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Bridging the digital divide to promote inclusive education in Zimbabwean rural secondary schools: A case of Mwenezi District

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Abstract

The implementation of an updated curriculum in Zimbabwe has come against the backdrop of unequal communities with the digital divide presenting glaring inequalities. Secondary schools located in urban areas are privileged to have access to modern ICT facilities and network support. This means the adoption and implementation of an updated curriculum in such schools is poised to proceed with little challenges. Meanwhile, the position of secondary schools in rural areas is mostly compromised especially among schools located in remote parts and resettlement areas in Zimbabwe. Using key informant and individual interviews as well as document analysis, the study foregrounds the need to improve network coverage and erect rural solar projects to cushion both learners and teachers from the obtaining challenges of digital divide. With a total of sixteen satellite secondary schools, the district is lagging behind in enhancing effective learning through ICT integration into the curriculum. The idea of "using computers to learn, rather than learning to use computers" will be elusive if the said schools are not supported. The satellite schools are devoid of infrastructural, hardware and software that can support full implementation of the updated curriculum which is augmented by an ICT superstructure. Using the Inclusive Education theory, this study therefore recommends a raft of measures to enable both teachers and learners in Mwenezi District to meet the demands of the 21st century curriculum which should be problem solving and practicable. Policy Implementers should consider the obtaining challenges which affect the implementation of inclusive education in Zimbabwe in general and rural areas in particular.

Keywords: Digital Divide; Digital Transformation; Educational Equity; ICT Integration; Rural Education; Sustainable Development Goals (SDG4)

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1. Introduction

This study incorporates a narrative review of existing literature and policy documents to contextualize the findings from primary data collection. Educational achievement is premised on a lot of factors which revolve around socio-economic background of the learner (Vadvel et al., 2023). This sad reality reveals that educational outcomes are predetermined and socio-economic exclusion plays a major role in shaping who will be what in life. Studies carried out in China reveal that the social inequality that exists between and among different classes of people reinforce the unequal access to and use of ICT (Liu, 2021). Socio-economic disparities are also singled out as the main cause of digital disparities in South Africa (Shava and Vyas Doorgapersad, 2023). It is apparent that learners from poverty-stricken backgrounds constitute the majority of those in the digital lag (Kormaz et al., 2022). Without scaffolding from poor parents, such learners who hail from disadvantaged social backgrounds lag behind their peers who benefit from gadget availability and active support from well-to-do families and parents. This rift in the haves and have-nots demands a deliberate policy intervention that will narrow the digital divide and ensure that sustainable and inclusive education is gained by the ordinary citizens (Vadvel et al., 2023). It is in this light that competitive cognitive outcomes leveraging on similar resource allocation and realistic ICT integration into the curriculum can become an achievable reality. Whilst there are studies that have explored the digital exclusions at various levels (Dhliwayo and Jita, 2023; Shava and Vyas Doorgapersad, 2023), this research on satellite secondary schools in Mwenezi district is unique in the sense that it explores an area which has been neglected for some time. With sixteen unregistered secondary schools, twenty four years after the fast-track land reform program, the district gives a unique setting of deprivation, poverty and squalor.

Previous studies have demonstrated how varying educational and household resource endowments at family level determine the academic achievement of learners (Coleman et al., 1966; World Bank, 2020; Marongedza et al., 2023). The intricacy of digital exclusion for young learners in secondary schools has also received attention from scholars who have sought to link level of education of either parents or guardians with the propensity of their child achieving higher grades in school (Vadvel et al., 2023). It is given that material possessions determine whether families can or cannot buy essential ICT gadgets such as smart-phones, tablets, laptops or desktop computers (Chisango and Marongwe, 2021; Haleem et al., 2022). This is further compounded by the price of data which is beyond many people as network service providers are charging user rates beyond the reach of average earners (Matiashe in BusinessDay, 10 January 2024). Whilst for some countries the differences may be restricted to the home of the learner, it is clear that in Zimbabwean secondary schools, the differences are more pronounced in the schools (Sithole, 2020; Chimbunde, 2021). Urban schools have an edge over the rural schools and within the rural schools, further differences are also noted where satellite schools have limited access to such basic amenities and may fail to retain qualified human capital (Sithole, 2020).

Achieving sustainable development goals demands that no individual or community should be left behind. The United Nations Educational, Scientific and Cultural Organisation (UNESCO) postulates that inclusive education is ‘a process that helps to overcome barriers limiting the presence, participation and achievement of learners’ (UNESCO, 2017). This definition is an acknowledgement of the existence of some stumbling blocks

impeding the realization of inclusivity among learners. Poverty and squalor at home is likely to stretch the ability of poor families to send their children to well-equipped and competitive schools (Vadvel et al., 2023). Therefore, instead of assuring every child access to education, such learners are excluded in schools. Due to demands for fees, school uniforms and other amenities such learners are shut away from learning institutions. It is expressly stated in the SDG4 that the goal is to ensure 'full participation and access to quality learning opportunities' for everyone (UNESCO, 2017). This reinforces the idea that it is not mere presence which is critical. A learner can be physically in school, yet that same learner could be unable to actively learn because of the challenges linked to their socio-economic conditions at home (Goedhart et al., 2019). Indeed, accessing quality education is not guaranteed by mere presence in a school set up. There is active and passive inclusion, which has to be critically analysed. A study in Netherlands on the digital divide also revealed that digital inclusion can neither be guaranteed by just having access to a smartphone or a personal computer (Goedhart et al., 2019). The situation is more precarious where the school itself might be unable to meet the basic infrastructural requirements in terms of hardware and software to enable effective learning (Chisango and Marongwe, 2021). Thus, quality learning opportunities may continue to be elusive for ordinary people who are devoid of the much needed social and financial capital to support their learners.

Participation rather than inclusion is the principle that has to be taken on board if the quest for digital divide and gap has to be closed (Shava and Vyas Doorgapersad, 2023). This means there should be strides to empower poor people who are economically excluded from active participation in the digital platforms (OECD Report, 2018). The Organisation for Economic Cooperation and Development postulates that innovation and development in curriculum can be harnessed to improve the potential of those traditionally sidelined in the rural areas and other marginalised communities. This is also in line with meeting targets of the sustainable development goals where inclusive education under goal number 4 is emphasized. It is noted that inclusive education should take into account the needs of all learners, including the poor and the most disadvantaged (UNESCO, 2017). Policy initiatives in line with this have been initiated at the global scale where the United Nations set the ball rolling with the sustainable development goals. It is incumbent upon state parties to this noble policy initiative to work towards its accomplishment. Realizing the achievement of such goals would be difficult if not impossible if affirmative action targeting the underprivileged is not rolled out.

Barriers emanating from geographical location, gender, ethnic and linguistic extractions have meant that the principle of fairness will remain idealistic (Engelbrecht et al., 2015). Despite this ostensible reality, policy formulation and implementation in Zimbabwe has thus far, ignored glaring differences and inequalities which are in the country. Indeed, even the commencement of the updated curriculum from 2015 has assumed that the country has similar resources evenly distributed across all the provinces and districts to warrant a similar curriculum (Chimbunde, 2021). In this light, minorities and those with special needs cannot be expected to derive similar benefits from a curriculum which sits on an uneven playing field failing to acknowledge the distinct differences in resource endowments (Sithole, 2020). There is need for increased political commitment especially in line with funding the access aspect because paying lip-service to the education equity agenda will not solve the challenges at hand (Lumadi, 2020). Research has shown that 'intensified efforts' particularly in sub-Saharan Africa and Southern Asia will be needed to close the digital gap in existence in these two regions (UNESCO, 2017). This argument stems from the fact that current levels of secondary schools enrolment are a far cry from the intended outcome of universal access to secondary education as envisioned in the SDG number 4. This evidence helps to contextulise this study looking at the digital divide which is frustrating efforts to realise inclusive secondary education in Zimbabwe.

2. Complexities of exclusion and inclusion in education

There is a perspective that the children, who may be included in some ways, could be excluded in others giving a contradicting interpretation of their actual status. In essence, inclusive and exclusive education may not be absolute realities. Indeed, a recent analytical stance has advanced the argument that inclusion and exclusion are strongly intertwined meaning to say inclusion is another form of exclusion (Rapp and Corral-Granados, 2021). Given the contradictions that exist in the world, it may be accurate to say that policy implementation in schools may deny certain students some privileges to enjoy their access to education. A case in point is where they are denied the right to use smart phones, yet there are also demands to embrace ICT skills in their education. Elsewhere, it is argued that being present in a school should not be equated with being socially and educationally included (Cooper and Jacobs, 2011). If only two learners in a given class possess ICT gadgets and the rest do not have, there is likelihood that using technology to learn will be discriminatory. In any case, it is also a fact that society is characterized by socially inclusive and exclusive subsystems ranging from religion to politics. For Zimbabwean communities, this can be more pronounced where learners from different religious and political persuasions will feel discriminated against by one form of intervention or the other. Even teaching of certain learning areas may bring to fore critical diversion of opinions, for example in History and Family and Religious Studies lessons. Indeed, at some point certain mission schools had to ban the teaching of History in class. It is illuminating that previous studies have concluded that since the notion of a "national history curriculum" is highly contentious because the nation-state is always contested, it can never be fully representative of the interests of all who live in it (Sheldon, 2011; Christou, 2007 in Moyo and Maropeng, 2013).

3. Theoretical underpinnings of inclusive education in the digital era

This study is premised on the inclusive education theories which explain an ideal situation where all learners are accommodated, all barriers to access to quality education are removed and a fair as well as equitable distribution of resources is guaranteed (Walton, Nel, Hugo and Muller, 2009). Digital participation signifies the essence of active engagement in the digital society but may be differentiated according to usage and skills which qualifies one as active and the other one as passive inclusion (Seifert and Rossel, 2019; Shava and Vyas Doorgapersad, 2023). According to Hornby (2015) the term social inclusion is typically used to refer to the goal of bringing about an inclusive society, one in which all individuals are valued and have important roles to play. Social inclusion in education refers to the inclusion in mainstream schools of children with a wide diversity of differences and needs. However, addressing inequality challenges emanating from exclusion is not always a straightforward pathway. Lomofsky and Lazaruz (cited in Murungi, 2015) advance the view that the discourse on equality in South African education has disproportionately concentrated on race and class inclusion to the further exclusion of other marginalised groups. They attribute this phenomenon to the long history of exclusion which was mainly along social lines which largely resulted in class differences. In this light, there are some lessons which can be drawn from the South African experience of dealing with exclusion and implementing some inclusive policies. Similarly, previous studies carried out reveal that considerable gaps in access to digital devices, content, and net-works have been found to align with unequal income, geography, gender, social status, and age (Bonfadelli, 2002; Warschauer and Tate, 2012). This paper builds on such evidence to present the lived experiences of school inspectors and teachers, who are policy implementers working with secondary scholars demonstrating that the digital divide is much more pronounced within sub-

categories of the social groups. The people in rural areas should not be lumped together as if they all face similar constraints. There are some who are better off and others who are beyond digital transformations due to the existing socio-economic constraints.

4. Methodological orientation of the paper

This study is grounded in qualitative methods largely relying on document analyses of peer reviewed journal articles among other publications (narrative literature review) which constitute secondary data. This is corroborated with the lived experiences of stakeholders in the education sector in as far as the digital divide is affecting a successful implementation of an updated curriculum in Zimbabwean secondary schools. A total of sixteen participants, including two school inspectors, twelve teachers, and two partners within the education sector in Mwenezi district, were purposefully chosen to collect primary data regarding their experiences. Semi-structured interview questions were posed, and the researcher permitted some modifications and follow-up during the interview sessions. The reason for selecting these respondents purposefully was that they possessed relevant experience in addressing the challenges associated with the digital divide in secondary schools. Both school inspectors were male and had over twenty years of experience in the district, having started as teachers before being promoted to the inspector role. The two partners interviewed, both females, worked for non-governmental organizations focused on learner support in Mwenezi district. The twelve teachers chosen for the interviews were selected from six specific satellite schools. Among them, five were female and seven were male. Although teaching experience was not a selection criterion, all respondents had been at their respective stations for a minimum of two years. All interviews were conducted in English and lasted an average of twenty-five minutes. The researcher recorded the sessions using a mobile phone, and the data was transcribed and analysed manually to extract pertinent information that addressed the primary research questions in the study.

Whilst the application and orientation of this study's findings might appeal to the general Zimbabwean secondary school's context, it is a case study reflecting the experiences of selected satellite schools in Mwenezi District. Through a case study approach, the paper interrogates the efficacy of a one size fits all curriculum being implemented in schools without paying attention to the various differences in the country. Key informant interviews with school's inspectors in Mwenezi District were corroborated with individual interviews with selected secondary school teachers of satellite stations in the district. It is also imperative to note that this qualitative research is strengthened by some policy document analysis especially the Education Act and the ICT policy of 2016. The two documents were selected for various reasons, particularly their significance to the revised curriculum and ICT policy framework. The 2016 ICT Policy is in line with the updated curriculum as it highlights the importance of incorporating ICT into education. Its goal is to close the digital divide and guarantee that students in rural regions have access to digital tools. This policy was formulated to respond to the evolving nature of the ICT field and includes aspects for developing infrastructure, enhancing capacity, and promoting inclusivity. It mirrors the latest trends and challenges within the ICT environment. The Education Act stipulates the fundamental rights to education and defines the objectives of education in Zimbabwe. It offers a legal framework for the creation, maintenance, and regulation of educational institutions, ensuring that every child can access education. The Education Act has undergone several amendments to capture changes in the educational environment, making it a relevant and contemporary resource for discussing the

digital divide issue. By choosing these documents, the methodology guarantees that the exploration of the digital divide problem in Zimbabwe is based on up-to-date, relevant, and comprehensive information. This approach aids in identifying effective strategies and policies to overcome the obstacles encountered by rural schools.

The main argument is that such analysis can help researchers identify the role of policy intent, discourse, and actions in intervening in educational affairs (Liu, 2019). It should be stated that not all sixteen satellite (unregistered) secondary schools could be visited because of the nature of the district which is expansive and certain schools are difficult to connect even on mobile networks.

4.1. Justification of the methodology

Whilst it is prudent to elicit quantitative data showing the level of binary distinctions of those with access to digital technologies and the internet, it is also fundamental to get the qualitative dimension of such differences. According to Cleland (2017) qualitative research addresses the "how" and "why" research questions and enables deeper understanding of experiences, phenomena and context. In this light, it helps to unravel education policy implementers' experiences on how the updated curriculum and digital transformation are being achieved in Mwenezi district. This study asks questions that cannot be easily put into numbers to understand human experiences around digital divide as it obtains in Mwenezi. Therefore, over and above the numbers it is important to extract the various explanations given by policy implementers who are involved in the day to day operations in schools. Hence, this study is built around perceptions of school's inspectors and discussions held with the teachers around the satellite secondary schools in the district. Satellite schools were deliberately and purposefully selected because they are at the extreme end of deprivation among secondary schools in Zimbabwe. The fact that some operate from makeshift rooms at former commercial farm houses and some operate from temporary shelter constructed by the communities renders them ill-equipped to embrace technology and the digital transformation enunciated in the updated curriculum.

4.2. Mwenezi district as a case study

This paper is based on a study held in Mwenezi District where the researcher worked as a teacher for ten years. It combines primary data collected from interviews with education stakeholders in Mwenezi District with an analysis of policy documents and secondary literature. Some of the revelations made by the respondents in this study tally with the researcher's experiences encountered during the period he spend in Mwenezi. There are forty-five secondary schools in the district and out of these, twenty-nine are registered (Sithole, 2020). The sixteen which are yet to be registered are located in the resettlement areas and are better understood as satellite schools in the local parlance. Whilst these satellite schools ought to be linked with established mother schools, they exercise some independence in implementing the curriculum. Due to inhospitable circumstances such as inadequate, sub-standard accommodation, expensive and unreliable transport, unstable mobile network, lack of electricity as well as unsafe drinking water, there is a huge staff turn-over in these schools. Indeed, there are certain schools where teachers may use donkey-drawn carts or even walk for anything between fifteen to twenty kilometers to get to their stations. It is in this context where leaners doing their secondary education could be aided by e-learning facilities to narrow the existential digital divide that has condemned them to be out of school or lag behind in the digital era. The updated curriculum which commenced

in 2015 was a policy response to the findings and recommendations of the 1999 Nziramasanga commission (Chimbunde, 2021). The commission is credited for having made some remarkable suggestions on education and training in Zimbabwe.

5. Findings and discussion of the responses

This study elicited that a fully empowered learner has to master the skills to use computers to learn rather than just learning how to use computers. This observation came from the understanding that learning how to use smartphones, laptops and other ICT gadgets will not transform the learner to become fully empowered in the 21st century. Whilst this observation is plausible, it should be noted that accessing ICT gadgets per se, is an achievement for people in Mwenezi district. The levels of deprivations are acute so much that some leaners at secondary school attend classes in their home clothes unable to buy uniforms. Indeed, there are glaring inequalities as aptly captured in the debates at the national level. One member of parliament is reported to have remarked that, "coupled with inadequate investment in the education sector, our rural African girls are disproportionately affected by poverty, location, gendered social norms such as early marriage, expectations related to girls, and intrinsic gender unequal education systems". She added that "We must smash these barriers and keep our girls in school". These remarks are a clear reflection that the duty bearer, has to make some strides to transform the education sector in the country so that it becomes inclusive.

5.1. Barriers to inclusive education in Mwenezi District

This section reports on the various challenges that affect access to quality, inclusive and equitable education opportunities in the district.

5.1.1. Access to electricity and mobile network

Of the sixteen satellite secondary schools in the district, only two have been operating from sites where they access electricity and they are connected to the national grid. Satellite schools are mainly located in former commercial farms and the two connected schools are operating from former farm houses. There has been some positive development with regards to mobile network coverage in most parts of the district. Respondents revealed that Netone and Econet boosters have been erected to cover these areas which have been sidelined for some time. The timely interventions from these service providers coincide with the digital urge which has characterized the younger generation. It also came at a time when there has been a big push to inculcate some ICT literacy skills in the updated curriculum. However, previous studies have shown that the land reform programme which gave birth to these satellite schools was shaped by political and electoral considerations at the expense of social services (Muzingili et al., 2017). Against this background, little effort has been made to improve the schools in these areas.

The inequality posed by differential access to resources is more pronounced in the satellite schools where all amenities seem to be in short supply. Indeed, Jenjekwa (2013: p15) aptly posits that, "emerging satellite schools bear the brunt of hastened and impromptu establishment, hence were a facade of the schools envisioned by many Zimbabweans at independence. These schools reeled from an abject shortage of; everything except pupils". These findings enrich the current study exploring the challenges of the digital divide

where access to e-learning facilities in satellite schools is negligible. Respondents indicated that smart phones or laptops are viewed as luxury by learners who struggle to pay fees or buy exercise books. One respondent working for a partner organisation said,

> *You would not expect parents struggling to pay fees, or buy uniforms and stationery to go out of their way looking for such luxurious things as smart phones. That is not feasible.*

The fact that learners in former commercial farms perceive secondary education lowly is captured by the fact that most of them barely get to write their ordinary level examinations. Indeed, most of them prefer to join irregular migration into South Africa when they drop out of school. Therefore, beside the challenges such as squalid infrastructure, shortage or complete absence of classrooms, the secondary schools in resettlement areas have to grapple with high school dropout rates. In this light, the right to education is severely curtailed and it has become a public policy issue given the drive to meet the sustainable development goal number 4.

5.1.2. Quality of Teachers and the digital divide

It was reported that of the sixteen secondary schools selected in this study, only three had members who could execute some digital proficiency with computers. In this light, it can be argued that there is limited craft competence to implement 4IR backed curriculum in the resettlement areas. One respondent from a targeted school said,

> *I am personally under-qualified to use a computer in my lesson delivery. I would not burden myself by venturing into an unfamiliar territory in front of the kids, lest I expose myself. You know these learners…some of them are techno-survy.*

This evidence tallies with previous studies which unraveled that the biggest divide may be between those students who have access to teachers with sufficient digital, pedagogical, and content knowledge to create meaningful and engaging learning activities via technology, and those who do not (Burns et al., 2019). This means there is a continuous cycle of inequality where the digital divide is exacerbating existing inequalities, resulting inevitably in further exclusion of those left behind. It is the same places which do not have electricity and reliable mobile network to support internet access which are failing to attract teachers with the requisite digital competences, yet they are the same schools which are in need of such competencies.

Studies preceding this evaluation on the digital divide in Mwenezi district's satellite secondary schools have demonstrated that many of the instructors lack the necessary skills to use technology. Indeed, many of the experienced teachers label themselves as 'born before technology' and would even depend on their children to an extent of asking them to perform simple tasks such as opening emails for them. Beyond this most basic set of skills, many teachers also lack an understanding of how to integrate technology into their subject areas (Burns et al., 2019). These teachers can hardly be asked to have students use concept maps to analyze a short story or even use spreadsheets to model some phenomenon. Therefore, findings from Mwenezi reinforce the fact that human readiness is still very low to overcome the challenge of the digital divide in secondary schools.

5.1.3. Readiness of schools in adopting the digital transformation

This study evaluated the level of readiness among the sixteen satellite schools with respect to the adoption of the ICT technologies. This assessment was made from the composite ecosystem that supports effective use of technology in secondary schools. Whilst two of the schools have connection to electricity, giving them support for setting up desktops, they also faltered on other dimensions. This observation confirms previous studies done on the African continent where it was concluded that most of the schools lack secure and clean environments where laptops or desktops will not be damaged by dust, debris, heat, or water (Burns et al., 2019). Thus, satellite schools in Mwenezi district are devoid of the necessary ecosystem that can support full implementation of the updated curriculum which encompasses the ICT components.

Since there is an updated curriculum which has a close connection with digitalization, it was in the interests of this paper to find what type of ICT gadgets the teachers and learners were using to deliver lessons or to complete assignments. It was elicited that some teachers had personal laptops which they charged using a combo of solar panels, solar batteries and inverters. One of the respondents said;

> *I bought a complete set of solar panel, battery and inverter in South Africa. It is the only way I can recharge my laptop and my phones. I see this as a better way of documenting my notes, revision questions and keeping records. I download relevant notes from the internet using my smart phone when I have some mobile data, but it is expensive and therefore not sustainable. Sometimes network will be scarce such that I will fail to download the documents.*

This revelation shows some level of improvisation among teachers in resettlement areas whose stations have no electricity or access to Wi-Fi. Since this is out of personal sacrifice and ingenuity, it cannot be used to conclude that such initiatives can bridge the digital divide. With the limited personal resources, teachers can only go far but not further in implementing an ICT curriculum in secondary schools. Many of the respondents decried the low remunerations and said they could not subsidize the employer by using their meagre resources to look for critical stuff on google or other search engines.

Learning areas such as History have dense content and need learners to write loads and loads of notes. With the advent of smart-phones, many teachers would prefer to share the soft copies of these notes to learners rather that writing them on the chalkboard. The researcher used to teach one such learning area and would ask learners to come over the weekend to copy the notes into their notebooks. Whilst there were limited options to take then, given the limited number of learners with smart phones, there has been some significant improvement in terms of access to smartphones. However, it is still difficult to use this approach because it would discriminate against those who do not have such gadgets. One interviewee had this to say;

> *For their continuous assessment of learning activities popularly known as CALAs, I ask colleagues with whom we share some teaching material on the social media to share what they are giving at their own stations. The teachers in town and at some boarding schools are well resourced and they usually give me very instructive ideas. So I share those assignments with my learners either via WhatsApp or I give one of them to give his or her colleagues using their own preferred methods of sharing. ICTs have really lessened our burden.*

This evidence points to some adjustments that teachers in satellite schools are making to infuse technology in their work. Lesson delivery, content generation and completing syllabi requirements in the 21st century demands that teachers use their social capital to bridge the digital divide. Besides, research is a component that is demanding for the updated curriculum and respondents argued that certain learning areas demand more research than others. It was noted at one station that Geography, Agriculture and Combined Science are some of the learning areas where teachers would need to constantly update their pedagogical content knowledge through constant engagement with peers and research on the internet.

The findings reveal that at one of the satellite schools which is better off in terms of infrastructure, one school laptop and a desktop computer were being used. The respondents from the station indicated that the school laptop was accessible to members of staff who would access it upon request. The desktop was mainly dedicated to the school clerk who solely used the machine for the various school assignments. It was also shared that teachers at the school had personal laptops and could also resort to their personal tablets and smart-phones for any academic research. It is also important to note that the school is a mission school and the responsible authority is working towards its full registration. The other exception is that the school is located adjacent to the highway and therefore attracts competent staff because of its proximity to the tarred road which makes many areas easily accessible. In this light, there are some outliers in the resettlement areas where ICT can be incorporated to enable learners to acquire specific skills which may be accessed in urban areas.

5.1.4. Policy challenges and the support for digital transformation

Any meaningful transformation in the secondary schools would demand that political will also changes for the better. Unfortunately, there seems to be limited support from the duty bearers in so far as supporting public education in secondary schools is concerned (Chimbunde, 2021). It is given that policies may only exist in the aspirational realm, without supporting clearly defined and resourced implementation strategies at the national, regional, school, or individual educator levels (Burns et al., 2019). This study solicited some responses from schools inspectors who are the custodians of policy implementation as they have some oversight responsibilities in schools. The engagement with the school inspectors revealed that they are committed to full implementation of an ICT based and digitally backed curriculum. Whilst they acknowledge that there are some challenges in the implementation of the new curriculum, they revealed that a solution can be found to accommodate all stakeholders.

5.1.5. Inconsistence of school regulations and use of ICT gadgets

The teachers interviewed revealed that whilst some learners could be using their smartphones to research on given assignments, bulk of those with access to cellphones abuse them. This has resulted in various school authorities banning the use of phones at school. One teacher at a selected secondary school said;

> *Approximately ten percent of our learners do have cellphones which they get from their parents and siblings who are mostly working in South Africa. Some also buy on their own during mobile markets held once every month where they either sell goats and chicken or use remittances from South Africa to buy the smartphones… we do not allow them to use the cellphones in class because they distract attention. In fact if you are caught on your phone during class, it will be confiscated*

and you get it on the closing day of that particular term. They have to be stopped; after all they only share videos and music on those cellphones and nothing about their learning areas.

Whilst this scenario on the ground seem to contradict the aspirations of narrowing the digital gap in remote and rural secondary schools, it is also important to note that challenges arising out of misuse of phones are also dire. This evidence also tallies with previous studies which unraveled that families with higher socioeconomic status are more likely to use digital resources for productive activities such as work and education. On the other hand, learners from disadvantaged families are said to lack such e-engagement, and when they do, they are more likely to use e-resources solely for entertainment (Harris et al., 2017).

A study carried out in Manicaland province among Advanced level students at two Catholic run rural schools also demonstrated that learners' usage of cellphones at schools is heavily controlled. According to Gomba (2016) students pointed out that they use their smartphones to research and do other social activities. The study unraveled that students were not using their smart phones in class fearing that teachers would confiscate them. It was added that the school policy does not allow students to bring cell phones to school, and if caught the cell phone would be taken away and only be returned at the end of the school term.

5.1.6. Socio-economic inequalities and the digital gap is schools

The substance of this paper is anchored on the socio-economic inequality which manifests in educational inequities. Whilst technology could be welcome and lessens numerous burdens, it has failed to bring equality in schools. Instead, there is a sense in which technology has amplified already existing socio-economic inequalities with the gap in education seemingly widened by the technological transformation (Vurayai, 2023). Elsewhere, Dzinoreva and Mavunga (2022) suggest that there are some entrenched barriers to ICT integration emanating from computer insufficiency, teacher's lack of ICT knowledge and skills and the difficulty in integrating ICT in the actual specific learning areas. Besides, Shava and Ndebele (2023) concluded that the promotion of digital inclusion in marginalised communities comes at a huge cost and this is something many governments seem to be unprepared to embrace. Addressing basic service delivery issues is arguably their primary pre-occupation, although they are still failing to meet this expectation again. Therefore, there is a seemingly endless cycle of deprivation with digital technology being sacrificed on the altar of service delivery in other realms. Against this background, secondary learners in satellite schools are unlikely to be given adequate attention and their exclusion will likely continue unabated.

5.2. Towards Inclusive digital participation

The study sought to understand what needs to be done to overcome the challenges being faced by underprivileged communities, teachers and learners in their quest to attain digital inclusion. The Schools Inspector responsible for Maths and Science weighed in on what needs to be done to address the various challenges contributing towards data marginalisation in rural schools. These strategies, he argues, will help in achieving inclusive digital participation:

We need to pursue some staff development initiatives for teachers towards use of ICT in schools. Teachers must appreciate the use so that they are able to use technology during their lessons.

> *Where capacity development may not come on time, there is need to expedite recruitment of ICT qualified teachers and make sure they are deployed in the needy satellite schools.*

Whilst these strategies are commensurate with the question of spreading digital use and skilling of the human capital, it has been revealed earlier on in the study that most qualified teachers loath working in remote areas. Unless there are some incentives, there is a likelihood that the satellite stations will continue to face challenges of high staff turn-over. Some respondents also shared similar sentiments arguing that staff development in the use of digital platforms should be followed up by some infrastructure installations of the digital gadgets in disadvantaged schools. This is because capacity development which is not supported by some investment in the requisite infrastructure may fail to achieve the goal of digital inclusion.

With numerous non-state actors working in the district and focusing on education, a call must be made for such organisations to complement the efforts by the government to support learners in satellite schools access the ICT gadgets. One respondent who works at the District Education Offices had this to say:

> *Our prayer is that our partners support learners by providing them with gadgets such as tablets and laptops which could be allocated as school property but used by the pupils. This can be augmented by internet connections in such schools so that learners can research and do their research projects.*

Important strides have already been made through such partners as Campaign for Female Education (CAMFED) providing support to the girl child in the district and Plan International supporting infrastructural projects among others. It is in this light that a multi-stakeholder approach can be used to tackle the challenge of digital exclusion in the district.

5.2.1. Proposed solutions for inclusive education

Addressing the issue of limited digital access in rural schools, particularly in Mwenezi district, necessitates a comprehensive strategy. Policymakers, educators, and NGOs can implement specific measures such as improving teacher training initiatives through workshops focused on digital skills. It is essential to organise regular training sessions for teachers to enhance their ability to utilise digital tools and integrate them into the curriculum within satellite schools. Creating networks where teachers can exchange best practices and resources regarding digital education fosters enhanced peer learning opportunities. This applies in both short-term and long-term strategic planning to revamp the education sector.

Providing continuous professional development by offering ongoing chances for teachers to update their digital skills as technology advances is a short-term intervention which is very crucial. The issue related to ICT infrastructure can be addressed through building partnerships within the ICT sector. This could involve public-private partnerships with technology companies and telecommunications providers to supply devices (like computers and tablets) and enhance internet connectivity.

Involving local communities in projects to establish and sustain ICT facilities will contribute to a sense of ownership and ensure long-term sustainability is a long-term solutiond. Relevant authorities should also pursue funding from international organisations and NGOs focused on enhancing education through

technological means. Revising policies for equitable resource distribution can significantly contribute to reducing the digital divide in Mwenezi district.

Targeted funding by creating policies that allocate increased resources to underserved rural schools, ensuring they receive necessary support to bridge the digital gap, is optimal. Implementing subsidies or incentives for internet service providers to offer affordable connectivity to rural areas can enhance internet access. It is also vital to ensure that the national curriculum incorporates digital literacy and that rural schools have access to resources of the same quality as their urban counterparts.

Local solutions through offline digital materials such as educational resources that can be accessed without internet connectivity, like preloaded educational content on tablets, are critical. Additionally, developing educational programs that can be transmitted via radio and television to reach students in areas with limited internet access is important.

There is a need for ongoing and systematic monitoring and evaluation, with regular assessments conducted to gauge the effectiveness of digital initiatives and implement necessary improvements. Feedback mechanisms should be established, allowing teachers, students, and parents to provide input on digital education programs and infrastructure. By adopting these measures, policymakers, educators, and NGOs can ensure that rural schools in Mwenezi district and similar places have the digital access and resources required to deliver quality education. This comprehensive approach will not only improve digital literacy but also empower students and teachers to succeed in an increasingly digital environment.

With plenty of sunshine in the district, it is also plausible that satellite schools in the Mwenezi can be supported to install some solar power. Since only two schools out of the sixteen satellite secondary schools in the district are connected to the national grid, this avenue can help schools overcome the challenges of power. This can also be followed up by construction of computer laboratories to ensure that the gadgets are safe and secured from various threats.

6. Conclusion and recommendations

This study foregrounds that digital penetration in rural and remote areas is not easy. With only two secondary schools out of the sixteen unregistered satellite secondary schools having direct connection to the National grid, there is a big gap that needs to be filled in so far as access to quality education envisioned in the sustainable development goals is concerned. Digital inclusion may remain a pipe dream if there are no frantic efforts by the various stakeholders to equip satellite schools with the necessary ICT hardware, infrastructure as well as internet connectivity. It is incumbent upon the government as the duty bearer that quality, inclusive education backed by ICT is equitably accessed by all learners from all socio-economic backgrounds. Partners such as churches, non-governmental organisations and the private sector also need to step in to fill the gap especially given that the government of Zimbabwe is struggling to meet basic socio-economic needs of the general populace.

Whilst the Education Act and the second ICT Policy of 2016 had envisioned a knowledge based society with ubiquitous connectivity by 2020 (Zimbabwe National Policy for ICT, 2016), this was not attained. It is further noted that there was adoption of a new curriculum in 2015 with an emphasis on the continuous assessment of learning activities (CALA) component (Dhliwayo and Jita, 2023). This new kid on the block deals with the

practical component of each learning area and the requisite ICT implementation (Dzinotyiwei and Taddese, 2020). Whilst these new strides are applauded, they have added a burden on under-privileged learners who are digitally disconnected and technologically marginalised. With the majority of schools using makeshift infrastructure, some conducting lessons under trees, it might be difficult to implement ICT driven lessons. Therefore, learning at one of the sixteen satellite schools in Mwenezi district appears to be a curse for secondary school pupils.

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