Matongo Morine, Goronga Pedzisai, Muchenje Francis University of Zimbabwe ICT Use in Classroom Pedagogy and Social Change in Zimbabwe

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ABSTRACT

The focus of the study was to critically investigate how the use of ICT in classroom pedagogy could influence social change and recalibrate pedagogical and learning spaces in selected primary schools in Harare District, Zimbabwe. The study was grounded in the interpretive research paradigm. It adopted a qualitative research approach and employed phenomenology as the research design informing the study because of its emphasis on subjective meanings already present in the social world and its 'take' that the world is a constant construct by participants. Three qualitative data collection methods, namely in-depth interviews, focus group discussions and lesson observations were adopted in the study. The study was conducted at five selected primary schools in the Harare district from which ten (10) (5 male and 5 female) participants were purposively selected based on their presumed knowledge about the phenomenon under exploration. Thematic analysis technique was used to make sense of the data. The study established that the majority of participants appreciated the use of ICT in classroom pedagogy as they indicated that it is now the new way of conducting classroom business. Additionally, it was found that an enabling atmosphere for ICT integration in classroom pedagogy was created by the union of eager students and teachers who are prepared to embrace ICTs. The study concluded that ICT training workshops should be facilitated by the Ministry of Primary and Secondary Education in order to equip teachers with the necessary ICT skills, aptitudes and competencies for classroom instruction. The study also, recommends that the Ministry of Higher and Tertiary Education, Innovation, Science and Technology Development should make ICT an examinable curriculum learning area in order to ensure that aspiring teachers take it seriously and improve their ICT exit skills. It is thought that these ICT abilities will equip teachers with requisite skills for teaching. The study also urges the government to collaborate with non-governmental organisations to support ICT integration in teaching and learning in schools. On their part, schools are recommended to partner with other stakeholders and engage in income-generating projects so as to mobilise financial resources to procure and install infrastructure required for supporting ICT integration in pedagogy.

Key Words: ICT, pedagogy, social change, integration, digital era

INTRODUCTION

Social change is inevitable because it is a seamless continuum. Social reality is distinguished by its intermediacy; reality is constantly changing because it is a social construction (Berger & Luckmann, 1966). A significant movement from a conventional teaching philosophy to a more technologically-oriented philosophy has been made possible by incorporating ICT into pedagogy and learning contexts. This has changed the entire nature and purpose of educational institutions worldwide, altering how, when, what, and why people learn within them. This has resulted in the rewriting of norms and values that address a more technologically adept global society (Lim et al., 2019). The more complex, specialised, and differentiated a society is, the more likely it will change, because ICT is a catalyst for social change (Smith, 2020). These changes typically occur in the physical environment, and the modifications we make as a result frequently alter our traditions and societal structures, including schooling (Ogburn, 2015).

BACKGROUND TO THE STUDY

The amount of ICT resources made available to Zimbabwe's educational system has significantly expanded since

2002. The Zimbabwean government enacted a national ICT policy in 2005. This policy was inspired by a Harvard University-led study on e-readiness that revealed that Zimbabwe as a nation was not e-ready (Mhlanga, 2017). In order to create a national ICT policy and an e-strategy for the roadmap revealing the path of a knowledge-based society underpinned by a digital economy, the survey's results were intended to provide guidance. In addition, the Commission of Inquiry into the Education and Training System of Zimbabwe, commonly known as the Nziramasanga Commission Report of 1999, the National Science and Technology Policy of 2002, and Vision 2020 were among the numerous other general and sectorial policies that had an impact on the formulation of the policy (Isaacs, 2007). Of great importance was the Nziramasanga Commission (1999) which promoted the use of computers in educational settings for instructional purposes. ICT integration in pedagogical processes was introduced, albeit sparingly, to the majority schools across the nation as a result of such policy formulation.

The development of ICT use in all economic sectors, including its pedagogical use in educational institutions, is comprehensively mentioned in the National ICT policy that was enacted in 2005. (Isaacs, 2007). Building ICT infrastructure was required for policy development in order to close the digital divide and make this effort a success. Access to ICTs would be made possible through the development of requisite infrastructure. The President's office launched a campaign to donate computers and related paraphernalia to schools in support of this programme. Rural areas also benefited from this gesture, thus equipping to use ICTs in pedagogy. However, if teachers lack the knowledge and abilities to incorporate ICT in pedagogical processes, the presence of computers in classrooms would not inevitably translate to their utilisation (Mhlanga, 2017; Isaacs, 2007). The use of ICT in classroom pedagogy is negatively impacted by a lack of ICT competency among teachers. Teachers' colleges needed to respond quickly by developing training curricula that included computer training in order to realise this far-fetched ideal and close the skills gap (Associate Teachers' Colleges Handbook, 2015).

In response to the requirement that teachers acquire computer literacy and proficiency, all teachers' colleges operating under the University of Zimbabwe's Scheme of Association did so in 2005. This was mostly because of two factors which are, the development of ICT for teaching and learning purposes as part of the professional studies component of the course, and first and foremost, to create a human capital base for resource persons in schools who have a solid understanding and appreciation of ICT (Associate Teachers' Colleges Handbook, 2015).

ICT integration in primary school colleges is still in its infancy owing to a variety of reasons, compared to secondary school colleges where it is currently compulsory (Magwaya, 2018). Limited ICT equipment, a lack of lecturers with ICT expertise and skills, and a lack of infrastructure at colleges, are a few of the contributing reasons for the slow integration of ICT in teaching and learning in primary schools in Zimbabwe. Additionally, it has been claimed that overcrowded classrooms and a crowded curriculum have hampered the development of new teachers' skills sets (UNESCO, 2017). Nevertheless, despite these difficulties, the University of Zimbabwe, as the institution responsible for accrediting colleges under the Scheme of Association, requires all of them to give prospective teachers ICT training for educational reasons (Associate Teachers Colleges Handbook, 2015).

While the 2016 ICT Policy on Education is sector-specific and provides the legal framework that enforces the integration of ICT in primary and secondary education through improved teaching and learning using ICT, the 2005 National Policy on ICT focused on the use of ICT across all sectors of the economy. Additionally, the Ministry of Primary and Secondary Education's (MoPSE) Competency-Based Curriculum (CBM) (2015-2022) has added ICT to its curriculum. This was done in response to the worldwide appeal for technology to be used as a crucial teaching and learning tool. The ICT policy on education and the Updated Curriculum Framework document, which together provide the legal frameworks for ICT integration in primary and secondary school education, are binding policy documents. More significantly, Zimbabwe joined the rest of the world in adapting education to the demands of technological advancements thanks to the 2016 ICT policy on education, which put into practice the integration of ICT in teaching and learning.

ICT use and integration in schools is not particularly common in Zimbabwe, especially in rural areas where most schools lack access to electricity and high-speed internet (Kachembere, 2016). In urban schools, the situation is not much different either as a lack of reliable infrastructure made it difficult to use ICT in classroom pedagogy

(Konyana, 2013). This suggests that there is a digital divide between rural and urban schools, as well as across different school types across the nation, and that the integration of ICT into Zimbabwean education has not been a seamless one. Given this situation, it becomes necessary to investigate the effects of ICT use in classroom pedagogy in various school typologies. This is done in an effort to clarify the overall effects of ICT use on pedagogy in primary schools.

Most nations follow the same pattern when it comes to the use of ICT in education. As a result, various educational improvements have been made, and the use of ICT has had great success in some nations (UNDP, 2019; UNESCO, 2017). There has not been much progress made in terms of revolutionary use of ICT in regard to new teaching methods. On the basis of this, it is essential to understand how primary school teachers perceive the effects of implementing ICT in pedagogy.

Theoretical Framework

The use of the theoretical framework provides the lens through which literature and data are viewed, interpreted and understood (Collins & Stocktorn, 2018; Saldana & Omasta, 2018). Additionally, it supports research by enhancing the trustworthiness of study results, which increases their significance and credibility (Anfara & Mertz, 2015). Bernard and Pelto's (1987) theory of technology and social change and TAM (Technology Adaptation Model) (Bagozzi & Warshaw, 1989) anchored this research study. These two provide a complementary function of explaining the relationship between educational social change and the acceptance of ICT use in classroom pedagogy.

Bernard and Pelto (1987)'s theory of technology and social change presupposes five steps in social change. These steps are new technology, behaviour modification to fit modern technology, the cognitive dissonance between contemporary behaviour and cultural norms, the shift toward consonance in values and, finally, social change. This transition might be seen as a cultural shift brought about by technology advancement. The alteration does not, however, lead to the dissolution of traditional beliefs or myths. Instead, there is a restructuring, redefining, or reshaping of norms that is crucial for cultural transformation to take place. Sometimes there is replacement of cultural norms and myths, with new myths being created, with rationalisation and explanation of the newer behavioural patterns that have become "normal" (Bernard & Pelto, 1987).

Use of ICTs in classroom pedagogy brings with it inevitable social change by modifying the learning processes which, according to Bernard and Pelto (1987), only occurs after dissonance reduction. Dissonance reduction refers to the lessening of mental discomfort which is experienced when one changes existing cultural beliefs to suit new technological innovations (Bernard & Pelto, 1987). However, cognitive dissonance may be influenced by negative attitudes which teachers hold and other reasons that may interfere with the adaptation to social change. This argument justifies the need to utilise two, Bernard & Pelto (1987)'s theory of technology and social change and the TAM, to increase the understanding of the phenomenon under exploration.

TAM provides an explanation of the individual user's acceptance of ICT in teaching and learning (Lee, 2003). During dissonance reduction, there is a need to interrogate the variables linked to individual acceptance of ICT which, according to TAM, is influenced by two main variables, namely perceived usefulness and perceived ease of use (Davis et al., 1989). Thus, the theory of technology and social change and TAM complement each other in the exploration of teachers' perceptions on the impact of ICT use in classroom pedagogy in relation to social change. It is generally accepted that technological inventions bring with them inevitable social change.

This theory is relevant and plausible to the current study because it explains how ICT influences social change in the education system at all levels. The theory asserts that technology is the basic cause of social change. It should also be noted that utilisation of ICT in classroom pedagogy has brought about social change since it has expanded the boundaries of learning in the education system and society at large (Linways, 2015). However, education can also initiate a change in the pattern of social relationships. Suffice it to say that technology is the organising force for social life, when it changes; its effects can be profound (Mutekwe, 2012). Change in technology has thus been found to cause change in culture which change affects many livelihoods, and education is not an exception because technology alters reality and social values.

Statement of the Problem

Technology is merging more and more with human lives hence education must keep pace with the current trends. In response to the demands of the knowledge society, countries the world over have, and are still, investing lots of money on ICT in education since its integration into the curriculum impacts students' achievement in positive ways (Mwendwa, 2017). Like many other developing countries, Zimbabwe responded to the clarion call to integrate ICT into its education system starting from Early Childhood Education to secondary education and beyond. The promulgation of the national ICT policy in 2005 and ICT policy in education of 2016 provided the implementation frameworks for ICT integration in teaching and learning in Zimbabwe. This new innovation of ICT use in classroom pedagogy has changed the entire nature and purpose of educational institutions worldwide, altering how, when, what, and why people learn within them. This has resulted in the rewriting of norms and values that address a more technologically adept global society. Against this scenario, the current study explores the ways in which ICT use in teaching and learning has resulted in the transformation of norms and values among education stakeholders specifically teachers and learners.

Research Questions

1. In what ways has the use of ICT changed classroom pedagogy?
2. How have primary school teachers responded to the use of ICT in classroom pedagogy?

Significance of the Study

This study is intended to impact policy and practice in education in Zimbabwe and beyond. It seeks to benefit Zimbabwean primary education curricula with regards to ICT policy, practice, and generation of new knowledge as the nation grapples to find its place within the context of the challenges and opportunities of the Fourth Industrial Revolution. Findings from this study may provoke teachers to rethink utilising ICT effectively. This study has the potential to inform the government on the current trends on ICT utilisation which might lead to the modification of ICT policy to respond to the situation on the ground. In addition, findings of this study have the potential to benefit educational stakeholders by informing them about current global trends in ICT integration in primary school pedagogy.

RESEARCH METHODOLOGY

This study adopted a qualitative phenomenological research approach that was exploratory and descriptive in nature (Creswell, 2017). The approach was appropriate because it allowed participants living the phenomenon to tell their stories in their own words thus providing narratives (Bowen, 2017). The study involved interacting with participants as expert holders of knowledge on how ICT use in classroom pedagogy has triggered social change. The phenomenological research design was employed because phenomenological researchers are concerned with how people experience and make interpretation of their lived experiences (Alase, 2017). Participants were purposively selected to allow data to be collected from people with expert knowledge from lived experiences (Neuman, 2014). Data were gathered at participants' schools through in-depth interviews, focus group discussions and lesson observations. The use of three methods provided methodological triangulation which increased the trustworthiness of the study.

Data Analysis

Data analysis, which is a process of reducing and making sense of qualitative data, followed the thematic approach (Braun & Clarke, 2019). This involved reading and re-reading of transcripts to familiarise with data and identifying units of meaning related to participants' views about how ICT use influences social change in education. The thematic analysis technique was harnessed in this study because it is a simple and flexible method which some scholars advise to in analysing data from qualitative studies. Through its theoretical and epistemological freedom, thematic analysis can provide rich and detailed accounts of data. The researchers employed a six-step procedure of familiarising, coding, generating themes, reviewing themes, defining and naming themes and writing up (Braun & Clarke, 2019). Verbatim statements were also captured and some lesson observation descriptions were also captured in some instances.

Trustworthiness

In qualitative studies, trustworthiness is a measure of confidence in the data generation process, how meaning has been reached and the articulation of methods to ensure the quality of a study (Siegle, 2017). To ensure rigour, quality measures which of credibility, transferability; dependability and conformability were upheld (Thwala, 2018; Guba & Lincoln, 1985). Participants' verbatim statements allowed for establishment of transferability while confirmability was realised through an audit trail of the research process and participants' verbatim accounts (Taylor, 2013). Prolonged engagement of participants during data gathering in the field and thick description of the research process and findings enhanced the study's credibility and dependability measures.

Ethical Considerations

The researchers adhered to the expected standard of conducting research with human participants as advised by Marongwe et al. (2016) and critical ethical issues in the conduct of this study were addressed (Arifin, 2018). Since participants were all adults, they voluntarily agreed to participate in the study by signing forms to show their informed consent. The principles of anonymity and confidentiality guaranteed throughout the research process. Participants' identities were not divulged in the study (Thwala *et al*., 2021). Thus, in conducting this study, researchers adhered to all ethical imperatives.

Table 1: Profile of Interview Participants

Participant Identity	Gender	Age	Educational Qualification	Teaching experience 5+years	School & School Category
P 1	Male	54	Dip Ed; BEd; Med	20	A [Private International School]
P 2	Female	28	DipEd; Bed	5	A
P 3	Male	27	DipEd; Bed	5	B [Private College]
P 4	Female	62	DipEd	35	B
P 5	Female	46	DipEd; Bed	22	C [Former Group A Government]
P 6	Male	52	DipEd; Bed	20	C
P 7	Male	33	Dip Ed; Bed	8	D [Former Group B Government]
P 8	Female	30	Dip Ed; Bed	7	D
P 9	Male	42	DipEd; Bed	15	E [Council- High Density]
P10	Female	29	DipEd	5	E

Ten (10) participants, five males and five females took part in individual in-depth interviews. To enhance anonymity, the interview participants were allocated identity numbers. The ten participants were identified by the labels P1 to P10. This was also the case with focus group participants. Interview participants did not take part in focus group discussions because the researchers wanted to check for convergence of the characteristics of the phenomenon of the impact of using ICT in classroom pedagogy on social change, across in-depth interviews, FGDs and lesson observations to enhance trustworthiness of findings as advised by (Lambert et al. (2008).

The participants' ages ranged from 27 years to 62 years. The least qualified participant had 5 years' primary school teaching experience while the most experienced had 35 years. In terms of educational qualifications, the least qualified participants had diplomas in education while the most qualified held a master's degree in education. The profiles show that participants had gained experience enough to provide rich data about their

perceptions on the influence of infusing ICT in instructional processes on social change.

Data Analysis, Presentation and Discussion

Data were captured in the field through a smart phone. The researcher subsequently transcribed the data verbatim and analysed it manually. The analysis process resulted in the identification of recurrent themes on the perceptions of participants on the impact of using ICT in classroom pedagogy on social change. As was discussed on data analysis, IPA thematic analysis technique was employed as a way of reducing and making sense of qualitative data. One major theme was derived from in-depth interviews and focus group discussions transcripts. Lesson observation data added important insights during the data analysis process. The discussion of the research findings was presented under the main theme and two related sub-themes shown diagrammatically below.

Theme and Sub-themes

Embracing ICT in classroom pedagogy

During data gathering, participants described how they have embraced ICT in their everyday teaching due to anticipated benefits. Participants explained in detail their learners' keenness and readiness to learn with ICTs. The combination of keen learners and teachers who are ready to embrace ICTs creates an enabling environment for ICT integration in classroom pedagogy. However, there were some participants who did not show any enthusiasm to embrace use of ICTs in teaching and learning due to certain factors.

Teachers' use ICT in pedagogy

The majority of the participants indicated that they had embraced the idea of infusing ICT in teaching and learning. They indicated that the innovation enhances their teaching in addition to providing several benefits as captured by the following excerpts:

I have embraced use of ICT in my teaching because it has several benefits for me as the teacher. The use of ICT in classroom teaching is good because learning becomes practical, and the role of the teacher changes to that of being an enabler of learning whose responsibility becomes that of guiding learners as they learn to learn. During the process of learning and teaching, the learners do a lot of research independent of the teacher. Resultantly, this broadens their knowledge as abstract concepts are brought to life. In the process, learners become accustomed to learning about real life concepts thus learning becomes interesting and more rewarding. [P. 1, School, A]

In agreement, another participant weighed in:

Most teachers at my school have embraced the use of ICT in classroom teaching because they are moving with current technological trends whose focus is to create a paperless environment. ICT use in teaching has a lot of benefits which most teachers wish to capitalise on. For example, education becomes cheaper since you get all the information that is required for learning at the click of a button. Subsequently, learning is made easier and smarter as learners get more information as opposed to relying on few textbooks which may be out-dated. Also, schools are forced to put up infrastructure and buy ICT gadgets in the process of modernisation. [P. 5, School, C]

One participant who had mixed feelings regarding the uptake of ICT use in everyday teaching had this to say:

When it comes to embracing ICT in classroom teaching, at my school, there are fast and slow movers. The younger generation of teachers is ahead of the older generation of teachers who are not so keen on using ICT to teach. The older generation of teachers prefers to use the traditional chalk and talk method which they believe produces the best results. [P. 3, School, B]

During FGD one participant indicated that the Covid-19 pandemic came as a blessing in disguise as teachers were forced to use ICT for teaching their children. This was because gathering in classrooms was prohibited. In view of this, one participant shared the following sentiments:

All the teachers at my school have embraced ICT use in teaching because they have been forced by the Covid-19 induced lockdowns which left them with no option but to use ICT tools for online teaching and learning. Here we have been using ICTs in the form of WhatsApp application for teaching during lockdowns. This resulted in every teacher resorting to ICT use for survival purposes because without teaching there was no income. The Covid-19 pandemic forced the slow movers to catch up with others in order to remain relevant and earn a salary for survival. [Fgd 1; MP 2, School, A]

Another participant shared similar views by saying that:

At our school we have two groups of teachers. One group is very adaptive to change while the other group is trying to resist the wave of change. I have observed that the older generation of teachers does not want to embrace ICT while the new generation of teachers has embraced it. Fewer teachers at my school have not embraced ICT use in their teaching as they still rely on the traditional methods of teaching. Their reason for this lack of movement in the ICT inspired direction is that they lack requisite knowledge and skills to teach using ICTs and they believe that using ICTs is time-consuming. [Fgd 2; FP 3, School B]

DISCUSSION

The emerging picture as gleaned from the foregoing is that there are two groups of teachers with different views about using ICT in instructional processes. The first group comprised the younger generation of teachers who have adopted ICT use in for teaching and learning, anticipated a lot of benefits thus having a positive perception of ICT use. This agrees with the tenets of the technology acceptance model (TAM) which posits that the younger generation of teachers are motivated by the benefits of using the new innovation where 'perceived usefulness' results in the adoption of ICT innovation (Davis, 1989). The other group comprised the older generation of teachers and was not so keen to use ICTs as they preferred using the traditional methods of teaching, resulting in the development of negative perception towards the use of ICT in classroom pedagogy. Thus, among teachers in schools one finds those with either positive or negative perceptions regarding adopting ICT use in classroom pedagogy. This means, perceptions that teachers hold impinge on the value they attach to the use of ICT in the classroom. This implies that, if one has a positive perception of ICT use in teaching and learning, the individual is likely to enjoy the benefits it brings. On the contrary, if teachers hold negative perceptions about an innovation, they are likely to shun its use because, according to Cherry (2020), perceptions influence what we do and why we do certain things. This means that perceptions have the potential to influence the way in which something is regarded, understood or interpreted, hence some teachers shy away from using ICT tools for instructional purposes.

The study also ascertained that the older generation of teachers are in a state of confusion resulting from being plunged into using new technology. This finding gels with the theory of technology and social change which states that such teachers are experiencing cognitive dissonance and as such find it difficult to embrace new technology (Bernard & Pelto, 1987). This agrees with findings of a study done in Sweden by Holmberg, Fransson and Fors (2008) which established that people learn to use new tools by first trying to find a fit within existing social practices before they can internalise the tool hence cognitive dissonance. This finding is also in concurrence with a study done in Zimbabwe by Ndawi et al. (2013) which found out that some teachers lacked an awareness of the importance of ICT in instructional processes. This lack of awareness of the importance of ICT resultantly led other teachers to shun using ICT in teaching and learning.

It has been observed that teachers with experience with ICTs have greater confidence in their ability to use them effectively (Peralta & Costa, 2007). Thus, teachers with experience in using ICTs in their day-to-day life find it easy and interesting to use these gadgets for instructional purposes. This runs at variance to those teachers without experience in using ICTs in pedagogical purposes as they shy away from using ICT because of their perception of 'ease of use' (Davis, 1987). It is thus critical to note that the variable of 'perceived ease of use' can influence dissonance reduction resulting in cognitive consonance (Benard & Pelto, 1987) to facilitate the adoption of ICT for teaching and learning.

Furthermore, Jones (2004) posits that teacher competences relate directly to confidence and that teachers' confidence also relates to their perceptions of their ability to use ICTs for teaching. Thus, 'perceived ease of use'

bolsters teachers' confidence as some participants highlighted that lack of knowledge and skills were major deterrents for some teachers. Thus, the need to increase digital literacy and reduce ICT teachers' anxiety for successful ICT integration in classroom pedagogy in emphasised.

During interviews, participants reported that the variable of age separate the two groups of teachers. The younger generation of teachers find it easy and beneficial to use ICT in classroom pedagogy due to 'perceived usefulness' (Davis, 1989). On the other hand, the older generation is more comfortable using traditional instructional methods due to 'cognitive dissonance' caused by technophobia (Bernado & Pelto, 1987). The reason is that the older generation of teachers lacks requisite knowledge and skills for ICT utilisation. Mention was also made that using ICTs is unnecessarily time-consuming thus leading to the development of negative perceptions. It can thus be concluded that there is a process through which perceptions are formed and that there exist variables that influence their formation. Thus, perceptions are built when we recognise and identify the existence of all kinds of variables which are evaluated and given meaning. As observed by Qiong (2017), the perceptual process is a sequence of steps occurring in a contextual environment which, in the case of this study are the schools.

The findings of this study suggest and bring to the fore the fact that teachers' lack of ICT skills influences them to want to maintain the status quo. Hence, there is a need to mount in-service training workshops with a view to improving their perceptions which in turn would have influence their teaching output through effective use of ICT (Hlasna et al., 2017; Mac-Callum & Jeffrey, 2014). Literature indicates that primary school teachers who use ICT in teaching must be exposed to comprehensive in-service training and other critical human capital development initiatives (Hlasna, Klímová & Poulova, 2017).

As revealed by one participant, the younger generation of teachers sees a lot of opportunities that, besides ICT making teachers' lives in the classroom easier, learners also become more knowledgeable. These younger teachers' perceptions were influenced by 'perceived usefulness' and 'perceived ease of use' (Davis, 1989). This was mainly because most of the younger teachers had received some form of ICT college training (Musarurwa, 2011). This resonates with findings of a study conducted by Hlasna et al. (2017) in Czechoslovakia Republic, which revealed that teachers who have had methodological training on using ICT in teaching were ready to use technology in teaching while those without training were reluctant. This also concurs with findings from a study conducted in Tanzania by Mwolongo (2011) which established that teachers who frequently used ICT had ICT competencies. In this regard, frequency was linked to competencies and this resonates with TAM on the link between 'perceived ease of use' and the actual use. Lack of training opportunities for teachers in the use of ICT in pedagogical processes has been singled out as one of the three major barriers to teachers' use of ICT in teaching in a study done in Zimbabwe (Nhendere, 2020).

Learners' readiness to learn through ICT

On the sub-theme of learners' predisposition to learn using ICT in classroom pedagogy, participants' responses revealed varying perceptions. Most of the participants (7) had the perception that learners were ready to learn through ICT because they were adept at using ICT gadgets. Reportedly, learners enjoyed using ICT gadgets for socialisation and gaming during leisure time so the sooner these gadgets were included into their learning spaces, the better. On the contrary, fewer participants (3) had the perception that most primary school learners got distracted from meaningful learning when they use ICT gadgets as they are easily fascinated by the options technology offers. Younger learners were reported to tend to use the gadgets for other purposes other than learning. If not closely monitored, instead of focusing on learning tasks, they may engage in other activities. In view of the primary pupils' readiness to learn using ICT, the following excerpts capture participants' sentiments:

Primary school learners are ready to learn using ICT because they are comfortable and flexible with ICT gadgets. They are motivated, inquisitive and experimental, and find ICT very useful in quenching their zeal for knowledge. [P. 2, School A]

Young learners enjoy using ICT gadgets as they spend most of their time playing digital games and socialising with their friends on social media platforms. This has enhanced their ICT skills in such a way that if ICT is to be integrated in their learning, they will gladly embrace it. [P. 3, School B]

Our 21st century learners are comfortable with ICTs compared to the older generations. They are adept at using several ICT gadgets and are keen to learn using ICTs. Teachers are the ones who are letting these learners down as they are way ahead of them. They have a lot of knowledge on different ICT gadgets which they use at home. [P. 6, School C]

Similar views also emerged during FGDs where one participant raised the issue that teachers were taking long to adapt to new technological innovations compared to learners who were far ahead. This captured by the following statements:

My 4-year-old son who is in ECD can operate a tablet. He knows how to access games, videos, and songs from the gadget. This means that, if you teach learners using these gadgets, they become very attentive and can follow the lesson with a lot of interest. [Fgd 1; FP 2, School A]

The level of excitement learners' exhibit when you take them to the computer lab is evidence enough that they enjoy learning with ICTs compared to using traditional methods. When you explain or demonstrate during ICT lessons, they are so attentive that they don't want to miss anything. The learners even want to do more on the gadgets than what the teacher may be doing. This is evidence enough that they are ready to learn using ICTs. [Fgd 3; MP 4, School C]

Most participants' views painted a glossy picture of primary school learners' readiness to learn using ICTs. They reported that using ICT motivates learners since they already have knowledge about technology which they gain through playing with technology gadgets from home. This resonates with the researcher's lesson observation she made at one school during a Grade 5 Heritage Social Studies lesson.

During the conduct of this lesson I observed that, when learners were watching a YouTube video which was demonstrating the Jerusalem (Jerusarema) dance (a form of traditional dance) and the video was mistakenly interrupted. When the teacher was struggling to return to the video one of the learners offered to help restore the video. Resulting from the learner's assistance, the video started playing again, and the lesson continued as if nothing had happened.

The above scenario clearly demonstrates the knowledge and comfort levels some primary school learners have in using ICT gadgets. However, some participants had negative perceptions about learners' readiness to learn using ICTs. They were of the view that primary school learners should not use digital gadgets during class as this has the potential to distract their focus on learning. Other participants thought that using technology in learning would waste time as young learners tend to explore wander away from the intended work. The following statement and lesson observation are provided to testify this:

Young learners are not ready to learn using ICTs because they are too experimental and can be all-over the gadgets in no time. They end up visiting sites which are not age-appropriate which may clog and corrupt their thinking. [Fgd 2; FP 3, School B]

At School C in a Grade 4 class, I observed an English lesson on the 20 of September 2021, where, while the teacher was still introducing a reading lesson, two of the learners were laughing at a video they were secretly sharing between themselves. This disruptive behaviour disturbed and slowed down the lesson as the teacher had to stop the lesson to investigate the cause of the excitement only to discover that the learners had visited a different site from the one the class was focused on. The teacher was forced to reprimand the two naughty learners before she could resume.

The above observation is an affirmation that, if unchecked, learners may wander away from the focus of intended learning. This may indicate that they are not ready to learn through ICTs. During focus group discussions, one participant said that:

Some learners associate ICT gadgets with games and they shift focus on given tasks and divert to playing games. Others even visit sites which are not suitable for them. So, I think it is better if ICTs are used to teach students in tertiary institutions who are older and more responsible. [Fgd 3; MP 3, School C]

This resonates well with what the researcher observed at School D during a Science and Technology lesson with Grade 5 learners.

During the lesson I observed that some learners were not following instructions as they were busy showing off their navigation skills on the computers as they played with the mouse. This was despite the fact that the teacher was explaining and demonstrating very important concepts of the lesson.

From participants' responses, teachers were blamed for holding back the learners because most learners were familiar with ICT gadgets from home. Learners' digital knowledge and dexterity should thus be taken advantage of to provide a starting point in the utilisation of ICT in teaching. It has been reported that the rapid development in ICT has influenced education and has thus led to alterations in the structure and implementation of education (Donmus, 2010). This has changed the mind-set of educators thereby transforming how education business is transacted in schools in line with the theory of technology and social change. This is supported by Obaydullah (2019) who reiterates that the global everyday life experience is of late mostly dependent on technological inventions. Hence, it has been argued that, unless and until ICT is used in classroom instruction, education would be lacking relevance and learners would not be motivated to meaningfully engage it. Teachers are therefore encouraged to develop positive perceptions on ICT use in order for education to remain relevant in this technology-driven 21ˢᵗ century (Obaydullah, 2019). This means that ICT should be used in classroom pedagogy to replicate the current society which is proliferated with ICT. The aim is to motivate the learner to want to learn thus making the learning and teaching enterprise exciting, enjoyable and devoid of stress. According to Donmus (2010), the motivating effect of ICT would create a learner-friendly environment which intrinsically propel learners to seek knowledge for themselves as they learn to learn.

Some participants were of the view that, ICT creates independent learners as it enables them to independently search for the information they want. In agreement, findings from a research study conducted in Rwanda by Zeith and Bower (2018) established that ICT integration in education is a powerful tool for the betterment of pedagogical processes as it catalyses radical change and makes students ready to face their futures. The same study established that ICT enriches the curriculum, provides access to infinite information, and encourages collaborative working and communication with others in the world. This results in reducing teachers' workload as learners become independent learners, a situation which can only be made possible by integrating ICT in education at an early age. Doing so would be in fulfilment of the demands of the ICT policy on Education which has mandated teachers to use ICT in transacting educational business in schools.

The current study also ascertained that a few participants held views contrary using ICT in teaching and learning owing to some reasons. Participants indicated that ICTs cause disruptive behaviour among young learners particularly those in the primary school because of their playful nature. Given this scenario, it implies that when teaching using ICTs teachers must employ class management strategies that curtail learners' wayward behaviour to achieve set educational objectives. Learners must not be allowed too much idle time between tasks because when they are bored, they tend to experiment with the ICT gadgets. This resonates with research findings of a study conducted by Rubagiza, Were and Sutherland (2012) in Rwanda where learners were banned from using cell phones during lessons for fear of fuelling lesson distractions. Supervision becomes very critical when learners are allowed to use ICT gadgets during lessons so as to make sure they do not wander away from the task at hand.

Ways ICT has changed classroom pedagogy

Most participants in this study indicated that the use of ICT has had tremendous adverse impact on classroom pedagogy. Participants indicated that use of ICT has created independent learners, enriched the curriculum, provided access to infinite knowledge, and encouraged collaborative working and communication with others in the world. From the lesson observations made, it was clear that the use of ICT gadgets helped teachers to cater for learners' different learning needs in addition to making learning more engaging and interesting. Infusing ICT in teaching and learning enhanced teachers' motivation to teach and increased learners' interest in school learning resulting in improved results. Use of ICT also increased learners' school attendance due to enjoyment resulting from the use of ICT tools during learning.

The availability of ICT gadgets and infrastructure motivated teachers to use ICT gadgets when teaching, while lack of such gadgets resulted in frustration. This is supported by findings of studies conducted in South Africa which revealed that availability of infrastructure and related resources influenced ICT integration in pedagogical processes (Egbe et al., 2016; Mbatha, 2016).

This study established that most participants had a positive perception on the use of ICT gadgets in classroom pedagogy. Participants acknowledged that ICTs make learning more practical as learners interact with real objects on videos, projectors and simulators. This means that the availability of ICT gadgets and infrastructure help teachers in schools to develop a positive perception of ICT use in instructional processes. Positive perceptions of teachers were reflected in the participants' views of the benefits that accrue from using ICTs in classroom pedagogy. Some of the views were related to how use of ICTs made teaching easy by eradicating the shouting that normally characterise traditional chalk and talk instructional methods. Furthermore, learners could learn difficult concepts more easily by watching videos or simulators thus making learning interesting and memorable thereby increasing retention.

However, fewer participants had negative perceptions of the use of ICTs in teaching and learning. They claimed that most primary school learners, due to their playful nature, easily get distracted from meaningful learning as they were generally easily fascinated by the options that technology offers. Participants pointed out that primary school learners tend to use the gadgets for recreational purposes such as playing games, videos, YouTube and watching music videos. They further pointed out that learners can also easily wander away and end up visiting prohibited sites with harmful content. In one of the lessons that was observed, two of the learners were seen laughing while pointing at their gadget during the time their teacher was just introducing the lesson. Upon investigation, the teacher realised that the learners were fascinated by a funny video they had stumbled upon and were secretly sharing between themselves. This disruptive behaviour slowed down the progress of the lesson as the teacher had to stop the lesson to investigate the cause of the laughter before reprimanding the naughty learners. This behaviour is an affirmation of the concerns of the few participants who registered their reservations about primary school learners' suitability to learn through ICT. The implication is that, if unchecked, learners may abandon class learning activities to pursue their own. Thus, the behaviour of primary school learners relative to using ICT gadgets for learning has serious class management implications for the teacher.

Teachers' response to using ICT in classroom pedagogy

Most participants appreciated the use of ICT in classroom pedagogy as they indicated that it is now time to adjust to new digital ways of transacting classroom activities. However, participants who indicated that they had embraced the use of ICT in pedagogical processes and learning contexts were not all operating at the same level. The younger generation of teachers were reportedly ahead of the older generation who were said to be resisting the use of technology in education.

It was established that the older generation of teachers were suffering from cognitive imbalance. This resonates with Bernard and Pelto (1987)'s theory of technology and social change which explains that individuals who are faced with new technology experience cognitive dissonance as they try to adapt to the new innovation. Cognitive dissonance is caused by a number of anticipated challenges among them lack of skills to use ICT gadgets for teaching. In the context of this study, cognitive dissonance then influences the formation of negative perceptions teachers have towards the use of ICT in classroom pedagogy (Cherry, 2020).

Perceiving use of ICT gadgets in classroom teaching and learning in a negative way results in the reluctance to integrate ICT tools for instructional processes. This concurs with findings of a study conducted in Zimbabwe by Ndawi et al. (2013) which established that teachers without ICT skills tended to shy away from ICT use for pedagogical processes. However, some participants in this study argued that the COVID-19 pandemic played a catalytic role by 'forcing' many reluctant teachers to use ICT tools for teaching. Under COVID-19, teaching and learning had to continue, so teachers had to find ways and means of reaching their learners and ICTs were the only plausible alternative. Thus, situational circumstances forced them to embrace technology for teaching.

Unlike the older generation of teachers, most young generation of teachers have embraced ICTs due to a number of anticipated benefits. It was also noted that this crop of teachers has more experience with ICTs and related

skills. This is attributed to the fact that they received some form of training after ICT had been introduced in teachers' colleges (Musarurwa, 2011). This has seen this generation of teachers developing positive perceptions of using ICT in classroom pedagogy resulting from their perceptions of the 'usefulness' and 'ease of use' of the new innovation in concurrence with TAM (Davis, 1989). This also concurs with findings of a research study conducted by Hlasna et al. (2017) in the Czech Republic which revealed that teachers who have had methodological training on the use of ICT in teaching were ready to use ICT in teaching while those without training were reluctant to do the same.

CONCLUSION

Based on the research findings of this study, it can be concluded that most teachers had a positive perception on the use of ICT gadgets in classroom pedagogy. This was because they acknowledged that ICTs make learning more practical, engaging and inclusive as learners interact with real objects on videos, projectors and simulators. However, some teachers from poorly resourced schools indicated that the unavailability of ICT gadgets to facilitate teaching with ICTs was frustrating leading to the development of a negative perception of using ICT in teaching and learning. There are some teachers who received basic ICT training at the different colleges they attended. However, despite possessing basic ICT skills, some of these teachers were not comfortable to teach using ICTs because of a lack of requisite pedagogical skills. It came to light that the behaviour of primary school learners in regard to using ICT gadgets for learning has serious class management implications for the teacher. This is due to the playful nature of primary school learners as they easily get distracted from meaningful learning as they are fascinated by the options that technology offers hence the need for close supervision during instruction.

RECOMMENDATIONS

Based on the findings and conclusions, this study makes the following recommendations:

1. In order to improve teachers' ICT skills, intensive in-service training workshops should be mounted at school, district and national levels under the auspices of MoPSE.

2. The Ministry of Higher and Tertiary Education Science Innovation and Technology Development should review and improve the ICT curriculum for teachers' colleges to enable teachers to competently utilise ICT in teaching.

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