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Transformational leadership role of school leaders in technology integration at secondary schools in Zambezi region

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Abstract

Technology is indispensable to today's digital world. It has penetrated the education system, but with challenges. Among the challenges is how school leaders integrate technology at their schools, specifically their role for the successful integration of technology. This study explores school leaders' understanding of the ICT policy in education by investigating their transformational roles in technology integration. A qualitative exploratory case study was followed. Sixteen school leaders were interviewed, and a school walk through was held to collect data. Data were analysed thematically using ATLAS.ti 24. Findings reveal that school leaders in the selected Zambezi secondary schools lack understanding of their transformational role for technology integration. A tailor-made training program addressing specific technology standards and ICT policy awareness is recommended. The study has potential to provide worthwhile information for school leaders and researchers in their quest for effective technology leadership and integration at schools in the Zambezi region and Namibia.

Keywords: Technology integration, Technology leadership, Digital leadership, Transformational School Leadership, ICT policy in education, School leaders

Introduction

Globally, school leadership plays crucial roles to guide, lead, and influence teachers to integrate technology for the common good of the school and improve education quality (Okeke, 2019) and (A'mar & Eleyan, 2022). According to (Naicker & Khumalo, 2023), the successful integration of technology at schools depends on the effective leadership of the school principal. Without potent school technology leadership, digital transformations at schools may not be realised (Ruloff & Petko, 2021). In Namibia, school leaders are expected to play a leadership role at their schools, including integrating technologies in the day-to-day management of the school, teaching, learning and assessment. A study by Boer (2012) suggests that school principals or those that serve in school leadership positions should take the lead in technology integration at schools. However, according to Boer (2012), they seem to lack understanding of the transformational school leadership roles to integrate technology in their schools. Similar studies (Waiganjo, 2021) and (Moses, Nghipandulwa, & Shikusho, 2022) conducted in Namibia's Kavango East and West regions that investigated teachers' perspectives of integrating technology at schools reveal that several teachers, including those in school leadership positions lack enthusiasm to integrate technology in

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their teaching practices and management of schools in general. This suggests a lack of understanding of the ICT in education policy and willingness to integrate technology, hence a failure at schools in Namibia. Failure of school leaders' understanding of their roles to implement the Namibian ICT in education policy has repercussions on technology integration practice at schools. Consequently, technology integration may remain at basic level or nonexistent (at some schools), a situation which is not ideal in the 21st century world. Moreover, there is no study (at least for now) that has been carried out to investigate the understanding of the transformational roles and responsibilities of school leaders in technology integration. Hence, this study explores school leaders' understanding of the ICT policy for education by investigating their transformational roles and responsibilities in technology integration in the school with a view to recommending measures to remedy the situation.

Leadership

The concept of leadership is key to the success of any organisation. According to Sivaruban (2021), leadership is referred to as ‘‘goals, inspiring others, decisive actions and focus for the near future’’ (p57), thus right leadership is needed for the success of any organisation. Following the afore, leadership denotes someone with clear goals and vision to drive change for the organisation. To achieve that, a leader motivates employees and takes decisions towards the vision of the organisation. A leader displays positive attributes, distinctive qualities, etiquette, and good human relations towards those he/she leads to transforming the organisation.

For this study, leadership is bound from school leadership and technology leadership at schools. According to Leithwood, Harris, & Hopkins (2019), this leadership combination is assumed to be effective in the 21st century digital world. At schools, school leaders ought to embrace technology to manage their schools. Research (Omar & Ismail, 2020) emphasise that school leaders with visionary leadership have ability to practice technology leadership can administer and manage schools better. To successfully practice technology leadership at school level, a school leader ought to undertake and fulfil certain technological roles and responsibilities. Leadership is extensively reviewed and documented. For example, it is documented in the classical works of Carlyle’s great man theory which was developed in 1804 (Sivaruban, 2021) and trait theory (Harrison, 2018). However, these leadership theories and several others seem not preferred in technology integration discipline. There seems to be consensus among researchers for the adoption of transformational leadership to enhance the understanding on the topic of technology leadership (Bass, 2019). Effective transformational leadership approaches motivate their employees to embrace transformations or reform for the success of their organisation. To bring about transformations in an organisation, both leaders and employees should change, they should turn things around.

Transformational leadership

Transformational leadership is found by Schmitz, et al., (2023) to have close connections to technology integration and that it plays a critical role in the technology use in the education sphere. Similarly, Dexter & Richardson (2020) agree that the roles of school leaders in technology integration are associated with Bass dimensions of transformational leadership. These dimensions include *idealised influence* which describes a leader with a clear vision for the organisation. According to Riggio (2024), such leaders act as mentors and role models who coach their followers to follow suit. Another dimension of *inspiration* describes transformational leaders as having the ability to inspire, motivate and challenge their followers to surpass in their jobs. According to Philip (2021) and Rahman, et al., (2023), in a digital age, transformational leaders create stimulating technology environments that challenge their followers to propel them for technology growth. Therefore, given the 21st century world we live in, it is possible for school leaders to inspire teachers to use technology. The third dimension, *intellectual stimulation* focuses on encouraging followers to be innovative and think creatively to solve problems of the organisation (Lee, et al., 2019). According to Khan, Amin, & Saif (2022) school leaders are discouraged from applying traditional thinking as it is not prudent in the 21st century world. Rather, Banoğlu, Vanderlinde, Çetin, &

Aesaert (2023), argue that today's school leaders ought to be futuristic by creating a technological climate in line with the school's vision and the ICT policies guiding technology integration. The fourth dimension, *individual consideration* describes a leader with the ability to share a wider organisational vision with individual followers. Such a transformational leader provides support and professional development opportunities to individual followers (Wilson Heenan et al., 2023 & Riggio, 2024). According to Dexter (2018), the dimensions of transformational leadership are relevant to guide school leaders' awareness and understanding of technology leadership role and responsibility in technology integration.

Transformational School Leadership Theory

Transformational School Leadership theory (TSL) stems from transformational leadership and is advanced by Leithwood & Sun (2012) who made it relevant to bring reforms to educational institutions. According to Dexter (2018) TSL is an effective transformational leadership theory to explore technology leadership in a 21st century school setting where technology driven development is at play. Although there is scarcity of knowledge about technology transformational leadership in schools, school leadership is key to any innovation, change or reform at schools. Hence, effective technology integration at any school is possible when there is a strong, competent and technology proficient school leadership, these two are indispensable. According to Leithwood and Sun (2012), the TSL model incorporates a leader behaviour model compatible with transformational intentions in school organisation and relevant in challenging times such as this where technology innovation influence teaching, learning, assessment, and school administration. The TSL theory explains the roles expected of school leaders with transformational intentions. These roles include setting and sharing a clear vision for technology integration (Richardson & Sterrett, 2018), acquisition of ICT resources for the school (Dexter & Richardson, 2020), inspire teaching and administrative staff by modelling the use of technology and create conditions to support technology integration at schools (Ruloff & Petko, 2021).

Likewise, Wilson Heenan et al., (2023) maintains that the TSL model is one of the best theories that try to offer solutions to understanding the opportunities and challenges associated with technology integration at schools. The theorem affirms that school leaders with transformational leadership approach is key in the integration of ICT at schools. In the light of the above, the TSL theory positions school leaders as drivers to make informed decisions about their transformational roles and responsibilities to successfully integrate technology at schools. Therefore, TSL was found to be the most relevant to theorise this study.

Roles and responsibilities of school leaders in technology integration

School leadership is regarded by Okeke (2019) to play a significant role in leading quality teaching and learning. School leaders have a role in transforming teaching, learning, assessment, and management of schools through technology. With technology integration mandatory at schools by ICT policy for education in Namibia, school leaders have an extra role for technology integration at their schools. Several researchers found what seems to be universal transformational roles and responsibilities of school leaders in technology integration. These include:

- setting a clear, realistic, and achievable goal for technology integration at schools (Okeke, 2019) and (Dexter & Richardson, 2020).
- Creating favorable conditions for technology integration.
- provision of technological and infrastructure support for technology integration at schools (Okeke, 2019).
- take steps to address challenges that impede ICT integration at schools.
- continuously seek and recommend digital and innovative technologies for their schools.
- act as role models for the use of technology in their daily tasks (Okeke, 2019).

Although these roles are clear, school leaders seem conflicted and challenged about technology infusion at schools. Often, they reach decisions not to integrate technology. Thus, they do not play a key transformational leadership role in technology integration at their schools.

Research Question

This study is guided by the following main research question "How does school leadership in Zambezi secondary schools play a transformational school leadership role in the integration of educational technology at schools? The main question was answered by addressing the following sub-questions:

- What are the success factors that school leaders identify as transformational in technology integration at the school?
- What are the challenging factors that school leaders identify as transformational in technology integration in the school?

Methods

This study was conducted in the Zambezi education region in Namibia. It is based on a purposive sample of sixteen school leaders from selected secondary schools of this region in Namibia.

Sample

The sample included eighty School Principals and eighty Heads of Department (HOD) from six urban and ten rural secondary schools. All these schools are government schools. In Namibia secondary schools include those starting from grade 8 –12 and those with grade 10 –12. School leaders were chosen as they engage in the daily leadership and management of secondary schools including technology leadership and technology integration in the school. Furthermore, school leaders were thought fit to provide a sense of understanding and awareness of the ICT policy in education by investigating their transformational roles in technology integration at a school level.

Data collection

The study employs an exploratory case study design. Semi structured interviews were conducted to explore school leaders' understanding and awareness of the ICT policy for education and their transformational leadership roles and responsibilities in technology integration at school level in the Zambezi secondary schools. All sixteen school leaders were interviewed individually in their offices. Permission letters, leaflets containing information and consent forms were sent to schools before the actual interviews were held. This gave school leaders an opportunity to prepare for the interviews, understand the aim of the study and familiarise themselves with the study. The State Educational Technology Directors Association (SETDA) interview guide was adapted in this study. The standardised, open-ended yet similar set of questions from SETDA interview guide were used to probe school leaders' awareness and understanding of the ICT policy for education and their transformational role and responsibility in technology integration. School leaders were also asked about the challenging factors for technology integration at their schools. Each interview lasted on average about forty-five minutes. The interviews were audio recorded. The school walk throughs were conducted at four selected schools to see technology use or non-use. Permission to conduct classroom observations through the school walk was sought from the School Principal. Field notes written during the school walk throughs were integrated in the analysis.

Analysis

The interviews were transcribed verbatim and analysed thematically with the help of a computerised software, ATLAS.ti version 24.1.1.30813. Each transcript and field notes from the classroom observations were imported into ATLAS,ti for analysis. After adding the transcripts and field notes,

documents were grouped using *document group manager*[2] function in ATLAS.ti. The documents were grouped into School Principal, HoD, urban school, rural school and classroom observations. School leaders were split into two groups as they have distinct roles in technology integration at schools. School principals handle the overall management and leadership of technology integration for the entire school while HODs are mainly responsible for the implementation of technology integration at department or classroom level. To gain understanding and sense of what was written in each document, the researcher read each transcript and field notes. During the reading process, the researcher wrote brief memos and generated *free quotations*[3] using the software. To generate free quotations, the researcher highlighted segments of texts within the document which were considered interesting and relevant to the research question. This allowed the researcher to have a record of general ideas about the data in each document. One of the general ideas that started to emerge from the free quotations from interviews was the expressions of school leaders about their specific transformational roles and responsibilities in technology integration at schools.

After generating free quotations, the researcher started the coding process. Thus, during the coding process, the researcher carefully delved into the literature of this study. This helped align codes relative to literature and reduced coding errors. The literature, including the theoretical framework helped in assigning the descriptive labels to the piece of selected segments in each transcript and assigned codes. The assigned codes were created through emerging coding, in-vivo and auto coding by using ATLAS.ti software. During the initial coding, some codes had higher *groundedness*[4] than others. This is because such codes were regarded as important, yet others were surprising or unexpected issues raised by some school leaders.

After the initial coding, the researcher clustered (merged) similar codes in a group code. During the process, some codes were found to overlap. The *code co-occurrence*[5] function in ATLAS.ti was used to search for overlapping codes which were either combined, assigned to a group, coded for the second time or left as they are. To further reduce the codes, the *redundant code analyser*[6] function in the software was used to search the whole dataset for coding errors associated with overlapping quotations from participants. A few coding errors were found and resolved by merging or removing the quotations. The decision to merge or remove redundant quotations was influenced by the groundedness and *density*[7] of the codes. After resolving the errors and reassigning a few participants' quotations to relevant groups, all codes were clustered.

The relation manager[88] function in ATLAS.ti was used to determine relations between code groups. Concepts such as *''contradicts, is a property of, is associated with, is cause of, is part of and supports''* were used during the coding process. Based on code groups and associated codes, provisional categories such as availability of technology at schools, awareness of ICT policy in education, challenges for ICT integration and integration roles of school leaders were created.

The process of generating categories included refining and re-organising the provisional categories into themes. To refine and organise the categories and understand the main ideas associated with the codes, the theoretical framework and the literature of the study were considered. In addition, codes that repeated frequently were considered for inclusion to generate categories. Furthermore, to allow multiple perspective, participants' quotations between codes were considered. To winnow the data, the researcher

[2] Function in ATLAS.ti used to organise data sets in groups and indicates the number of documents added to the project
[3] lighted segment of text that is of interest but not necessarily coded
[4] Number of quotations linked to a code
[5] Function in ATLAS.ti that allows you to search and view overlapping codes
[6] Function that helps to search for coding errors associated with overlapping quotations
[7] A number of linkages between two codes
[8] Is a software function that helps to create new relations, edit or review properties of existing relation.

focused on the most important data and disregarded part of it. After winnowing the data, provisional categories were regrouped into themes. Themes were created by looking at the patterns and relations between categories. Two themes emerged from the categories. Firstly, school leaders' ICT in education policy awareness and technology vision. Secondly, inadequate technology resources are barriers to technology integration at schools.

Findings:

The findings address the main research question of this study: "How does school leadership in Zambezi secondary schools play a transformational school leadership role in the integration of educational technology at schools?" The findings are clustered into two main themes and categories exploring the transformational roles and responsibilities of school leaders in technology integration at schools.

Theme 1. School leaders' ICT policy awareness and technology vision This theme provides insight into the roles of school leaders as transformational leaders responsible for the successful integration of technology at schools. It is evident from school leaders' responses that they developed some perceptions about their role in technology integration. Their perceptions are centred around creating a vision for technology integration and awareness and understanding of the ICT policy in education. Their role includes setting strategic ICT integration goals, aligning technology initiatives with educational goals, and motivating teachers, learners and the community to commit and support the technology plan of the school. These are perceived by school leaders as key and successful factors for technology integration. The findings derived from school leaders perceived vision for technology integration, awareness and understanding of the ICT policy in education is presented under the following categories.

Category 1.1 Perceived awareness on ICT in education policy by school leaders.

School leaders were asked whether they are aware of the formal or informal policies or measures in place to successfully guide technology integration in teaching and learning at their school. School leaders responded differently to the question. Namasiku, a school principal responded that:

> *Yes, in Namibia we have the ICT policy in education, it is our blueprint for technology use at schools. Every school principal should know the policy and use it as a guide for technology implementation. I have a copy of the ICT policy with me, and I read it. It helps me understand what I should do when it comes to ICT integration. Whenever there is something that I want to do or say related to technology I consult it first. The policy informs me.* (Namasiku, 5:1¶28, School principal, School).

In a similar fashion, Mildred, an HoD at School said:

> *''Yes, the policy is there that education should be transformed, so again we should use technology like computers to transform teaching and learning. To link with other schools as well as our learners also, they should learn from other through those links''* (Mildred, 12:1¶36, HoD, School).

The two responses from school leaders reveal awareness of the ICT policy in education. School principal, although a few, emphasised that all school principals' ought to be aware of the policy and implement it to guide technology integration. Likewise, few school leader acknowledge that the ICT in education policy has transformed teaching and learning, including making connections with learners, teachers and other schools. Contrastingly, several school leaders revealed that they are not aware of the formal ICT in education policy. For example, Vasco, a HoD at a rural secondary school said: w*e do not have a formal policy, but we normally emphasise on the usage of IT when the teachers are preparing their lessons to deliver in class.* Vasco, 11:1¶23, HoD, School). Similary, Jennette a school principal at a rural secondary school responded that: *''So far, I would say there are no policies that inform us on how we should integrate technology at schools. In another way, I am trying to say ICT integration does not exist''* (Jennette, 3:1¶24, School principal, School).

Furthermore, other school leader responded that they are not aware of either formal or informal ICT policies in place to guide them in technology integration. For instance, Peter remarked that: *''Unfortunately, there are no policies, but whether we like it or not, we are forced through the curriculum*

in terms of syllabuses, where we are required to use technology'' (Peter, 2:1¶20, School principal, School). Some school leaders clearly stated that at their school they do not have internal policies to guide technology integration. This can be seen in Mathews' response confirming that:

> *''Yes, I was saying from the school side we don't have an internal policy, but they say on the ministerial level because we have got already division that is dealing with that. But they encourage us, especially as a principal we are encouraged to study on our own''* (Mathews, 7:1¶33, School principal, School).

It is apparent from the quotations that although a few school leaders are aware of the ICT in education policy and developed some perceived understanding of it, several school leaders at secondary schools in the Zambezi region pointed out that they are not aware of the ICT in education policy. Moreover, they do not understand it and as such, are not informed by the policy when they integrate technology at schools. Several school leaders advanced that curriculum requirements (such as subject syllabus) force them to integrate technology than the ICT in education policy.

Category 1.2 School leaders' shared ICT vision and technology transformations at schools.

No formal shared vision for technology integration

School leaders were asked whether they have a formal, written vision statement that addresses the use of education technology at their schools. Although several school leaders revealed that they do not have a written vision statement for technology integration, they expressed a technology driven vision for future teaching and learning and strong willingness to use innovative technologies. For example, Simataa, a school principal stated that:

> *''For now, I will say we do not have a vision statement for ICT at our school. It is noticeably clear that to reach that level we need support so that we improve teaching and learning. But in a broader context, you find that there is no way you can reach that if you do not have a space for ICT in your classroom teaching. Teaching and learning itself is changing gradually because if you want to make it more interesting or more stimulating for kids, you must at least bring in some ICT''* (Simataa 6:28¶24, School principal, School).

In the same fashion, Nicolas noted that: *''we are trying our best so that we can have proper technology at the school. But we do not have that vision [laughs], so we just leave''.* (Nicolas, 14:23¶15, HoD).

Quotations above reveal that school leaders believe technology can transform teaching and learning. However, school leaders do not execute their role of setting a vision for technology integration at their schools. As a result, several secondary schools do not include technology integration in their vision statement. Interestingly, findings reveal that despite several school leaders not having a written vision for technology integration, they have personal vision about technology use.

For instance, Jennette remarked that: ''*my personal vision is to bring change to the school and to influence teachers to learn how to use technology. Some teachers need motivation''* (Jennette, 3:29¶96, School Principal). Similary, Mildred expressed that *''my vision is I want all teachers in my department, the science department, to be able to use IT and integrate it in teaching and learning''* (Mildred, 2:16¶100 in Mildred). Furthermore, school leaders recognise the need to motivate and support teachers to integrate technology into their classrooms. For example, when asked about his vision for technology integration, John responded that:

> *''I want to see teachers going to class with a laptop and they teach using different methods. I want to see learners searching for information and resources and learn on their own. I am ready to support the teachers, and I will be in the forefront of using technology''* (John, 16:11 ¶ 63, School principal).

A similar response was said by David that:

''Although there is no vision statement for ICT, I would like to see all teachers and learners at this school using technology. Teachers would teach without chalk and chalkboard. Learners carry their laptop,

connect to the internet and not carry textbooks, they carry all their work on a laptop and complete their homework there. This is possible. We just have to put our mind to it. As they always say, where there is a will there is a way. Together we can do it'' (David, 4:9¶32, School principal, School). From these responses, quotations and remarks it is evident that several secondary schools in the Zambezi region do not have a written vision statement for technology integration. It is apparent that several school leaders do not understand their role in setting a clear vision for technology integration for their school. It is further revealed that technology integration at secondary schools depends on the personal vision of the specific school leader and is not shared or communicated with the teachers and community. Without a shared vision for technology integration, desired technological transformations as pointed out in the responses from school leaders may not be realised. Despite school leaders revealing no shared vision for technology integration, findings indicate their willingness and interest to use technology to improve the quality of teaching and learning. Some school leaders revealed their readiness to support technology integration that may lead to transformations at their schools.

Sub-theme 2. Inadequate access to technology and resource management

Throughout the semi structured interviews with school leaders, there were decries of inadequate technology resources at schools. The issue of non-availability and no access to technology resources at schools remained a predominant response among several school leaders. This theme emerged when school leaders were asked to share challenging factors that they earmark to impede transformations in technology integration at secondary schools. Several school leaders lamented that technology resources are inadequate at secondary schools in the Zambezi region. Hence, school leaders experience more challenges in their attempts to infuse technology.

Category 2.1 Inadequate access to technology pose challenge for technology integration at secondary schools School leaders were asked about the availability and access to technology at their schools. Several school leaders revealed that there is inadequate and lack of access to technology at secondary schools in the Zambezi region.

Inadequate ICT resources

Several school leaders decried about inadequate ICT resources such as computers and related equipment to support the integration of technology. When asked about the access and availability of technology at school, Nicolas a HoD remarked that: *''It is very unfortunate that such a big school does not have a computer lab for learners and the regional office has not thought of this for many years''* (Nicolas, 14:19¶69, HoD). Similary, Carol, a school principal echoed that: *''We don't have resources to make sure that all the learners are catered for. Computers are not enough for all learners, so it is the first challenge''* (Carol 1:3¶37, School principal). Additionally, Mathews another school principal said that: ''*We have a computer lab which is just by name. Believe me we don't have any computer in there, nothing at all. We are a secondary school with hundreds of learners and teachers but without computers'' (*Mathews, 7:19¶27, School principal).

It is discernible from the remarks that several secondary schools in the Zambezi region experience inadequate technology resources and related equipment such as projectors. School leaders believe the Zambezi education directorate does not prioritise equipping secondary schools with adequate technologies like computers. Hence, they are unable to integrate technology in teaching, learning, assessment and school administration.

Whilst there is inadequate technology at various secondary schools in the Zambezi region, a few school leaders acknowledged that their schools at least have a limited number of computers and are accessible to all teachers and learners. For instance, Carol an HoD responded that: ''*Computers are not enough for all learners, we have limited number of computers and projectors. Imagine, 25 computers for 1200 learners and 47 teachers. It is not enough. Even if teachers share, it does not work* (Carol, 1:12¶72, HoD).

To support this, results from the classroom observations held at a rural secondary school revealed that four learners shared one computer. Hence, some learners did not get access to use the computers and opted to read from their textbooks to complete the activity. (School Technology Walk Through Observation Sheet 3,26:7¶26, School). Although there is eagerness among school leaders to use technology, in the Zambezi region where ICT resources are constrained, technology integration is challenging.

Unequal distribution of technologies at secondary schools

Several school leaders in the Zambezi region perceive that ICT resources are unevenly distributed among secondary schools. Such claims were shared by several school leaders. Appearing frustrated, Kawana lamented:

> *''Even if I force that teachers use technology such as computers and projectors which are not there will I not look stupid. It is very frustrating. Other schools in town have computer labs, laptops for teachers and projectors. It is not fair that only schools in town get computers, what about us. We are secondary schools with a lot of learners. The regional office should look into this matter, it is not fair'' (*Kawana, 15:7 ¶ 36, HoD, School).

Equally, Jennette a school principal at a rural secondary school expressed that: *''It is not easy to be a principal in a rural school. Even when you ask for things like computers you don't get. I would say it straight that preference is given to schools in town than us. The treatment is not the same. Why are we not treated the same? Go and see for yourself, those secondary schools in town have computer laboratories, what about us?''* (Jennette, 3:2¶28, School principal).

From these expressions, it is apparent that school leaders perceive that ICT resources such as computers and projectors are not equally distributed at secondary schools in the Zambezi region. From the findings, it is perceived by several school leaders that schools located in urban areas receive preferential treatment in the deployment of ICT equipment. Hence, access to technology resources at secondary schools in rural areas of the Zambezi region is not only inadequate but limited. Thus, impeding technology integration.

Internet access and connectivity issues

It emerged from the interviews that several schools experienced challenges accessing the internet. Although some school leaders indicated that their schools have access to the internet, slow connectivity became a dominant issue. School leaders were asked to share how they secured access to the internet at their schools and their experiences about connectivity. Several school leaders responded that the Ministry of Education, Arts and Culture through the Zambezi education directorate provided internet access to some schools. For instance, Jennette responded that: *''We have WI-FI at the school which was provided by the directorate of education. It is working although slow''* (Jennette, 3:30¶100, School principal). Some school leaders responded that they used their School Development Funds to buy WI-FI equipment for their schools. This was revealed by school leaders such as Kamwi who stated that: *''Our school principal tried to get it through the regional office. We have been waiting for almost the whole year, nothing is happening. So, we decided to pay for the WIFI using our own school funds''* (Kamwi, 13:11¶72, HoD).

Slow internet connectivity remains to be a challenge that impede technology integration at several schools in the Zambezi region. Although some schools have internet equipment and facilities, accessing the internet is challenging. Several school leaders complained of slow internet connectivity. For example, David remarked that: ''*Although we have WI-FI, our internet connection is very slow. We need to upgrade it so that all teachers and learners have access to it''* (David, 4:13¶44, School principal).

From these responses, expressions, remarks and complaints, it is evident that school leaders at secondary schools in the Zambezi region lack shared vision for technology integration. As such, they are unable to take a leading transformational leadership role in technology integration at schools. Further, findings reveal lack of innovative ICT resources such as computers which ought to be integrated at schools and

classrooms to improve the quality of teaching and learning. In addition, secondary school leaders, pointed out preferential treatment in the delivery of ICT resources, with preference given to secondary schools in urban areas. Such a perceived unequal treatment only adds to the decries of lack of ICT resources to secondary schools located in urban areas of the Zambezi region.

While TSL theory emphasise that school leadership is key to technology transformations, innovation and integrations at schools (Leithwood, 2012 and Dexter, 2018), it is apparent from the findings that several secondary school leaders in the Zambezi region of Namibia lack awareness of the ICT policy for education and do not understand it. Despite that leadership is key to technology transformations (Ruloff and Petko, 2021 and Naicker and Khumalo, 2023), school leaders in the Zambezi tend to ignore it, they seem not realise the importance of their transformational leadership role and responsibility in technology integration. With good understanding of the ICT policy for education, Okeke (2019) and Richardson & Sterrett (2018) claim that school leaders can set a clear vision for technology integration. Such claims are supported by a transformational leadership dimension of idealised influence which underscores that a leader ought to understand the policies of the organisation to set a realistic vision for the organisation. However, findings from school leaders reveal lack of awareness and understanding of the ICT policy, with some stating that they do not even read it. Inevitably, Dexter & Richardson, (2020) cautions that such school leaders have difficulties setting realistic vision for technology integration for their schools as they do not understand policies guiding technology integration. Moreover, creating favourable conditions for technology integration become difficult and such school leaders will likely not bother with technology integration.

Furthermore, findings from the school walk-throughs show that several secondary schools visited have no adequate ICT resources such as computers. It was further observed that several computers were damaged and kept aside in the computer laboratories and at some schools, dysfunctional computers were packed in storerooms. It is apparent from these findings that school leaders do not apply the ICT policy in education as guiding policy to buy ICT equipment and repair dysfunctional ones. Furthermore, they lack understanding of their transformational role in technology integration at schools. As such, they are unable to bring technological transformations to their schools. According to Moses, Nghipandulwa and Shikusho (2022), school leaders' lack of understanding of their transformational role impedes technology integration at schools.

Conclusion and recommendation

The findings of this study revealed that several secondary school leaders in the Zambezi education region are unaware of the ICT in education policy. Hence, they are unable to understand and implement it to guide and transform them into technology leaders at their schools. As such, they are unable to play their critical role and responsibilities to successfully integrate technology at their schools. Therefore, the study concludes that the inability to clearly understand the ICT in education policy and failure to articulate a shared vision for technology integration hinders school leaders from carrying out their transformational leadership role in technology integration. Inadequate technology resources and dysfunctional ICT infrastructure impede the transformational role of school leaders to integrate technology. The study recommends a tailor-made training program addressing specific technology standards for school leaders to enhance understanding of their transformational role in technology integration.

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