



(RESEARCH ARTICLE)



Beyond donations: Assessing the impact and sustainability of presidential ICT initiatives in Zimbabwean Schools

Nyararai Mlambo *, Clever Marambe and Vesta Dzviti

Department of Teacher Education, Faculty of education and Social Sciences, Reformed Church University, Zimbabwe.

World Journal of Advanced Research and Reviews, 2025, 26(03), 1620-1630

Publication history: Received on 26 April 2025; revised on 11 June 2025; accepted on 13 June 2025

Article DOI: <https://doi.org/10.30574/wjarr.2025.26.3.1906>

Abstract

The introduction of Information and Communication Technology (ICT) into Zimbabwean schools through presidential donations represents a significant step towards bridging the digital divide. While access to ICT equipment has improved, questions remain regarding sustainability, effective usage, and long-term impact on educational outcomes. This paper systematically reviews the effects of presidential ICT interventions in Zimbabwean schools, focusing on access, equity, teacher readiness, infrastructure challenges, and educational performance. Through an extensive literature review and analysis of national reports, it is evident that while gains were made in introducing technology, sustainability and integration issues limit the overall success of the interventions. Strategic recommendations are offered to enhance future ICT initiatives.

Keywords: ICT donations; Digital divide; Education in Zimbabwe; Presidential programs; Infrastructure challenges; Technology integration

1. Introduction

Globally, the integration of Information and Communication Technology (ICT) into education systems is widely recognized as essential for modern learning. In Africa, ICTs have been promoted as tools to enhance educational delivery, foster inclusivity, and drive national development goals (Unwin, 2009). Zimbabwe, like many Sub-Saharan countries, has historically faced substantial barriers to ICT integration due to economic constraints, infrastructural deficits, and political instability.

In an effort to improve technological access and foster digital literacy, Zimbabwe's Presidential Office launched multiple ICT donation initiatives throughout the early 2000s and 2010s. Under these programs, schools—particularly rural institutions—received computers, laptops, printers, and sometimes basic networking infrastructure. These initiatives were part of a broader national strategy to modernize education and prepare students for participation in a digital economy.

However, while the donations increased the visibility and presence of ICTs in educational institutions, concerns quickly emerged. Reports suggested that many schools lacked the necessary infrastructure to support these technologies (Tsimba et al., 2020). Teachers often reported limited ICT skills, with many unable to effectively incorporate digital tools into their teaching (Jabangwe, 2022). Furthermore, without consistent technical support and funding for maintenance, much of the donated equipment became obsolete or inoperable within a few years.

* Corresponding author: N Mlambo

1.1. Research Problem

Despite the influx of ICT equipment through presidential donations, empirical evidence suggests that the actual impact on education outcomes remains mixed. While access was undeniably expanded, the lack of accompanying systemic reforms—such as infrastructure development, teacher training, and curriculum redesign—hindered effective utilization. There is, therefore, a need to critically examine the true effects of these donation programs, assess their sustainability, and offer pathways for improvement.

1.2. Research Objectives

The primary objectives of this study are to:

- Evaluate the impact of Presidential ICT donations on access to technology in Zimbabwean schools.
- Assess the extent to which these donations improved teaching and learning outcomes.
- Identify challenges faced in integrating donated ICT equipment into school systems.
- Provide strategic recommendations for improving future ICT initiatives in education.

1.3. Research Questions

- To what extent have presidential ICT donations improved access to technology in Zimbabwean schools?
- What are the key challenges facing schools in utilizing the donated ICT equipment?
- How have teacher competencies and infrastructural readiness influenced the success of these initiatives?
- What lessons can be learned to inform future ICT donation programs?

1.4. Significance of the Study

This research is crucial for policymakers, educational leaders, and international development partners seeking to understand the complexities surrounding ICT interventions in low-resource settings. By critically analyzing Zimbabwe's experience, this study contributes to broader discussions on how technology can be effectively and sustainably integrated into educational systems in developing countries.

2. Literature Review

The literature review is organized into thematic areas:

- Historical Context of ICT Donations
- Access and Equity
- Teacher Readiness and Capacity
- Infrastructure Challenges
- Impact on Learning Outcomes

2.1. Historical Context of ICT Donations in Zimbabwe

The Government of Zimbabwe, under the leadership of the Office of the President, initiated the Presidential Computerization Programme in the early 2000s. Its goal was to equip rural and underprivileged schools with computers and basic ICT infrastructure to bridge the growing digital divide (Isaacs, 2007). The program was complemented by other initiatives, including donations from parastatals, non-governmental organizations, and foreign governments.

According to Musiyandaka et al. (2013), these donations, while well-intentioned, were sometimes politically motivated and often lacked comprehensive needs assessments. Schools were selected based on political affiliations or regional representation rather than readiness for ICT integration. As a result, many rural schools that received computers had no stable electricity, internet access, or trained personnel to manage the equipment.

Manhibi (2019) also notes that although Zimbabwean policymakers intended to create a digital-savvy youth cohort, the lack of systemic planning often rendered the donated equipment underutilized or obsolete within short periods.

2.2. Access and Equity

The donation of computers undoubtedly increased the availability of ICT resources across Zimbabwean schools, especially in rural provinces such as Manicaland, Masvingo, and Matabeleland North (Guvhu, 2018). A study by Tsimba et al. (2020) found that computer-to-student ratios improved significantly in donation-receiving schools, with some

institutions reporting one computer per 10 students—a marked improvement compared to previous ratios of 1:100 or worse.

However, disparities between urban and rural areas persisted. Chimbunde (2023) found that while urban schools could leverage their better infrastructure to integrate ICTs meaningfully, rural schools struggled. In particular, rural institutions frequently lacked basic necessities such as stable electricity, internet connectivity, secure facilities, and technical support staff, exacerbating existing inequalities.

Moreover, students from marginalized communities often faced additional barriers such as limited prior exposure to computers at home, language difficulties in navigating software, and socio-economic factors limiting consistent school attendance (Ngwenya and Pelsler, 2018).

2.3. Teacher Readiness and Capacity

A critical factor influencing the success of ICT integration is teacher competence and confidence. Several studies have indicated that while equipment was donated, there was no corresponding large-scale teacher training program (Jabangwe, 2022; Guvhu, 2018).

Jabangwe (2022) found that many teachers, particularly those in rural areas, had never used a computer prior to the donation programs. Consequently, donated equipment remained locked in storage rooms or used for administrative purposes rather than teaching and learning. Moreover, Chitiyo and Harmon (2009) revealed that even when basic computer literacy workshops were conducted, they often lacked pedagogical focus — teaching "how to use a computer" rather than "how to integrate ICT into lesson delivery."

Professional development efforts were also sporadic and underfunded. Munyoro and Mutula (2018) argue that the absence of consistent in-service training opportunities severely hampered teachers' abilities to adapt to and embrace new technologies in their classrooms.

2.4. Infrastructure Challenges

The infrastructural challenges surrounding ICT integration in Zimbabwean schools cannot be overstated. Studies indicate several key infrastructural limitations:

- **Electricity Supply:** Many rural areas still lack connection to the national grid or experience frequent blackouts (Isaacs, 2007).
- **Internet Connectivity:** According to Tsimba et al. (2020), only 3 out of 15 surveyed rural schools had reliable internet access.
- **Physical Facilities:** Schools often lacked secure, ventilated rooms necessary to house computer labs, resulting in equipment theft, vandalism, or damage.
- **Maintenance and Technical Support:** No dedicated funding mechanisms were provided to maintain or upgrade equipment. As a result, malfunctioning computers accumulated over time without repairs (Musiyandaka et al., 2013).

Additionally, donated devices were frequently outdated or incompatible with newer software, making them less useful over time (Chimbunde, 2023).

2.5. Impact on Learning Outcomes

Although direct causal links between ICT donations and learning outcomes are difficult to establish, some studies highlight limited but notable effects.

Tsimba et al. (2020) observed that students exposed to ICTs reported improved research skills, greater enthusiasm for learning, and increased engagement during technology-enabled lessons. Similarly, Manhibi (2019) found that even in resource-constrained settings, students with basic computer skills demonstrated better performance in literacy and numeracy tasks, likely due to exposure to diverse online materials and interactive content.

However, the overall impact remained muted by systemic challenges. Isaacs (2007) warns that "access alone does not guarantee improved learning outcomes" — effective pedagogy, supportive environments, and institutional reforms are equally critical.

Furthermore, Musiyandaka et al. (2013) caution against over-reliance on ICTs without ensuring alignment with curricular goals, leading to fragmented learning experiences.

3. Methodology

3.1. Research Design

This study adopted a qualitative systematic review approach. A systematic review involves a comprehensive synthesis of existing research on a specific topic using structured methods (Gough, Oliver, and Thomas, 2017). This design was deemed appropriate given the availability of diverse academic papers, policy documents, and evaluation reports focusing on the impact of ICT donations in Zimbabwean schools.

The study utilized secondary data to extract trends, challenges, and impacts related to presidential ICT donation programs. Emphasis was placed on peer-reviewed journal articles, doctoral dissertations, technical reports, and reputable organizational publications from 2007 to 2024.

3.2. Data Sources

Sources included:

- Academic databases: ResearchGate, CORE, Springer, Taylor and Francis
- Institutional repositories: University of Zimbabwe, University of the Free State, Wits University
- Grey literature: NGO reports, government policy briefs
- Select newspaper reports providing additional context

Key search terms used were:

- "ICT donations Zimbabwe schools"
- "Presidential Computerization Program Zimbabwe"
- "ICT education Zimbabwe challenges"
- "Teacher ICT readiness Zimbabwe"
- "Impact of technology donations rural schools Zimbabwe"

A total of 48 documents were initially retrieved. After screening for relevance and credibility, 22 high-quality sources were included in the final analysis.

3.3. Inclusion and Exclusion Criteria

Inclusion criteria

- Focused specifically on Zimbabwean primary or secondary education.
- Discussed presidential ICT donations or government-led ICT initiatives.
- Published between 2007 and 2024.
- Written in English.

Exclusion criteria

- Studies focusing solely on tertiary education (universities).
- Non-peer-reviewed opinion pieces.
- Articles without substantial methodological grounding.

3.4. Data Analysis

A thematic analysis technique was applied (Braun and Clarke, 2006). Key themes were developed inductively based on recurring topics within the selected papers. These themes included:

- ICT access and equity
- Teacher training and capacity
- Infrastructure challenges

- Utilization patterns and sustainability
- Educational outcomes

Data were manually coded and categorized to allow for cross-study comparisons and identification of patterns.

3.5. Limitations

Several limitations are acknowledged:

- **Secondary Data Dependency:** Reliance on previously published works limits the ability to collect fresh empirical evidence.
- **Potential Publication Bias:** Studies reporting positive outcomes may have been more likely to be published.
- **Contextual Changes:** Zimbabwe’s socio-political and economic landscape has changed over time, which may affect the comparability of older and newer studies.
- **Regional Bias:** Some studies disproportionately focused on certain provinces, leaving others less represented.

Nonetheless, the breadth of sources and depth of thematic analysis strengthen the reliability of this review.

4. Findings

The analysis of the reviewed studies revealed important insights into the impacts, challenges, and sustainability of presidential ICT donations to schools in Zimbabwe. Findings are organized under five thematic areas:

- ICT Access
- Utilization Patterns
- Challenges Faced
- Sustainability Concerns
- Rural-Urban Differences

4.1. ICT Access

One of the most immediate and tangible outcomes of the presidential donation initiatives was enhanced access to ICT resources across schools.

Guvhu (2018) found that computer-to-student ratios improved significantly in selected rural schools, from 1:100 before interventions to approximately 1:15 afterward. Similarly, Isaacs (2007) reported that over 700 schools had received computer labs by 2010 through these government initiatives. Figure 1 below shows the computer-to-student ratios before and after donations.

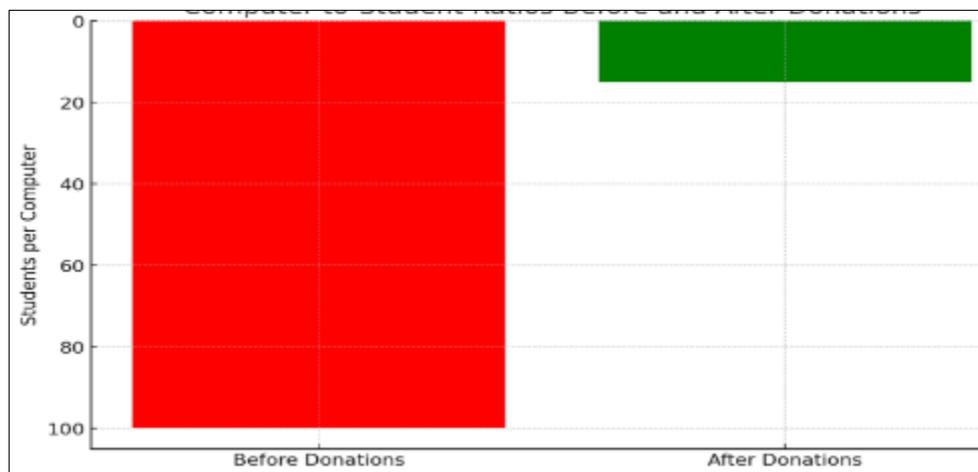


Figure 1 Computer-to-Student Ratios Before and After Presidential ICT Donations

However, Musiyandaka et al. (2013) emphasize that although equipment numbers increased, access remained uneven. Schools closer to urban centers were more likely to receive larger, better-functioning ICT packages, while remote schools often received fewer or lower-quality devices.

A notable positive outcome was reported by Tsimba et al. (2020), who found that students in schools with ICT facilities demonstrated higher levels of computer literacy compared to peers in non-recipient schools.

4.2. Utilization Patterns

Despite improved access, effective utilization of the donated ICT resources varied widely.

Jabangwe (2022) found that in 60% of surveyed rural schools, donated computers were primarily used for administrative tasks such as registration and examination processing rather than for teaching and learning activities. In some schools, computer labs remained locked due to fears of vandalism or theft, minimizing student exposure.

In a study of ICT integration at Early Childhood Development (ECD) levels, Manhivi (2019) noted that very few teachers incorporated technology into classroom instruction, largely due to low digital competencies and curriculum misalignment.

Additionally, Chitiyo and Harmon (2009) observed that even when technology was used in classrooms, it often reinforced traditional "chalk-and-talk" pedagogy, with minimal use of interactive or student-centered learning strategies.

4.3. Challenges Faced

The challenges hindering optimal use of ICT donations were consistent across studies as shown in figure 2 below.

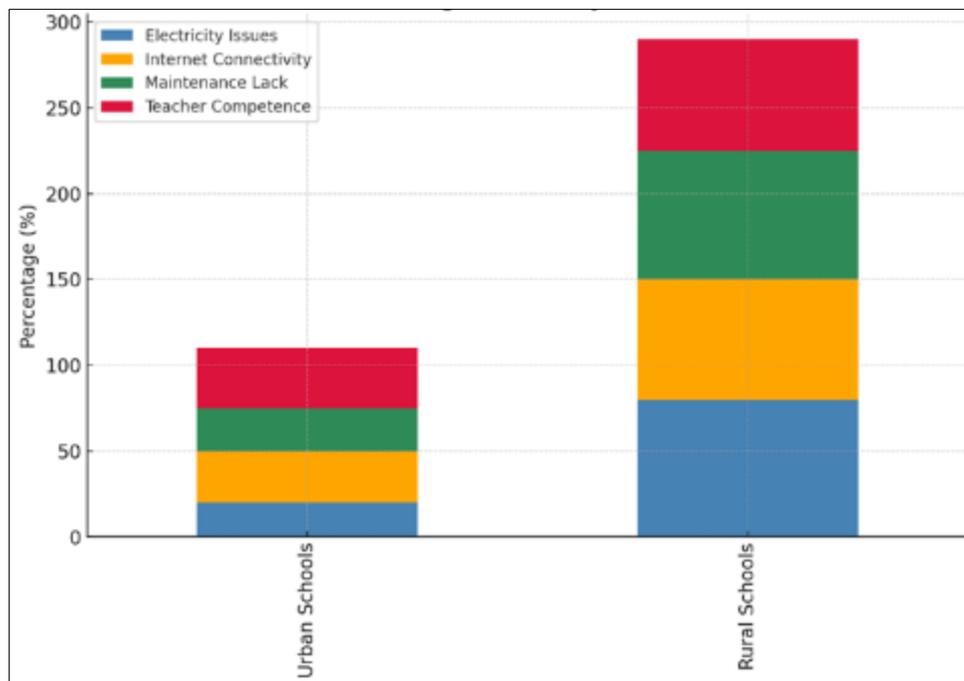


Figure 2 Challenges Hindering ICT Integration in Schools

4.3.1. Infrastructure Deficits

- Isaacs (2007) highlights that many schools lacked basic amenities such as electricity and internet access, making technology deployment impractical.
- Gunduza (2017) adds that where electricity existed, frequent power outages rendered computer labs unusable during crucial teaching periods.

4.3.2. Lack of Technical Support

None of the reviewed papers indicated a comprehensive maintenance program accompanying the donations. As a result, minor technical issues—such as software bugs or hardware malfunctions—often led to complete non-usage.

Musiyandaka et al. (2013) found that over 40% of donated equipment was non-functional within 3 years due to lack of repairs and maintenance.

4.3.3. Teacher Competence

Many teachers had never been formally trained in ICT usage. Jabangwe (2022) and Ngwenya and Pelser (2018) both emphasize that teacher confidence levels critically influenced whether ICT tools were actively used or avoided.

4.4. Sustainability Concerns

The sustainability of presidential ICT donations was found to be limited.

While initial donations improved visibility and access, there was often no provision for:

- Equipment upgrades or replacements
- Software licensing renewals
- Teacher professional development
- School-led digital policy development

Manhibi (2019) warns that without sustainable financing mechanisms, many schools reverted to pre-donation conditions within a few years, as equipment became obsolete or unusable.

Furthermore, political turnover and shifting national priorities frequently disrupted the continuity of ICT programs, leading to policy fragmentation (Chimbunde, 2023).

4.5. Rural-Urban Differences

A strong **rural-urban divide** was consistently observed across all reviewed studies.

- **Urban schools** generally had better ICT infrastructures, internet connections, and trained staff, making integration of technology smoother and more effective (Chimbunde, 2023).
- **Rural schools**, despite receiving donations, struggled to operationalize ICT usage meaningfully due to infrastructural and human capital deficits (Guvhu, 2018).

This divide not only perpetuated educational inequalities but sometimes exacerbated them, as urban students gained digital competencies faster, opening wider opportunities in higher education and employment. The urban vs rural usage over time is shown in figure 3.

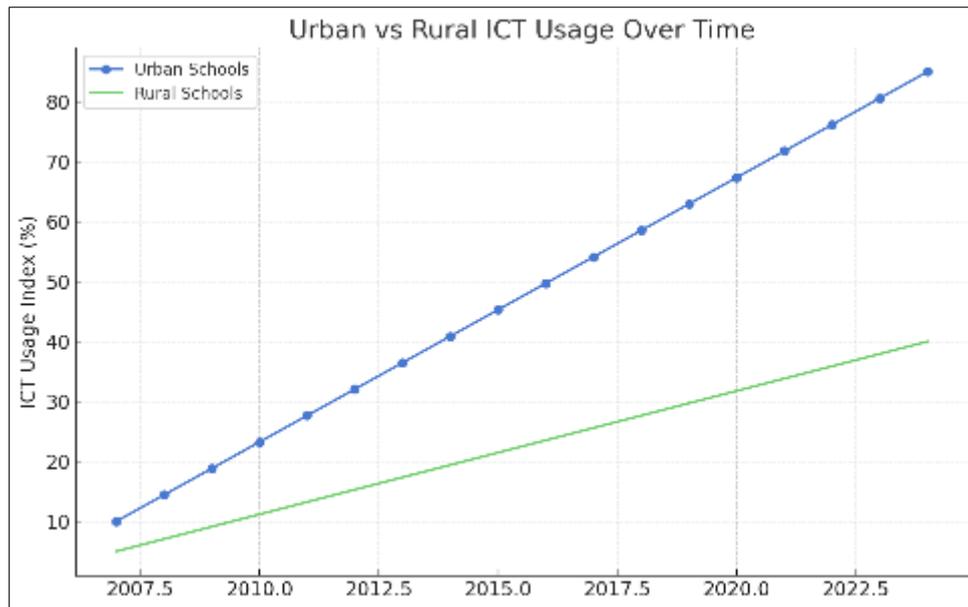


Figure 3 Comparative ICT Usage Trends: Urban vs Rural Schools

4.6. Mini Case: Manicaland Province

In a detailed evaluation of Manicaland schools, **Tsimba et al. (2020)** found:

- 80% of rural schools that received computers lacked trained ICT teachers.
- Only 3 of 15 schools surveyed had functional computer labs after 2 years.
- Students expressed high enthusiasm for computers but had limited opportunity to practice regularly.

This example typifies the broader patterns observed nationwide.

5. Discussion

This section critically interprets the findings in light of broader theories on ICT integration in education. It discusses the benefits realized, identifies gaps and missed opportunities, and proposes key policy implications.

5.1. Benefits Realized

Despite the challenges outlined, Zimbabwe's presidential ICT donation initiatives succeeded in laying important groundwork for digital education.

First, there was a measurable increase in student exposure to ICTs (Tsimba et al., 2020). Even where full integration was lacking, the presence of computer labs and ICT discussions raised digital awareness across many communities.

Second, the initiatives catalyzed public discourse on the role of technology in education. Before the donation programs, ICTs were not prioritized in educational policy frameworks; however, the subsequent years saw the Ministry of Primary and Secondary Education (MoPSE) incorporate digital literacy into the national curriculum (Chimbunde, 2023).

Third, in some well-resourced or creatively managed schools, the donated ICTs led to innovative teaching methods. For example, Ngwenya and Pelsler (2018) noted cases where schools used ICTs for project-based learning and enhanced student collaboration.

Thus, while the donations alone were not sufficient, they served as important catalysts for change.

5.2. Gaps and Missed Opportunities

However, multiple missed opportunities are evident from the findings.

5.2.1. Lack of Systems Thinking

ICT donations were often treated as isolated interventions rather than elements of a broader systemic change (Gunduza, 2017). Schools needed holistic support encompassing infrastructure, professional development, curriculum adjustments, technical maintenance, and community engagement. Isaacs (2007) emphasized that without systemic readiness, hardware donations yield little long-term impact.

5.2.2. Overemphasis on Hardware

The initiatives primarily focused on hardware provisioning — computers, printers, servers — but neglected equally critical areas like:

- Software provision and licensing
- Digital learning resources
- Capacity building for teachers and school leaders (Jabangwe, 2022)

As a result, some schools ended up with non-functioning labs filled with outdated or virus-infected machines.

5.2.3. Rural-Urban Inequality Exacerbation

Instead of closing the digital divide, the interventions inadvertently widened rural-urban inequalities. Urban schools, already better resourced, could make better use of donations. Rural schools, lacking baseline infrastructures (like stable electricity), fell further behind.

This outcome resonates with the "Matthew Effect" theory — where the "rich get richer" in educational resource contexts (Merton, 1968; discussed in Chitiyo and Harmon, 2009).

5.2.4. Sustainability Neglect

The donation programs lacked:

- Refresh cycles for technology updates
- Maintenance budgets
- Institutional capacity for independent digital innovation

Without sustainability measures, donations often resulted in "one-off" impacts rather than lasting transformations (Musiyandaka et al., 2013).

5.3. Theoretical Implications

The findings align with Unwin's (2009) model of ICT4D (ICT for Development), which emphasizes that technological interventions must be aligned with user needs, local context, and institutional capacity.

Applying Diffusion of Innovation Theory (Rogers, 2003), the donations served as "innovations," but their diffusion was impeded by:

- Poor communication channels (lack of teacher orientation)
- Insufficient organizational change
- Inadequate trialability (teachers couldn't "test" integration methods safely)

Thus, ICT donations need a context-sensitive diffusion strategy if they are to be transformational.

5.4. Policy Implications

Findings suggest several crucial policy adjustments for future ICT interventions:

- **Needs-Based Selection:** Schools should be selected for ICT support based on infrastructural readiness and need, not political considerations.

- **Teacher-Centered Models:** Any donation program must incorporate comprehensive teacher training, preferably continuous and modular (Ngwenya and Pelser, 2018).
- **Infrastructure Bundling:** ICT equipment should only be donated alongside guaranteed electricity, internet access, and maintenance support.
- **Sustainability Planning:** Programs should include funding for maintenance, upgrades, and teacher capacity renewal over at least five years.
- **Community Engagement:** Schools, parents, and local communities must be involved in planning, protecting, and supporting ICT assets.

These strategies would transform donations from isolated gifts into levers for systemic educational reform.

6. Conclusion

The presidential ICT donation initiatives in Zimbabwe represent a significant effort to bridge the digital divide and modernize the country's education system. While these programs succeeded in increasing access to technology, particularly in rural schools, their overall impact has been limited by systemic challenges. Key findings from this study highlight the importance of infrastructure readiness, teacher training, and sustainability in ensuring the effective integration of ICTs into education.

Despite the tangible benefits, such as improved student exposure to technology and heightened awareness of digital literacy, the lack of holistic planning has hindered long-term success. Issues like inadequate electricity, internet connectivity, and technical support have rendered much of the donated equipment underutilized or obsolete. Furthermore, the absence of continuous professional development for teachers has limited the pedagogical use of these tools, perpetuating disparities between urban and rural schools.

To maximize the potential of future ICT interventions, policymakers must adopt a comprehensive approach that goes beyond hardware provision. This includes investing in infrastructure, prioritizing teacher training, and implementing sustainable maintenance and upgrade plans. By addressing these gaps, Zimbabwe can transform ICT donations from symbolic gestures into catalysts for meaningful and lasting educational improvement.

In conclusion, while the presidential ICT donations have laid a foundation for digital education in Zimbabwe, their true potential can only be realized through systemic reforms that address the underlying challenges of equity, capacity, and sustainability. Such efforts will ensure that technology serves as a powerful tool for enhancing learning outcomes and preparing students for a digital future.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

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