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Invisible Barriers in Second Language Acquisition: The Interaction between Digital Poverty and English Language Learning Outcomes in low Income Learners

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Abstract

Second language acquisition in contemporary educational contexts is increasingly shaped by access to digital resources, yet inequality in digital access remains underexplored in language education research. This paper investigates how digital poverty intersects with socioeconomic disadvantage to influence English language learning outcomes among learners from low-income backgrounds. Drawing on sociocultural theory and digital divide scholarship, the study reconceptualizes second language learning as a digitally mediated process in which access to technology determines exposure, interaction, and practice opportunities. It is argued that learners who lack consistent access to digital tools are systematically excluded from key language-learning environments such as online communication platforms, multimedia content, and adaptive learning applications. This exclusion contributes to persistent disparities in English proficiency development. The study further highlights how institutional limitations in low-resource educational settings may reinforce rather than mitigate digital inequality. The paper concludes that addressing contemporary language learning disparities requires integrated policies that combine educational equity initiatives with digital infrastructure development and inclusive pedagogical design.

Keywords: ***Digital poverty; second language acquisition; English language learning; digital divide; educational inequality; sociolinguistics***

1. Introduction

The process of learning English as a second language has evolved significantly due to the integration of digital technologies into education and communication systems. Unlike traditional classroom-based models, contemporary second language acquisition (SLA) increasingly occurs through digital exposure, online interaction, multimedia engagement, and autonomous learning platforms.

However, access to these digital environments remains highly unequal. Learners from low-income backgrounds frequently experience digital poverty, characterized by limited access to internet connectivity, digital devices, and technology-supported learning resources. This condition restricts their exposure to English outside formal classroom settings and limits opportunities for authentic communicative practice.

In multilingual and developing contexts, English functions as a gatekeeping language for education, employment, and social mobility. Consequently, unequal access to digital English environments deepens existing educational inequalities and reshapes language learning trajectories in ways that disadvantage already marginalized learners.

2. Theoretical Framework

2.1 Sociocultural Theory

Sociocultural Theory, associated with the work of Lev Vygotsky, explains learning as a process that is deeply shaped by social interaction and cultural context. Rather than viewing learning as something that happens only within the individual, the theory emphasizes that knowledge develops through engagement with others and through the use of tools that support thinking and communication.

A key idea within this perspective is the Zone of Proximal Development, which refers to the range of tasks a learner can accomplish with guidance but may not yet be able to perform independently. In language learning, this support often comes from teachers, peers, or more experienced users of the language, who provide feedback, correction, and examples that help the learner improve over time.

In the context of English language acquisition, interaction plays a central role. Learners develop their skills by participating in conversations, receiving feedback, and observing how language is used in real situations. Cultural tools such as books, audio materials, and digital platforms also act as supports that make learning more effective. These tools help bridge the gap between what learners already know and what they are capable of learning. In recent times, digital technologies have become important mediators of learning. Online resources, language applications, and virtual communication platforms provide additional opportunities for learners to practice and improve their skills. These tools extend learning beyond the classroom and allow learners to engage with authentic language use in diverse contexts.

However, for learners experiencing digital poverty, access to these mediating tools is often limited. This restriction reduces their opportunities for interaction, feedback, and exposure to the language. As a result, the supportive environment required for effective learning is weakened. From a sociocultural perspective, this means that such learners are less able to benefit from guided learning experiences within their developmental range.

In this study, Sociocultural Theory helps explain how the lack of access to digital tools disrupts the social processes that support language development. When learners are unable to engage fully with others or with learning resources, their progress in English language acquisition may be significantly affected.

2.2 Digital Divide Theory

Digital Divide Theory focuses on inequalities in access to and use of digital technologies. Scholars such as Jan van Dijk argue that the gap between individuals is not limited to whether they have access to technology, but also includes differences in how effectively they can use it and what benefits they derive from it.

The theory identifies multiple layers of inequality. The first relates to physical access to devices and internet connectivity. The second involves the skills required to use digital tools effectively. The third concerns the outcomes, or the extent to which individuals are able to translate digital use into meaningful advantages, such as improved learning.

In educational contexts, these differences are clearly visible. Learners who have regular access to digital tools can explore a wide range of learning materials, participate in online discussions, and practice language skills through interactive platforms. In contrast, those with

limited access are often restricted to basic resources and may miss out on important learning opportunities.

Within the context of English language learning, the digital divide has significant implications. Access to online materials exposes learners to authentic language use, different accents, and varied communication styles. It also allows them to practice skills such as listening and speaking in more dynamic ways. Without such access, learning becomes more limited and less engaging.

Digital poverty, as a form of the digital divide, therefore creates barriers that are not always immediately visible. Learners may attend the same classes, but their ability to benefit from instruction differs based on their level of access to technology. Over time, these differences can lead to noticeable gaps in language proficiency.

In this study, Digital Divide Theory provides a framework for understanding how unequal access to digital resources contributes to differences in English language learning outcomes. It highlights the structural nature of these inequalities and explains why some learners are at a disadvantage despite participating in the same educational system.

Together, Sociocultural Theory and Digital Divide Theory offer a comprehensive explanation for the challenges explored in this research. While Sociocultural Theory focuses on the importance of interaction and mediated learning in language development, Digital Divide Theory explains why access to these learning opportunities is uneven.

The study therefore argues that digital poverty limits learners' participation in meaningful learning processes, creating invisible barriers that hinder their progress in English language acquisition.

3. **Poverty and English Language Learning Outcomes**

Digital poverty refers to a condition in which individuals lack adequate access to digital technologies, reliable internet connectivity, and the skills required to use these tools effectively. It is not limited to the absence of devices alone; rather, it reflects a broader pattern of disadvantage that affects how learners participate in modern educational environments. Within the framework of the digital divide, scholars such as Jan van Dijk argue that inequalities exist at multiple levels, including access, competence, and the benefits derived from technology use.

In low-income settings, digital poverty often manifests through limited ownership of personal devices, unstable electricity supply, and the high cost of internet data. As a result, learners may depend on shared phones or public access points, which restricts the amount of time they can devote to learning activities. This situation disrupts consistent engagement, which is essential for language acquisition. Even when access is available, it is frequently unreliable, leading to interruptions that weaken concentration and continuity in learning.

Another important aspect of digital poverty is the lack of digital skills. Many learners are not adequately trained to navigate online platforms, evaluate credible learning materials, or use interactive tools effectively. This limits their ability to take full advantage of digital resources that could otherwise enhance their language development. In such cases, access alone does not guarantee meaningful learning; rather, the ability to use technology productively becomes equally important.

Furthermore, digital poverty affects how learners utilize the limited resources available to them. Some may use digital devices primarily for entertainment purposes, with little guidance on how to apply them to academic tasks. Over time, this leads to unequal learning outcomes, as students with better access and guidance are able to gain more educational benefits from similar technologies. This dimension aligns with the idea that the most significant gap lies not just in access, but in outcomes.

English language learning outcomes, on the other hand, refer to the level of proficiency learners achieve in different aspects of the language, including vocabulary, grammar, speaking, listening, and academic communication. These outcomes are shaped by exposure, practice, and interaction. Drawing on the ideas of Lev Vygotsky, language development is understood as a socially mediated process that depends on interaction and the use of tools that support learning.

In contemporary contexts, many of these tools are digital. Online videos, language applications, and interactive platforms provide learners with opportunities to hear authentic pronunciation, practice speaking, and receive immediate feedback. Learners who have regular access to such resources are more likely to develop stronger language skills because they engage with the language in varied and meaningful ways.

However, learners experiencing digital poverty are often excluded from these opportunities. Their exposure to English may be limited to classroom instruction and printed materials, which may not provide sufficient variety or depth. As a result, vocabulary growth may be slower, grammatical errors may persist due to lack of feedback, and speaking confidence may remain low due to limited practice. Listening skills may also be underdeveloped because of reduced exposure to authentic audio materials.

The relationship between digital poverty and English language learning outcomes can therefore be understood as both direct and indirect. Directly, limited access to digital resources reduces the quantity and quality of language input available to learners. Indirectly, it weakens the social and interactive processes that support language development, such as collaboration, feedback, and guided practice.

In this study, digital poverty is conceptualized as an underlying factor that creates “invisible barriers” to effective language learning. These barriers are not always immediately noticeable in classroom settings, but they significantly influence learners’ ability to engage with the language beyond the classroom. Over time, this results in noticeable differences in proficiency levels between learners from different socioeconomic backgrounds.

In summary, digital poverty constrains both the opportunities and the processes required for successful English language acquisition. By limiting access to essential learning tools and reducing meaningful engagement, it contributes to unequal learning outcomes among low-income learners.

4. Discussion

This study explored how digital poverty influences English language learning outcomes among low-income learners, with particular emphasis on the subtle constraints described as “invisible barriers.” The analysis demonstrates that disparities in language achievement are no longer shaped solely by classroom-related factors such as teaching methods or curriculum structure. Instead, they are increasingly linked to learners’ uneven access to digital resources and their capacity to engage with technology-supported learning environments.

A key insight emerging from this study is that digital poverty is not a single-layered problem but a complex condition involving multiple forms of limitation. It extends beyond the absence of digital devices to include unstable internet connectivity, high data costs, and limited user competence. In many low-income contexts, access to technology is inconsistent and often shared, which restricts both the duration and quality of learning engagement. Although such arrangements may suggest partial inclusion, they rarely support the sustained interaction required for meaningful language development. Consequently, learners experience fragmented learning patterns that weaken retention and slow progress.

These constraints have direct implications for English language acquisition. Language learning relies heavily on continuous exposure, repeated practice, and timely feedback. Learners who can regularly access digital platforms benefit from diverse linguistic input, including authentic speech, varied vocabulary, and contextualized usage. They are also able to interact with learning tools that provide immediate correction and reinforcement. In contrast, learners affected by digital poverty are typically limited to classroom instruction and printed materials, which often lack the richness and variety needed to support advanced language development. This imbalance contributes to noticeable differences in proficiency over time.

The findings further underscore the importance of interaction in the learning process. Consistent with the perspective of Lev Vygotsky, language development is strengthened through social engagement and guided support. Digital technologies have expanded these opportunities by enabling learners to communicate, collaborate, and access instructional content beyond their immediate environment. However, when access to such technologies is restricted, learners are effectively excluded from these extended learning spaces. This limits their opportunities for practice and reduces the level of support available to them, thereby constraining their overall development.

Another significant dimension highlighted in this study is the role of digital competence. Access to technology does not automatically translate into effective use. Some learners lack the skills required to locate, evaluate, and utilize educational resources in meaningful ways. As a result, available technologies may be underused or used primarily for non-academic purposes. This creates an additional layer of inequality, where differences in skill levels further widen the gap in learning outcomes. Learners who are digitally skilled are better positioned to take advantage of available resources, while those without such skills remain at a disadvantage.

The concept of “invisible barriers” provides a useful lens for interpreting these findings. Unlike more visible forms of disadvantage, digital constraints often go unnoticed within formal educational settings. Students may share the same classroom, follow the same curriculum, and be evaluated using the same standards, yet their learning conditions outside the classroom differ significantly. Learners with greater digital access continue to engage with the language beyond school hours, while others are unable to do so. Over time, this hidden disparity accumulates, leading to gaps in proficiency that are not immediately explained by observable classroom factors.

In addition, the study reveals that digital poverty influences learners’ confidence and willingness to participate. Regular exposure to language through diverse platforms tends to build familiarity and reduce anxiety, encouraging learners to engage more actively. Conversely, limited exposure can result in hesitation and reduced participation, particularly in

speaking activities. This not only affects performance but also shapes learners' attitudes toward the language, potentially reducing motivation and long-term commitment to learning.

The broader socioeconomic context further intensifies these challenges. Learners from low-income backgrounds often face multiple constraints simultaneously, including limited study space, financial pressures, and competing responsibilities. Digital poverty interacts with these conditions, making it more difficult for such learners to fully benefit from educational opportunities. In this regard, the issue extends beyond technology to encompass wider structural inequalities.

The findings also align with the assumptions of the digital divide, as discussed by Jan van Dijk, which emphasize that inequality exists not only in access but also in skills and outcomes. In the context of English language learning, these layers of inequality translate into differences in exposure, engagement, and achievement. Learners who are digitally connected are able to build their skills continuously, while those who are not remain constrained by limited resources and opportunities.

Overall, this study demonstrates that digital poverty plays a significant role in shaping English language learning outcomes. It affects both the availability of learning resources and the nature of learners' engagement with the language. By restricting access to interactive and supportive learning environments, it creates conditions that hinder effective language development and contribute to unequal educational outcomes.

The discussion highlights the need to rethink how language learning challenges are understood and addressed. Improving classroom instruction alone may not be sufficient to bridge existing gaps. Addressing digital poverty is essential for ensuring that all learners have equal opportunities to develop their language skills. Without deliberate efforts to reduce these hidden constraints, the invisible barriers identified in this study will continue to limit learners' progress and reinforce patterns of inequality.

5. Educational Implications

The findings of this study carry important implications for educational practice, policy, and curriculum development, particularly in contexts where learners are affected by digital poverty. They suggest that improving English language learning outcomes requires a broader approach that goes beyond traditional classroom instruction to address the technological conditions that shape how learning takes place.

One major implication is the need to rethink the role of digital access as a fundamental component of language education. In contemporary learning environments, digital tools are no longer optional supplements; they function as key resources for exposure, interaction, and practice. Therefore, unequal access to these tools translates directly into unequal learning opportunities. Educational stakeholders must recognize that students who lack reliable access to devices and internet connectivity are at a structural disadvantage, even when they are physically present in the classroom. Addressing this gap is essential for creating a more balanced learning environment.

Another implication relates to teaching practices. Teachers need to be aware that students' ability to engage with digital learning resources varies widely. As a result, instructional strategies should be designed with flexibility in mind. For instance, educators can provide alternative learning materials that do not rely heavily on internet access, while also integrating low-data or offline-compatible resources where possible. At the same time,

teachers can adopt blended approaches that combine traditional methods with accessible forms of digital support, ensuring that no group of learners is excluded.

The study also highlights the importance of developing learners' digital skills alongside their language skills. Simply providing access to technology is not sufficient if learners do not know how to use it effectively for educational purposes. Schools and educators should therefore incorporate basic digital literacy into language instruction, guiding students on how to locate reliable resources, use learning applications, and engage in productive online practices. This dual focus can help learners make better use of whatever access they have, thereby improving learning outcomes.

In addition, the findings point to the need for targeted institutional support. Schools serving low-income communities may require additional resources to bridge the digital gap. This could include the provision of shared devices, subsidized internet access, or the establishment of school-based digital learning centers. Such interventions can help extend learning opportunities beyond the classroom and reduce the disparities caused by limited home access.

Policy-level interventions are equally important. Governments and educational authorities need to consider digital access as part of educational equity. Investments in infrastructure, such as improved internet coverage and stable electricity supply, can significantly enhance learning conditions. Furthermore, policies that support affordable data plans for students or partnerships with technology providers can make digital learning more accessible to disadvantaged groups.

The study also has implications for curriculum design. Language curricula should reflect the realities of learners' environments by incorporating both digital and non-digital learning pathways. This ensures that learning objectives can still be achieved even in contexts of limited technological access. At the same time, curricula can gradually introduce digital components in ways that are realistic and inclusive, rather than assuming universal access.

Another important implication concerns assessment practices. Traditional forms of assessment may not fully capture the impact of digital inequality on learning outcomes. Educators and institutions should consider more flexible and inclusive assessment methods that account for differences in access to learning resources. This may involve combining formal examinations with continuous assessment or alternative tasks that allow learners to demonstrate their abilities in diverse ways.

Furthermore, the study underscores the need for increased awareness among educators and policymakers about the concept of "invisible barriers." These barriers are often overlooked because they are not immediately visible within classroom settings. However, their impact on learning is significant. Recognizing and addressing these hidden challenges can lead to more informed decisions and more effective interventions.

Finally, the findings suggest that improving English language learning outcomes in low-income contexts requires a coordinated effort involving multiple stakeholders. Teachers, school administrators, policymakers, and community members all have a role to play in reducing the effects of digital poverty. By working collaboratively, it is possible to create learning environments that are more inclusive and supportive of all learners.

In essence, the educational implications of this study highlight that achieving equitable language learning outcomes depends not only on what is taught in the classroom but also on the conditions that enable learners to engage with knowledge beyond it.

6. Conclusion

This study investigated how digital poverty influences English language learning outcomes among low-income learners, with particular attention to the subtle constraints conceptualized as "invisible barriers." The findings make it clear that variations in language proficiency cannot be attributed solely to differences in classroom instruction or learner ability. Rather, they are significantly shaped by unequal access to digital resources and the extent to which learners are able to participate in technology-mediated learning environments.

The study establishes that digital poverty is not a single, easily defined condition but a layered form of disadvantage. It encompasses limited access to devices, unstable or costly internet connectivity, and insufficient digital skills. These interconnected constraints reduce the frequency, quality, and continuity of learners' engagement with English language materials. As a result, learning becomes fragmented, with fewer opportunities for reinforcement, practice, and progression. Over time, this disruption contributes to slower development across key areas such as vocabulary, fluency, and comprehension.

Another central conclusion is that English language learning in contemporary contexts is increasingly dependent on digital mediation. Digital platforms now serve as important channels for exposure to authentic language, interactive practice, and immediate feedback. Learners who are able to access and use these resources consistently are better positioned to develop higher levels of proficiency. In contrast, those affected by digital poverty remain largely dependent on limited classroom input, which often cannot provide the depth and variety required for sustained language growth.

The study also reinforces the importance of socially supported learning in language development. Insights associated with Lev Vygotsky suggest that learning is enhanced through interaction, guidance, and the use of appropriate tools. Digital technologies have expanded the scope of these interactions by enabling communication and collaboration beyond physical classrooms. However, unequal access to such technologies restricts learners' ability to benefit from these extended learning opportunities. Consequently, differences in access translate into differences in the quality of learning experiences.

In addition, the findings align with the broader understanding of digital inequality, as emphasized by Jan van Dijk, which highlights disparities not only in access but also in skills and outcomes. Within the context of this study, these disparities manifest as unequal exposure to learning resources, varying levels of engagement, and ultimately, differences in language achievement. Learners who are digitally advantaged are able to build their competencies continuously, while those who are not face cumulative limitations that widen the achievement gap over time.

A significant contribution of this study lies in its emphasis on digital poverty as an "invisible barrier." Unlike more visible educational challenges, digital constraints often remain hidden within the learning process. Students may share the same classroom environment, yet their capacity to extend learning beyond that space differs considerably. This hidden disparity gradually shapes learning trajectories, leading to differences in outcomes that may not be immediately apparent but become more pronounced over time.

Furthermore, the study highlights the broader issue of educational equity. It suggests that efforts to improve English language learning outcomes must extend beyond pedagogical adjustments to include attention to the structural conditions that influence learning. Without

deliberate interventions to reduce digital inequality, existing disparities are likely to persist, limiting the effectiveness of educational initiatives aimed at improving language proficiency.

In conclusion, this study demonstrates that digital poverty is a critical factor in understanding variations in English language learning outcomes among low-income learners. By restricting access to essential learning tools and limiting meaningful engagement with the language, it creates conditions that hinder effective acquisition. Addressing these challenges requires a comprehensive and coordinated approach that integrates improved teaching practices with expanded digital access and support. Such efforts are essential for reducing hidden inequalities and promoting more equitable language learning opportunities.

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