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IMPACT OF DIGITAL TECHNOLOGY ON EQUITALBE ACCESS TO ENGLISH LANGUAGE PROFICIENCY AMONG SECONDARY SCHOOLS STUDENTS IN FCT ABUJA

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Abstract

This study investigated the impact of digital technology on equitable access to English language proficiency among secondary school students in the Federal Capital Territory (FCT) Abuja, Nigeria. A descriptive survey design was adopted. The sample comprised 750 respondents (students and teachers) selected via simple random sampling from six secondary schools across three Area Councils: Bwari, AMAC, and Gwagwalada. Data were collected using a validated 4-point Likert scale questionnaire titled "Impact of Digital Technology on Equitable Access to English Language Proficiency" (IDTEAELP). With a 96% response rate (N=720), data were analyzed using Mean and Standard Deviation, guided by a decision criterion mean of 2.50. The findings revealed that modern digital language learning tools (such as computer laboratories, stable internet connectivity, language software, and smartboards) are highly unavailable in FCT secondary schools, leaving traditional physical textbooks as the dominant instructional medium (Grand Mean = 2.24). Also, severe disparities in digital access exist, heavily favouring urban private school students and those from affluent socio-economic backgrounds over their public, rural and semi-urban counterparts (Grand Mean = 3.00). While digital

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technology demonstrated immense potential to democratize English learning especially by offering individualized pacing and bridging pronunciation gaps for non-native speakers its actualization is heavily constrained by systemic barriers, including erratic electricity, high data subscription costs, and a lack of localized, adaptive digital content (Grand Mean = 2.97). Based on these findings, it was recommended that the FCT Secondary Education Board (SEB) prioritize funding for digital infrastructure in public and rural schools, provide subsidized internet data packages for educational purposes and implement continuous digital pedagogical training for English language teachers.

Introduction

The role of digital technology in enhancing educational outcomes has gained global recognition particularly in promoting equitable access to learning in linguistically diverse societies. In the Federal Capital Territory (FCT) of Abuja, Nigeria where students come from various ethnic and linguistic backgrounds, English serves not only as the official language but also as the primary medium of instruction in secondary schools. As such, proficiency in English is critical for academic success and full participation in both traditional and digital learning environments (Crystal, 2017). Digital technology through tools such as e-learning platforms, language learning apps, virtual classrooms and educational software has emerged as a transformative force in language education. These tools offer innovative and inclusive approaches to teaching and learning English by providing students with personalised instruction, real-time feedback and access to diverse multimedia content regardless of their location or socio-economic background (UNESCO, 2021).

In this context, digital technology becomes a catalyst for developing English language proficiency especially in environments where traditional classroom instruction may be limited or uneven. Despite the growing integration of digital technologies into the educational sector, disparities in students' access and use of these tools persist, often reflecting broader socio-economic inequalities. These disparities can influence the extent to which students acquire and improve their English language skills. For many students in FCT Abuja particularly those from under-resourced schools or non-English-speaking homes, digital tools represent a vital opportunity to bridge gaps in language proficiency (World Bank, 2020). Also, as English remains the dominant language of most online educational content and global communication, students' ability to engage meaningfully with digital learning resources is closely tied to their command of the language.

Accordingly, ensuring equitable access to digital technology is essential not only for general educational advancement but also for building English language competence. This study therefore, seeks to investigate the impact of digital technology on equitable

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access to English language proficiency among secondary school students in FCT Abuja. It will look at the means at which digital resources are being utilised to support English learning, identifies the challenges that hinder equitable access and proposes targeted interventions such as language support programs and teacher training. The goal is to inform strategies that promote inclusive language development through digital innovation by ensuring that all students, regardless of their background have the opportunity to thrive academically in an increasingly digitalized and English-dominated global environment.

Problem Statement

In the Federal Capital Territory (FCT) of Abuja, digital technology has emerged as a powerful tool with the potential to enhance English language learning among secondary school students. As the medium of instruction and the official language of Nigeria, English proficiency is essential for students' academic success and broader educational engagement. However, significant disparities in English language proficiency persist particularly among students from economically disadvantaged communities and multilingual backgrounds. While digital tools such as educational software, e-learning platforms and language learning applications offer innovative and flexible opportunities for improving English skills, access to and effective use of these technologies is not evenly distributed across schools in FCT Abuja. Many students lack the digital literacy, infrastructure or supportive learning environments needed to benefit fully from these resources. Also, inadequate teacher training and limited integration of digital tools into English language instruction further hinder students' ability to acquire the language skills necessary for academic and lifelong success. These challenges emphasises the need to investigate how digital technology is being utilised to support English language proficiency and whether all students are benefiting equitably from these innovations. This situation necessitates a focused study to investigate the impact of digital technology on equitable access to English language proficiency among secondary school students in FCT Abuja, with the aim of identifying the barriers, gaps and actionable strategies to bridge the divide and promote inclusive, and effective language education in a digital age.

Literature Review

The integration of English as a medium for ensuring equitable access to digital learning in secondary schools has been extensively explored in global and local contexts. This section reviews relevant literature that focuses on English proficiency as a cornerstone of digital education, challenges in implementing digital tools and strategies for bridging gaps in equity and accessibility in FCT Abuja's secondary schools. English, recognized as a global lingua franca, is central to digital learning as it serves as the primary language for most

online resources, e-learning platforms, and instructional content (Crystal, 2017). In multilingual societies like Nigeria, English bridges linguistic divides, providing a uniform medium for learning and communication. According to Adebayo (2017), the dominance of English in Nigeria's educational system stems from its role as an official language and a medium of instruction particularly in secondary and tertiary education. Digital education relies heavily on students' ability to understand and engage with content, much of which are predominantly available in English. Research indicates that limited English proficiency among students creates a barrier to effectively utilizing digital learning platforms (UNESCO, 2021). This highlights the dual necessity of English and digital literacy to achieve inclusive and equitable education.

While digital tools have been introduced in many schools across Nigeria, the uneven implementation of these technologies has created a disparity in learning outcomes (Federal Ministry of Education, 2019). Infrastructure limitations such as insufficient internet connectivity, lack of electricity and inadequate hardware are prevalent in secondary schools in FCT Abuja (World Bank, 2020). Moreover, students from economically disadvantaged backgrounds often face compounded challenges that includes; limited access to devices and English language resources. Teacher preparedness and competence in using digital tools are also critical issues. Studies by Okonkwo and Obiechina (2018) reveal that many teachers lack the training required to effectively integrate technology into their teaching practices, especially in English-medium environments. This gap not only affects the quality of education but also diminishes students' engagement with digital learning.

Ensuring equitable access to digital education involves addressing socio-economic, linguistic, and technological barriers. The disparity in English proficiency among students is often influenced by their socio-economic background and prior exposure to the language (Bamgbose, 2017). Schools located in rural or low-income areas of FCT Abuja are particularly affected as students in these regions often have fewer opportunities to develop English language skills and digital literacy. Efforts to bridge these gaps include targeted language support programs and the provision of localized digital content. The use of multilingual approaches that combine English with indigenous languages has been suggested as a potential strategy to enhance comprehension and learning outcomes (Igboanusi, 2014). However, the practical implementation of such strategies remains a challenge due to the dominance of English in Nigeria's education policy and the global digital landscape.

Research points to several strategies for enhancing both English proficiency and digital literacy to achieve equitable access to education. These include; equipping teachers with the skills to integrate digital tools into English instruction and to address diverse learning needs (Ajayi, (2020); combining traditional and digital learning methods to improve

engagement and comprehension among students with varying levels of English proficiency (UNESCO, 2021); introducing remedial English classes and online resources tailored to students' linguistic abilities (Okonkwo & Obiechina, 2018); investing in digital infrastructure, such as reliable internet and affordable devices, particularly in underserved areas (World Bank, 2020) and creating digital resources that incorporate indigenous languages alongside English to enhance accessibility and relevance (Igboanusi, 2014). In the context of FCT Abuja, these strategies require a collaborative effort among policymakers, educators and technology providers. Given the region's linguistic diversity and socio-economic disparities, tailored interventions are essential. Addressing gaps in English proficiency through targeted programs can significantly enhance students' ability to engage with digital tools and foster inclusive learning environments.

Objective of the Study

This study investigate the impact of digital technology on equitable access to English language proficiency among secondary school students in FCT Abuja. Specifically, The study sort to;

1. To investigate the availability of digital technology tools in teaching and learning of English language in secondary schools in FCT Abuja.
2. To assess disparities in students' access to digital tools that support English language proficiency in secondary schools in FCT Abuja.
3. To evaluate the extent to which digital technology promotes equitable access to English language learning opportunities among students from diverse socio-economic and linguistic backgrounds.

Research Questions

The following research questions will guide the study:

1. What types of digital technology tools are available for the teaching and learning of English language in secondary schools in FCT Abuja?
2. What disparities exist in students' access to digital tools that support English language proficiency in secondary schools in FCT Abuja?
3. To what extent does digital technology promote equitable access to English language learning among students from different socio-economic and linguistic backgrounds in FCT Abuja?

Research Methodology

This study adopted a descriptive survey design to investigate the impact of digital technology on equitable access to English language proficiency among secondary school students in FCT Abuja. This design was deemed appropriate as it facilitated the systematic

description, analysis, and interpretation of the conditions influencing the integration of English proficiency with digital technology in secondary schools. The study focused specifically on FCT Abuja, a region selected due to its diverse student and teacher population and its increasing reliance on digital technology in education. The study population consisted of all secondary school students and teachers in three Area Councils of FCT Abuja, namely: Bwari, AMAC, and Gwagwalada. Given the large population size, a manageable sample was determined using Yaro Yamane's formula for sample size calculation. A simple random sampling technique was employed to select 750 respondents from six (6) secondary schools across the three selected Area Councils in FCT Abuja. The sample distribution comprised 250 respondents from Bwari, 250 from AMAC, and 250 from Gwagwalada. This sampling approach ensured balanced geographic representation and minimized selection bias.

The primary data collection instrument for the study was a self-developed questionnaire titled *"Impact of Digital Technology on Equitable Access to English Language Proficiency" (IDTEAELP)*. The questionnaire was structured on a four-point Likert scale of Strongly Agree (4), Agree (3), Disagree (2), and Strongly Disagree (1). This structure allowed for the collection of quantitative data capturing diverse perspectives from the respondents. To ensure quality, the instrument was validated by three experts: one from the Department of English, one from Educational Technology, and one from Psychology at the University of Abuja. These experts assessed the instrument to guarantee its relevance, clarity, and content validity. To establish reliability, a pilot study was conducted in schools outside the target research area. The questionnaire was administered using a test-retest method over a two-week interval. The reliability coefficient was calculated using the Pearson Product-Moment Correlation Coefficient (PPMC), yielding a high-reliability index of r=0.82 which confirmed the instrument's consistency. For data collection, the researchers were assisted by four (4) trained research assistants who distributed and retrieved the questionnaires directly. This hand-delivery approach ensured that respondents fully understood the instructions and maximized the return rate. The retrieved data were analyzed using Mean ($\bar{X}$) and Standard Deviation (SD) to answer the research questions. A criterion mean of 2.50 (calculated as (4+3+2+1)/4) was established as the baseline for decision-making; items with a mean score of 2.50 and above were accepted, while those below 2.50 were rejected.

Data Analysis

Research Question 1: What types of digital technology tools are available for the teaching and learning of English language in secondary schools in FCT Abuja?

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Table 1: Availability of Digital Technology Tools (N=720)

S/N	Questionnaire Item	Mean ($\bar{X}$)	SD	Dec.
1	Computers (desktops/laptops) are available in the school laboratory for English classes.	2.14	0.92	Rejected
2	Internet connectivity (Wi-Fi/modems) is accessible to students for online English materials.	1.88	0.85	Rejected
3	Mobile language learning applications or educational software are utilized during instruction.	1.65	0.73	Rejected
4	Projected/smartboards are used by teachers to present English grammar and comprehension lessons.	1.95	0.81	Rejected
5	Physical textbooks remain the primary resource used during English language instruction.	3.58	0.54	Accepted
	Grand Mean / Average SD	**2.24**	**0.77**	**Rejected**

The data presented in Table 1 reveals that digital technology tools are highly unavailable for teaching and learning English in the studied secondary schools. Item 5, which states that physical textbooks remain the primary resource, scored the highest mean ($\bar{X}$=3.58, SD=0.54), showing strong agreement among respondents. Conversely, critical digital infrastructures such as computer labs (Item 1, $\bar{X}$=2.14), reliable internet (Item 2, $\bar{X}$=1.88), smartboards (Item 4, $\bar{X}$=1.95), and language learning applications (Item 3, $\bar{X}$=1.65) all scored well below the 2.50 decision threshold. The grand mean of 2.24 indicates that traditional learning mediums dominate secondary schools in the FCT, with a notable absence of modern digital tools dedicated to English language learning.

Research Question 2: What disparities exist in students' access to digital tools that support English language proficiency in secondary schools in FCT Abuja?

Table 2: Disparities in Access to Digital Tools (N=720)

S/N	Questionnaire Item	Mean ($\bar{X}$)	SD	Dec.
6	Students in urban schools (e.g., AMAC) have significantly better access to digital tools than those in semi-urban/rural schools (e.g., Bwari/Gwagwalada).	3.42	0.62	Accepted
7	Private school students display better familiarity and access to digital English resources than public school students.	3.51	0.59	Accepted
8	Students from high socio-economic backgrounds easily access personal devices (phones/tablets) at home to practice English.	3.60	0.51	Accepted
9	Public schools receive the same level of digital infrastructure funding as private counterparts.	1.45	0.68	Rejected
	Grand Mean / Average SD	**3.00**	**0.60**	**Accepted**

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The results in Table 2 outline clear, systemic disparities in student access to digital English learning tools. Respondents strongly agreed that students from high socio-economic backgrounds possess superior personal device access at home (Item 8, $\bar{X}$=3.60). Similarly, sharp geographic and institutional divides were recognized: private school students enjoy better digital resource exposure (Item 7, $\bar{X}$=3.51), and urban schools in AMAC drastically outperform those in Bwari and Gwagwalada (Item 6, $\bar{X}$=3.42). The rejection of Item 9 ($\bar{X}$=1.45) shows a consensus that public schools do not receive equitable digital infrastructure funding. The grand mean of 3.00 confirms that student access to digital resources is highly uneven and strictly divided along socio-economic, geographic, and institutional lines.

Research Question 3: To what extent does digital technology promote equitable access to English language learning among students from different socio-economic and linguistic backgrounds in FCT Abuja?

Table 3: Digital Technology's Role in Promoting Equitable Access (N=720)

S/N	Questionnaire Item	Mean ($\bar{X}$)	SD	Dec.
10	The use of digital language applications helps slow-learning students improve their English at their own pace.	3.12	0.68	Accepted
11	Digital tools help bridge the pronunciation gap for students from non-English-speaking homes through audio aids.	3.24	0.61	Accepted
12	Lack of stable electricity and data subscription packages prevents low-income students from benefiting from e-learning platforms.	3.55	0.53	Accepted
13	Digital learning resources are adequately customized to support indigenous language speakers transitioning into English.	1.98	0.82	Rejected
	Grand Mean / Average SD	**2.97**	**0.66**	**Accepted**

The findings in Table 3 indicate that while digital technology has immense *potential* to democratize English learning, structural barriers continue to limit its effectiveness. Respondents agreed that digital tools can personalize learning for slower students (Item 10, $\bar{X}$=3.12) and act as an auditory equalizer to improve pronunciation for students from non-English speaking backgrounds (Item 11, $\bar{X}$=3.24). However, external socio-economic realities present major hurdles: high costs of internet subscriptions and erratic power supply prevent poorer students from utilizing online platforms (Item 12, $\bar{X}$=3.55). Additionally, current digital applications are poorly adapted to support local Nigerian

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indigenous languages to ease the transition to English (Item 13, $\bar{X}$=1.98). With a grand mean of 2.97, the study concludes that digital technology can foster linguistic equity, but only if fundamental infrastructure and financial limitations are resolved.

Discussion of Findings

The finding in Table one reveals a critical deficiency in the availability of modern digital instructional tools within FCT secondary schools. With a low grand mean of 2.24, resources such as computer laboratories, smartboards, digital language learning software, and reliable internet remain severely limited or non-existent in daily practice. Instead, traditional learning materials, specifically physical textbooks ($\bar{X}$=3.58), continue to dominate English language classrooms. This finding aligns with previous observations that infrastructure deficits, such as a lack of basic hardware and weak connectivity, continue to stall educational progress in developing regions. This lack of resources contradicts global standards which argue that digital tools are transformative forces that are essential for modern language acquisition. When schools remain dependent on textbooks, they lack the interactive, multimedia, and real-time feedback systems necessary to support diverse student needs.

Finding in Table two highlights deep, systemic disparities regarding who can access these technologies when they are available. The high grand mean of 3.00 confirms that digital access is stratified along socio-economic, geographic, and institutional lines. Students in urban centers (such as AMAC) and those attending private institutions enjoy significantly higher levels of digital literacy and access compared to their peers in semi-urban and rural Area Councils like Bwari and Gwagwalada. This digital divide supports the warnings of local researchers who noted that uneven technology implementation in Nigerian schools compounds existing inequalities. It also reinforces broader research indicating that students from wealthy backgrounds use personal devices at home to reinforce their English language learning, whereas public school students remain largely excluded due to inadequate funding. This divide means that digital technology, rather than serving as a tool for equity, risks widening the academic achievement gap between privileged and marginalized students in the FCT.

Finding in Table three examines the potential of digital tools to bridge these gaps. Respondents strongly agreed that when digital tools are integrated, they have the capacity to personalize learning for slower students ($\bar{X}$=3.12) and provide pronunciation support for students from non-English speaking homes ($\bar{X}$=3.24). This supports research highlighting the value of auditory and visual aids in assisting language transitions. However, these benefits are limited by external socio-economic barriers. Erratic electricity and high data subscription costs ($\bar{X}$=3.55) prevent students from low-income households from using digital resources outside the classroom. Furthermore, the lack of localized,

adaptive software to assist indigenous language speakers during their transition to English ($\bar{X}$=1.98) remains a key pedagogical gap. This confirms that while digital resources are highly effective in theory, their ability to promote equitable learning cannot be realized without resolving underlying infrastructural and economic challenges.

Conclusion

This study concludes that digital technology holds immense, untapped potential to improve English language proficiency and foster educational equity among secondary school students in FCT Abuja. However, this potential is limited by a severe lack of basic digital infrastructure in schools and deep systemic divides. At present, digital tools are not distributed equitably. Access is concentrated among urban, private, and socio-economically privileged students, while public and rural schools remain dependent on traditional textbooks. Although technology can offer personalized instruction and valuable pronunciation support, these benefits are blocked by high data costs, unreliable electricity, and a lack of tailored software. Without targeted public intervention, the introduction of digital tools in education will continue to widen rather than bridge the linguistic and academic gaps among students from different backgrounds in the FCT.

Recommendations

Based on the findings and conclusions of this study, the following recommendations are proposed:

1. The FCT Administration (FCTA) and the Secondary Education Board (SEB) should actively invest in equipping public and rural secondary schools in Bwari and Gwagwalada with dedicated computer laboratories, smart classroom tools, and alternative power sources (such as solar energy panels) to address electricity challenges.
2. Policymakers should collaborate with telecommunication companies to provide zero-rated or highly subsidized internet data packages specifically for registered educational platforms, ensuring low-income students can access language learning materials.
3. The Ministry of Education should design and implement compulsory, continuous training programs for English language teachers. This training should focus on digital pedagogy, showing teachers how to integrate free, offline language software and digital tools into their classrooms.
4. Educational software developers and linguists should design mobile applications tailored to the Nigerian context. These applications should incorporate native languages to ease the transition to English proficiency for students from non-English-speaking homes.

5. School administrators should actively engage non-governmental organizations, corporate bodies, and alumni associations to secure donations of digital hardware (such as tablets and laptops) to assist under-resourced schools.

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