesia. *African Journal of Information and Knowledge Management*, *2*(1), 13–26. https://doi.org/10.47604/ajikm.2266

Quinn, F., Charteris, J., ADLINGTON, R. M., Rizk, N., Fletcher, P., & Parkes, M. (2020). The Potential of Online Technologies in Meeting PLD Needs of Rural Teachers. *Asia-Pacific Journal of Teacher Education*, *50*(1), 69–83. https://doi.org/10.1080/1359866x.2020.1849538

Randolph, K. M., Horn, A. L., Sears, J. A., Hott, B. L., & Willis, T. (2024). Remote Coaching via Technology in Rural Schools: Exploring Three Coaching Models. *Journal of Special Education Technology*, *40*(2), 227–234. https://doi.org/10.1177/01626434241263059

Rusli, R., Rahman, A., Musa, H., Botto-Tobar, M., & Hidayat, R. (2023). Profile of Digital Literacy of Mathematics Education Students in Online Learning and Its Relationship With Learning Motivation. *Periodicals of Engineering and Natural Sciences (Pen)*, *11*(3), 239. https://doi.org/10.21533/pen.v11i3.3537

Ruthmann, S. A., & Mantie, R. (2017). The oxford handbook of technology and music education. In *The Oxford Handbook of Technology and Music Education*. Oxford University Press. https://doi.org/10.1093/oxfordhb/9780199372133.001.0001

Safira, S., Utami, I. G. A. L. P., & Suwastini, N. K. A. (2024). The Immense of Digital Divide: A Literature Review of Rural and Urban Schools's Classroom Technologies in English Language Learning. *Jurnal Indonesia Sosial Teknologi*, *5*(8), 3667–3677. https://doi.org/10.59141/jist.v5i8.1306

SAGNAK, H. Ç., & Baran, E. (2021). Faculty Members' Planned Technology Integration Behaviour in the Context of a Faculty Technology Mentoring Programme. *Australasian Journal of Educational Technology*, 1–21. https://doi.org/10.14742/ajet.5912

Santa, D. K. W. N. (2022). The Effect of Digital Literature on Students' Learning Independence in the 2019 Covid Situation. *Jurnal Pendidikan Dan Pengajaran Guru Sekolah Dasar (Jppguseda)*, *5*(2), 60–65. https://doi.org/10.55215/jppguseda.v5i2.6000

Sarier, Y., & Uysal, Ş. (2022). Emergency Remote Teaching During Covid-19 Pandemic: Challenges, Opportunities and Future Suggestions. *Turkish Online Journal of Distance Education*, *23*(4), 183–195. https://doi.org/10.17718/tojde.1182777

Sayuti, M., Saleh, M., & Rizalie, A. M. (2020). Implementation of School Based

Management to Improve Education Quality (Case Study in Special Schools). *Journal of K6 Education and Management*, *3*(4), 411–423. https://doi.org/10.11594/jk6em.03.04.01

Shahnaz, M., & Gandana, I. S. S. (2021). *Teaching English in a Rural School*. https://doi.org/10.2991/assehr.k.210427.051

Shea, M., Jurow, A. S., Schiffer, J., Escudé, M., & Torres, A. (2023). Infrastructural Injustices in Community-driven Afterschool<scp>STEAM</Scp>. *Journal of Research in Science Teaching*, *60*(8), 1853–1878. https://doi.org/10.1002/tea.21852

Song, J. (2023). The Impact of Economic Development on Inadequate Education Resources in Rural China. *Journal of Education Humanities and Social Sciences*, *23*, 285–290. https://doi.org/10.54097/ehss.v23i.12898

Sumarno, S. (2023). Integration of Digital Technology in Public Management Transformation: *International Journal of Asian Education*, *4*(2), 115–120. https://doi.org/10.46966/ijae.v4i2.348

Wagg, S., & Simeonova, B. (2021). A Policy-Level Perspective to Tackle Rural Digital Inclusion. *Information Technology and People*, *35*(7), 1884–1911. https://doi.org/10.1108/itp-01-2020-0047

Wahyuni, S., Novitasari, Y., Suharni, S., & Reswita, R. (2023). The Effect of Digital Literacy-Based Learning on Student Motivation and Socialization Ability. *Consilium Berkala Kajian Konseling Dan Ilmu Keagamaan*, *9*(2), 88. https://doi.org/10.37064/consilium.v9i2.13454

Wu, L., Li, K., Yu, M., & Lin, Y. (2024). Application of Artificial Intelligence in Teaching English as a Foreign Language: Progress, Challenges, and Trends. *English Language Teaching and Linguistics Studies*, *6*(4), p215. https://doi.org/10.22158/eltls.v6n4p215

Yusuf, M. N. A., Astutik, Y., & Megawati, F. (2023). External Factors Affect English Learning in Rural Elementary Schools: A Qualitative Study. *Tell Teaching of English Language and Literature Journal*, *11*(1), 12. https://doi.org/10.30651/tell.v11i1.17101

Zhao, L., Cao, C., Li, Y., & Li, Y. (2022). Determinants of the Digital Outcome Divide in E-Learning Between Rural and Urban Students: Empirical Evidence From the COVID-19 Pandemic Based on Capital Theory. *Computers in Human Behavior*, *130*, 107177. https://doi.org/10.1016/j.chb.2021.107177