International Journal of Education and Development using Information and Communication Technology (IJEDICT), 2023, Vol. 19, Issue 1, pp. 208-229

E-learning tools for enhanced teaching and learning of IsiNdebele in a rural context

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ABSTRACT

In rural contexts, schools experience many challenges such as lack of electricity, unstable WIFI, not enough classrooms and inadequate classroom technology. These challenges resulted in many teachers shying away from the use of technology in the classrooms. As with other subject fields, IsiNdebele language teachers want to prepare their learners for new careers and make their lessons interesting. However, they encounter challenges integrating e-learning tools in their lessons. A qualitative case study was conducted to understand the rural contextual perspective obtained through exploring the experiences of the researcher, four observers, and a class group of 20 learners. Data were collected using a document analysis protocol, learners' written questionnaire, observers' interview protocol, and a teacher's reflective journal. The Substitution, Augmentation, Modification, and Redefinition (SAMR) model was used as a frame of reference to integrate technology at various stages to enhance the quality of teaching and learning the IsiNdebele language in the rural context. In preparation for this study, six e-learning tools were found suitable for integration in teaching and learning, as well as enhancing classroom dynamics in the rural context. The data were analysed using content analysis. From this study, we suggest that rural IsiNdebele teachers should consider using e-learning tools daily, to ensure skills development and provide learners with real-world learning opportunities. Furthermore we recommend that similar research be conducted in different rural settings, using different official African languages to find more e-learning tools that can be used in rural contexts.

Keywords: *E-learning tools; rural context; SAMR; IsiNdebele language; teaching and learning*

INTRODUCTION

The transition to the fourth industrial revolution has rapidly increased technology integration in teaching and learning, which has resulted in a demand for new teaching models (Gilakjani, 2017). As part of these new teaching models, technology is often incorporated or used in various forms, such as in devices and applications (Grinshkun & Osipovskaya, 2020; World Economic Forum, 2020). Although many studies report on the success of various technologies and applications as part of their teaching models (Maboe, Smith, Banoobhai, & Makgatho, 2018; Naidoo & Singh-Pillay, 2020), teachers in the schools in rural areas are many times faced with challenges that hamper even the start of implementing technologies and applications. These challenges could be as basic as not having electricity or classrooms without electricity or it can be without any educational technology or Wi-Fi (Mavuru, 2021; Ramorola, 2013). In some schools, electricity, Wi-Fi, and technology devices with apps might be available, but are locked away because of security reasons or not used because of teachers not having the necessary personal development opportunities or technology skills to use them (Mavuru, 2021). It is against this background that the study aims to explore e-learning tools to enhance the teaching and learning of IsiNdebele language in a rural context. In addition, the research promoted the use of e-learning tools in rural areas by finding e-learning tools that can be integrated successfully in a rural context to enhance the teaching and learning of the IsiNdebele language.

The challenges faced by South African teachers hinder the effective use of e-learning tools. Ojo and Adu (2018) mentioned numerous challenges such as inappropriate management support, lack of enough teachers with sufficient knowledge of e-learning tools, high cost of acquiring the e-

learning facilities, inadequate network connectivity, lack of adequate policy by the government, large classes, or overpopulation of learners, failure of the government to provide incentives, lack of reinforcement, lack of training and inadequate knowledge of skills.

Moreover, teachers have limited opportunities to attend workshops for teacher professional development in e-learning tools integration, because the workshops are limited and hosted too far away for teachers in rural areas. For those who can attend, the focus is on how the technology works, with inadequate teacher professional development that accommodates the realistic or possible challenges of using e-learning tools, in a school system that lacks technology resources and have limited-to-no Internet access (Torres & Giddie, 2020).

E-LEARNING TOOLS

These new teaching models mentioned in the introduction, not only include technology devices, but also include digital technologies, commonly known as electronic learning software tools, hereafter referred to as e-learning tools. An e-learning tool is a small computer program that is web-based or that can be downloaded onto a mobile computing device such as a laptop, smartphone, or tablet and allows you to engage immediately with a person/s or a task (Cherner *et al.,* 2014). While teachers in the rural context are still struggling to adapt their lessons to include devices due to insufficient technology resources, e-learning tools have the potential to provide support for learning in a more portable, flexible, personalised, and on-demand manner because they can easily be downloaded on a mobile device (Zhang *et al.,* 2004). Consequently, learners in the rural schools are left behind without the necessary 21st-century skills and basic concepts of language to relate to real-world learning experiences (Hui-Ya, 2016). Even though there are some e-learning tools for language learning such as *Duolingo*, not much is available in the IsiNdebele language, and that limits the enhancement of the language learning.

When using e-learning tools in teaching, different aspects of learning such as multimedia, time management, research, task management, delivering content, collaboration, and engaging learners in learning activities, are enhanced (Soraya *et al.,* 2018; Thomson, 2017). While there are various paid and free e-learning tools available (Cherner *et al.,* 2014), most e-learning tools are programmed to operate on either Android, Windows, Google's Linux-based, or Apple's iOS operating system (Tetard & Patokorpi, 2008). Some e-learning tools are developed for educational purposes, for example, *cK-12*, *Storybird*, *Kahoot!*, *Thinglink*, *Project*, and *Plickers*, while others are adapted to be used in education such as WhatsApp, Facebook, Email and Microsoft Office. Although WhatsApp, Facebook, Email, Twitter, Microsoft Office, and many others were not developed to be used in education, they work well in schools. There are various e-learning tools implemented by innovative teachers, such as emails, wikis, blogs, animations, e-portfolios, and videos. Several researchers have studied some of the e-learning tools that can be used and found that they can enhance teaching and learning (Abrahim & Mir, 2017; Gon & Rawekar, 2017).

THE USE OF E-LEARNING TOOLS IN LANGUAGES

Technology in education and e-learning has completely changed the traditional classroom environment to accommodate the needs of contemporary learners (Chhabra, 2012). Language is the most important part of communication and needs to be mastered, therefore, when teaching language it is important that learners can practice what they have learned from anywhere at any time (Abrahim & Mir, 2017). Learners must always have access to language content information, which is possible with the use of e-learning tools. By using e-learning tools, learners develop skills to find information from tools such as online dictionaries and encyclopaedias, or the Internet (Rosell-Aguilar, 2018). E-learning tools allow learners to create a virtual classroom where they can select/join a group of other learners, comment, ask questions, or answer questions/quizzes, to

practice the language by speaking, writing, and reading (Bhatia, 2011). When learners use e-learning tools, it helps them access the learning materials and contact teachers and fellow learners. E-learning tools also promote connectivity or networking, create a flexible and personalised virtual learning environment, allow learners to self-assess and support interactive and collaborative learning through the processes of m-learning, e-learning, digital learning (d-learning) (Basak *et al.,* 2018), and ubiquitous learning (u-learning) (Tetard & Patokorpi, 2008).

E-learning tools enhance teaching and learning by providing learners with instant feedback on their activities, offering learner support, access to tutorials, and multiple opportunities to retry (Heil *et al.,* 2016). E-learning tools are valuable in decreasing the digital divide by easing access (learners can use their own devices or the school's devices), retaining learners, and providing lifelong learning (Tetard & Patokorpi, 2008). Learners retain knowledge for a long time when they have fun while learning (Srivastava, 2018). As a result, repetition of learning results in better retention of knowledge (Srivastava, 2018). Conversely, it excludes learners without devices, mostly in rural areas (Dube, 2020).

Using e-learning tools as part of the learning opportunity encourages learners' motivation in learning, especially language vocabulary; it creates self-learning habits and a ubiquitous learning atmosphere that helps learners think more and build confidence in language learning (Wang, 2017). Using e-learning tools in language learning collaboration is significantly enhanced through peer-to-peer support for e-learning (Park, 2011).

Regardless of all the benefits of using e-learning tools for learning, Rosell-Aguilar, (2018) has found that most e-learning tools focus more on the cognitive process and the receptive skills of languages and do not have opportunities in activities that encourage collaboration or socio-cognitive processes. Besides, most of the research on e-learning tools for languages focuses on the user-experience design when they translate from one language to another or when they connect with other users (Graham, 2019; World Bank, 2020). Rosell-Aguilar (2018) indicated that the learning activities of e-learning tools used for language are underdeveloped and replicate what has been done before with other technologies. Burston (2014) criticised language learning through e-learning tools, indicating that language learning activities on mobile e-learning tools evaluates the learner without providing the instruction first, or if they did provide instructions, it only offers a few brief examples. Moreover, feedback on the test tends to be a checkmark or a cross indicating the correct and incorrect answer without narrative feedback of what was wrong and how to correct it.

Reading, listening, speaking, and writing are the primary four skills of communication competence (DoE, 2011). When learning a language, listening is a needed skill in everyday interaction and has not been given enough attention. Therefore, without an exact understanding of the spoken message, communication will not be successful. Technologies such as e-learning tools and Internet resources can incorporate various learning skills (Hasan & Hoon, 2012). For example, Chhabra (2012) mentioned, that teachers use YouTube videos to improve learners' listening, reading, writing, and speaking skills. Wang (2017) pointed out that when learners study using mobile devices, they develop problem-solving skills on their own, enhancing comprehension ability, building confidence (Ching *et al.,* 2018), and increasing their ability in application-independent learning while engaging with e-learning tools. Similarly, the participants in this research used mobile technology and e-learning tools to enhance the teaching and learning of the IsiNdebele language.

CONTEXT OF THE RESEARCH

Irrespective of the challenges mentioned earlier, smaller-scale projects, studies, or research are conducted to see how you can use e-learning tools to enhance teaching and learning of IsiNdebele

in a rural context. This research study is one of them. The Department of Basic Education (DBE) has provided most secondary school learners with tablets, especially in rural areas where many of the IsiNdebele-speaking learners reside. Due to the limited number of tablets provided, the tablets remain at school and are rotated among students during teaching and learning practices. The tablets have brought about a new attitude to learning and have vastly improved learners' engagement and involvement in the lesson, especially at schools in the Gauteng province, whether it is a disadvantaged or private school (John, 2012).

In this study, the school has electricity, Wi-Fi, and tablets for the learners to use. However, the tablets are reserved for use in the Science classes. Therefore, users struggle to book the devices due to poor resource organisation (Mashile, 2016). For this study, it was important to use the school's devices to ensure that all the learners have access to the same technology (Harmon *et al.,* 2007).

To improve knowledge on e-learning tools of the IsiNdebele language in the rural context the following research question was asked: "*To what extent do e-learning tools enhance or transform the teaching and learning of the IsiNdebele language in rural secondary schools*?" To address this question, the SAMR model was used as a frame of reference.

SAMR AS THE ANALYTICAL FRAMEWORK

The SAMR analytical framework is often used to encourage teachers to use technology in different stages to improve the quality of teaching and, subsequently, the quality of the student's learning. "SAMR" is an acronym used for Substitution, Augmentation, Modification, and Redefinition (Puentedura, 2006), four different levels of technology integration in a classroom as seen in Figure 1 below. The SAMR model has been used as a framework by teachers to evaluate the integration of e-learning tools in their instruction. Furthermore, several researchers have focused on the use of technology tools such as Virtual world avatars, Instagram (Al-Ali, 2014), Facebook, MS PowerPoint, and Twitter (Jude *et al.,* 2014) with the SAMR model in language learning. As a result, the use of technology tools in language learning has a more positive impact at both the modification and redefinition levels, particularly on curricula and language content and the evolving roles and competencies of teachers. The SAMR Model has been very helpful for language teachers looking at how to integrate technology into their classrooms (Kukulska-Hulme *et al.,* 2017).

The illustration in Figure 1 shows that the SAMR model classifies technology use for learning activities as follows: substitution and augmentation classification have learning activities developed to enhance learning, while the modification and redefinition classifications have learning activities meant to transform learning (Puentedura, 2006). Therefore, e-learning tool developers should be focused on designing technology tools that conform to the needs of the learners, enabling redesigned and developed learning activities, and opening new learning opportunities that were not previously available. Instead of replacing the instructor with technology, authentic technology-based instruction focuses on enhancing and transforming the learning process (Howlett *et al.,* 2019).

As indicated in Figure 1, for this study, the researchers attempted one activity on each level of SAMR to demonstrate the possibility of using these e-learning tools in the classroom. The result of this technology integration attempt is discussed later in the article.

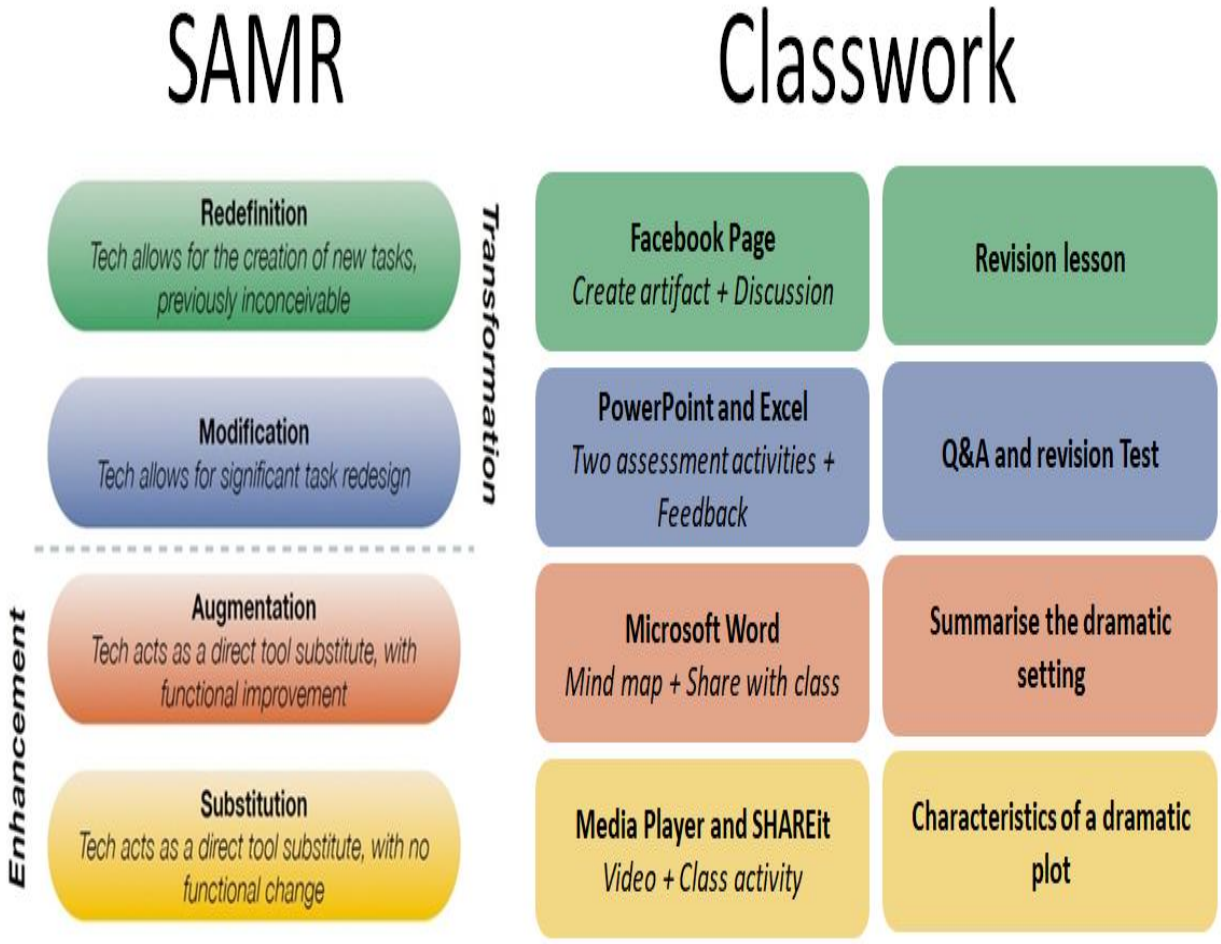


Figure 1*:* SAMR Model (Puentedura, 2006)

METHODOLOGY

This qualitative case study (Maree, 2015; Yin, 2009) was conducted in a rural secondary school classroom in the Sekhukhune District of Limpopo Province, South Africa. Participants were conveniently and purposefully selected to participate in the study. The sample consisted of one teacher who was also the main researcher (R1), a class group of 20 Grade 11 learners (P1-P20), and observers including the curriculum adviser (CA) (O1), language head of the department (HOD) (O2), peer language teacher (O3) and peer language teacher (Student teacher) (O4). The observers were selected based on their expertise and knowledge in teaching in rural areas, teaching the IsiNdebele home language, and use of technology for teaching and learning. The observers were asked to observe one lesson each and reflect on teaching and learning using e-learning tools. The grade 11 learners were asked to participate in the learning activities and provide feedback on each one of the lessons. Participants were assigned pseudonyms to protect their identity and ensure anonymity and confidentiality. It was an authentic learning environment where

findings emerged through the processes of document analysis protocol: learners' written questionnaire, observers' interview protocol, and a teacher's reflective journal. The researchers were completely involved in the teaching and learning activities with the participants, facilitating, observing, and reflecting on the learning processes.

Content analysis was used to analyse the data through the qualitative data analysis software *Atlas.Ti*. The researchers used *Atlas.Ti* to critically evaluate the extent to which e-learning tools enhance or transform the teaching and learning of the IsiNdebele language in rural secondary schools. The analysis of content through *Atlas.Ti* involved coding open-ended questions; categorising, comparing, and analysing trends, themes, and patterns from the raw data, based on all the above-mentioned data collection instruments.

APPLICATION OF THE SAMR MODEL

True to the nature of the SAMR model, four lessons were presented by the main researcher, an IsiNdebele teacher. Each lesson was prepared on a different level of the SAMR model, each using one of the selected e-learning tools shown in Figure 1. This variation in tools used resulted in different challenges encountered in each level of the SAMR. Therefore, the study aimed at finding the extent to which e-learning tools enhance or transform the teaching and learning of the IsiNdebele language at each level of the SAMR model. To promote the use of e-learning tools in rural areas, the researchers also aimed to find e-learning tools that can be successfully integrated into a rural context to enhance IsiNdebele language teaching and learning.

FINDINGS

In this section the findings are presented under each level of the SAMR Model, and we focus on the extent to which e-learning tools enhance and transform teaching and learning of the IsiNdebele language in rural secondary schools. The lessons learned and possible solutions suggested by the participants to enhance teaching and learning of the IsiNdebele language are included.

Participants

The participant learners belonged to the Grade 11 IsiNdebele home language class consisting of 20 and have been taught throughout the curriculum together. There were ten females and ten males between the ages of 15 and 17, all of whom speak IsiNdebele as their native language, which means they have been learning it from a very young age. These learners also indicated that most of them (n=17) have access to smartphones at home and mostly use it to download educational apps (n=15), indicating some level of experience in using smartphones for learning. Teacher participants (observers) included two males and two females, each with a teaching qualification, except for a curriculum adviser (CA) with a qualification in African languages. Aside from the assistant teacher, these individuals have an average of more than 20 years of classroom experience. All the observers have access to a smartphone, laptop, or tablet, and all integrate e-learning tools in their teaching and learning practice. As a result of these observations, the observers are qualified to teach or integrate e-learning tools.

Media Player and SHAREit for Substitution

For the learning outcome "Identify the characteristics of a dramatic plot and communicate what you have learned in the proper language" the existing lecture was replaced with a video. Although initially planned as an activity where learners download the video from YouTube, due to connectivity issues, the lecturer downloaded the video and shared with the SHAREit mobile application,

followed by the learners watching the video using Media Player. Although some learners were distracted by all the buttons and possibilities of using a tablet, using technological devices motivated them to behave, study hard, and engage fully in the learning experiences, because they wanted to continue using the tablets. As P20 said:

> "*If we could use tablets every day, in all of our subjects it would be much interesting to learning*."

Working with technology devices improved learners' digital literacy and communication skills swiftly. Moreover, they tend to process the information faster when watching a video because they see and hear the concept being taught. E-learning tools such as Media Player helped with increasing knowledge retention since learners could pause, rewind, fast-forward, and replay the video as many times as they wanted. O1 noticed that,

> *"most learners had enjoyed watching and listening to the video, which boosted their listening skills."*

O1 also added that,

> *"…the lessons were well planned in a way that let learners apply the knowledge and skills learned, rather than producing notes as they are (memorising). Moreover, the integrated educational media (video in Media player) improved understanding, just that it needed as many activities as possible to challenge learners and keep them occupied until the end of the lesson." (O1)*

E-learning tools make it possible for each learner to be provided with a more suited path for their needs, even within formal teaching. Even on a substitution level, the use of e-learning tools enhanced the experience of the learners. By being able to rewind or fast forward, the video provides learners with some autonomy in their learning process. If learning objectives are clear, this will result in great efficiencies, and many of them will have a positive impact on learners' motivation, as they will be less likely to become bored or confused (Dron & Anderson, 2016). Figure 2 below illustrates some of the questions that needed to be answered after watching the video.

Iphepha lemibuzo (Assessment sheet)

Umfundisi (Teacher) _____ Ibanga (Grade)_____

Observer_____ Ilanga (Date)_____

Ngemva kokubukela, umfundi ulundindeleke bona aphendule imibuzo elandelako:

1. Tlola amaphuzu **amabili** abalulekileko ekufanele siwaqale nofana siwatjheje ngaphasi kwesingeniso, lokha nasifunda nofana sibukele umdlalo? (2)

   _____

   _____

2. Khuyini umlingisi oyikutana otholaka emdlalweni? (1)

   _____

   _____

Figure 2: Some of the questions that needed to be answered after watching the video

Results show that the shared video watched on Media Player helped the learners to recall, retain and absorb the concepts and ideas more conveniently than in the traditional teaching method. They were able to pass the test given after they identified the characteristics of the dramatic plot, with an average score of 7.6 out of the total of 10 marks. In his study, Willingham (2009) also found that learners could retain ideas and concepts better when using visual media instead of just text media or just voice.

Microsoft Word for Augmentation

As part of the lesson to describe the characteristics of a drama setting, learners had to co-create learning material using a mind map application to summarise all the aspects and relationships between the elements, topics, and subtopics of a drama. Although initially planned with *GoConqr*, but due to connectivity issues, the paper-based mind map was replaced with an electronic mind map created on MS Word. First the teacher created a mind map together with learners (see Figure 3 below) to facilitate collaboration and explain the rules of the presentation, the marks allocated to the activity, divided them into groups of 4, emphasized the roles of each team member and the value of each team member being able to explain how to create the final product. Lastly all group members needed to be present when submitting the task. Thereafter, the learners were instructed to collaborate and make their mind maps of the different topics given to them.

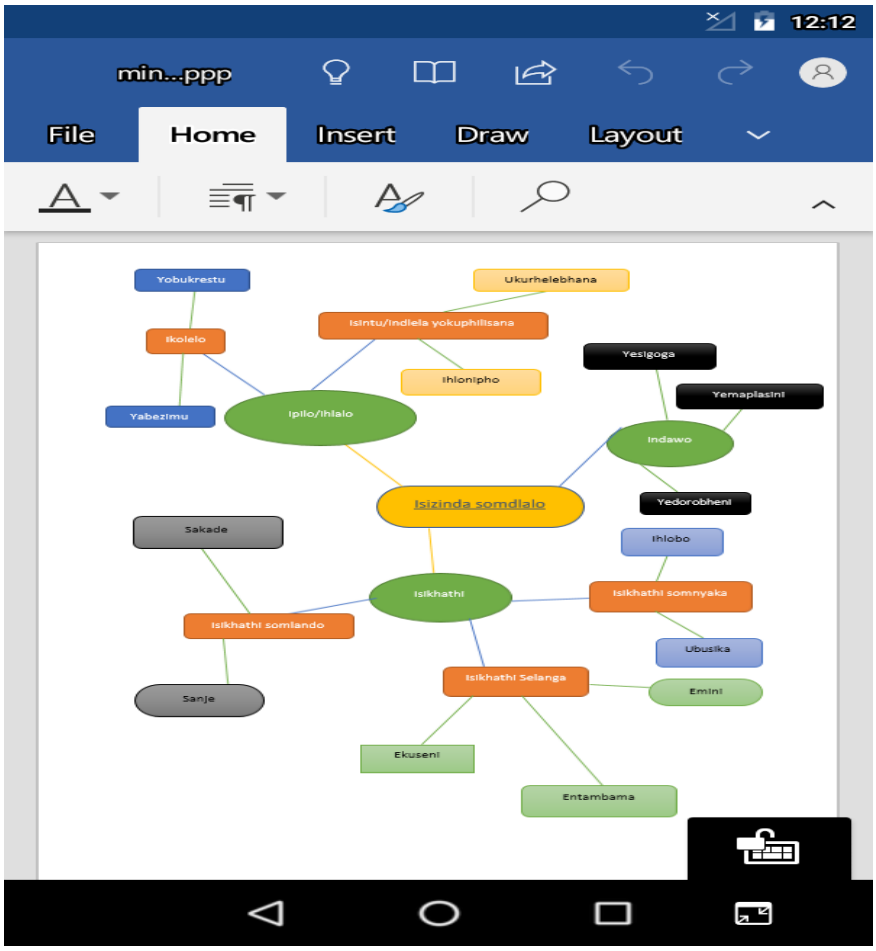


Figure 3: Mind map example using MS Word

Explaining the rules first, motivated the learners to work together and value the chance to learn from each other. R1 observed that:

> "*… there was no longer an exclusive dependence upon the teacher to provide knowledge; instead, learners needed to be assisted to discover knowledge on their own, for instance, by using prior knowledge to build on new knowledge and learning from each other's experiences."*

The task was further enhanced as MS Word provided learners with the easiest and most meaningful way to summarise information, analyze concepts, and create learning materials. P6 stated that:

> *"… using MS Word to create mind maps is more interesting than using a pen and paper since you can add pictures, articles, graphs, links, and tables related to the topic with MS Word… However, it was challenging at first, but group work helped in exchanging knowledge and also skills on how to use the tool". (P6)*

Furthermore, R1 noted that*:*

> *"… learners were able to organize their knowledge with all the different colours, fonts, and font sizes, which would have taken more time and stationery when using crayons, pens, and paper."*

By adding colour to mind maps, knowledge becomes more memorable (Dewantara, 2019). Therefore the use of the e-learning tool to create a learning tool that learners have access to, and they can save, share, and access again, enhanced their learning. Due to limited time, learners were unable to share their mind maps, and some did not participate. In this case, rural learners had demonstrated limited technology skills, causing them to spend more time navigating the e-learning tool, which took a long time to master while others gave up.

Learners need more activities of this kind to acquire technology and collaboration skills to be able to work effectively as individuals and with others as members of a team. In addition, an individual needs to manage time effectively, be resilient, possess leadership skills, and avoid making mistakes when presenting.

Microsoft PowerPoint and Microsoft Excel for Modification

In this lesson, the usual revision test or question and answer session was replaced with an MS PowerPoint presentation with the lesson and a quiz (to practice) as well as a self-mark test created on MS Excel. In lesson 3 a MS PowerPoint presentation (se Figure 4 below) was created to explain the content. Questions are posed and hyperlinks are used to give students immediate feedback whether the answer is correct or incorrect.

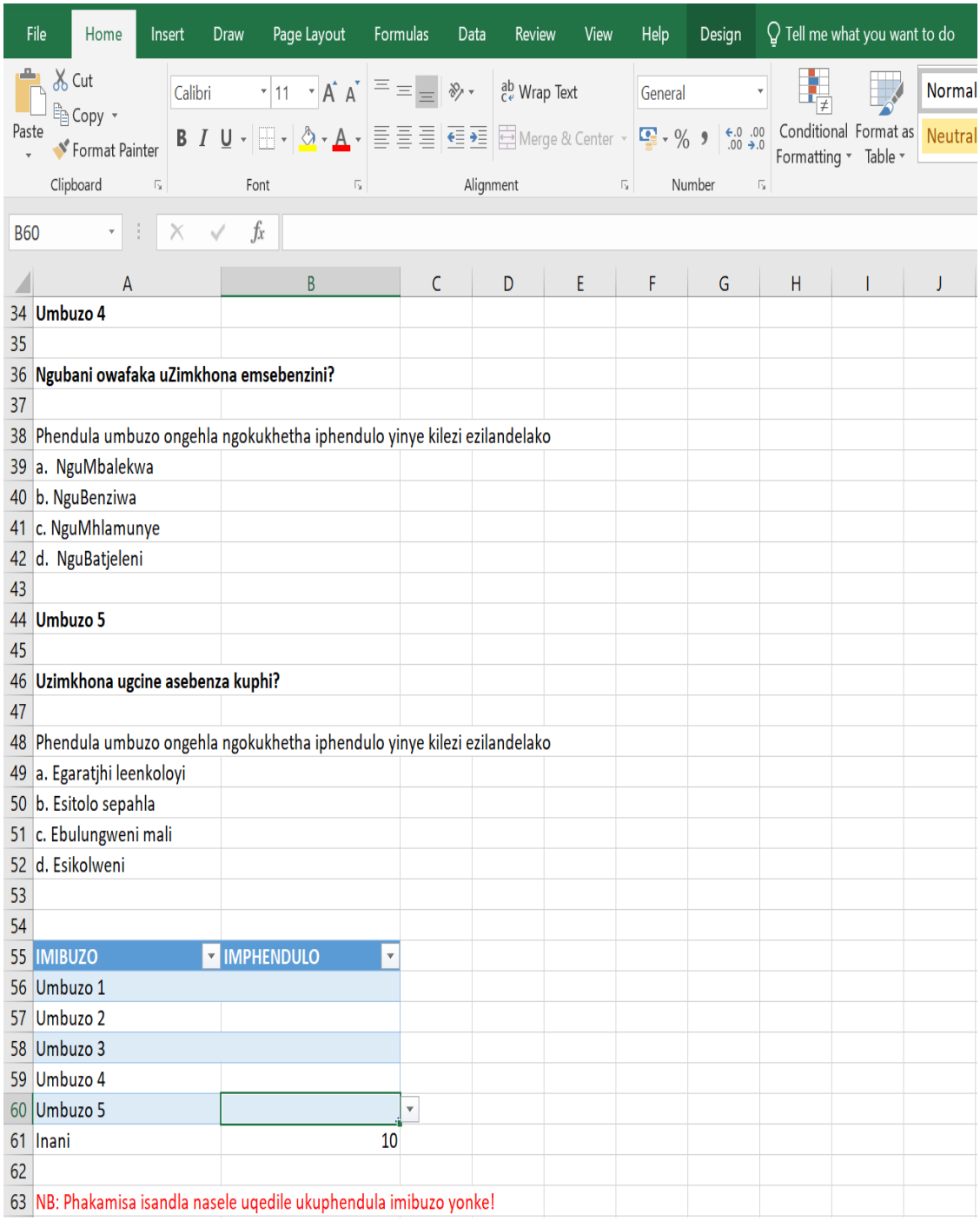
The practice questions were followed up with a quiz designed in MS Excel (see Figure 5 below) where the drop-down arrows (answer options) and the IF statement were used to mark the questions and immediately provide feedback on whether the answer was right or wrong. The sum function was used to work out the total, and the teacher noted the mark of each learner. Although MS Excel was not created for self-marking tests, it could be used offline to design a test while no data or Wi-Fi was needed. R1 suggested:

> "… *teachers in rural areas must have an alternative e-learning tool or alternative method of delivering lessons for each planned lesson to be flexible to adapt their pedagogy to the curriculum, alternative tools, and rural learners."*

Among the study's major suggestions is that teaching strategies for rural schools must be carefully planned to avoid limitations due to rural challenges such as unreliable Wi-Fi and Internet, and limited resources. The issue of poor organisation of resources was also confirmed by P4, who wrote,

> "… *the screen of the data projector was not visible from my side or angle."*

Figure 4: MS PowerPoint presentation created by teacher



	A	B
34	**Umbuzo 4**	
35		
36	**Ngubani owafaka uZimkhona emsebenzini?**	
37		
38	Phendula umbuzo ongehla ngokukhetha iphendulo yinye kilezi ezilandelako	
39	a. NguMbalekwa	
40	b. NguBenziwa	
41	c. NguMhlamunye	
42	d. NguBatjeleni	
43		
44	**Umbuzo 5**	
45		
46	**Uzimkhona ugcine asebenza kuphi?**	
47		
48	Phendula umbuzo ongehla ngokukhetha iphendulo yinye kilezi ezilandelako	
49	a. Egaratjhi leenkoloyi	
50	b. Esitolo sepahla	
51	c. Ebulungweni mali	
52	d. Esikolweni	
53		
54		
55	IMIBUZO	IMPHENDULO
56	Umbuzo 1	
57	Umbuzo 2	
58	Umbuzo 3	
59	Umbuzo 4	
60	Umbuzo 5	
61	Inani	10
62		
63	NB: Phakamisa isandla nasele uqedile ukuphendula imibuzo yonke!	

Figure 5: Self-marking test created in MS Excel

Teachers must be aware of all the tool settings to avoid learners accidentally closing/minimising the assessment, P13 wrote:

> "… *test 1 was exciting for immediate response when you answer incorrectly, though I had a challenge with test 2, I would be sidetracked by the icons in the ribbon and end up clicking on them. I ended up losing the test and raising my hand for help.*"

In addition, the tools can be maximised to fit the screen in such a way that nothing appears on the screen except for the buttons that would be needed to complete the task. For example, MS PowerPoint can be viewed with a slide show button to fit the whole screen. P5 added that:

> *"I think test 2 (MS Excel), was supposed to be designed like test 1 (MS Powerpoint) and have nothing on the screen except for the test*".

Learners enjoy competing, so knowing that they will all get their results simultaneously after the test was motivating. R1 observed that:

> "… *computer-based assessment provides rural learners with self-marked assessments and immediate feedback, which can be administered multiple times and contain the same questions, allowing them to practice the language, correct their mistakes, and retake the tests until they know the content."*

Computer-based assessments improved the quality of feedback to learners, as P1 mentioned that:

> "… *test 1 in MS Powerpoint gave us a clue/notes immediately, if we chose an incorrect answer, and test 2 in MS Excel gave us the feedback immediately after writing, while we still remember how we approached each question to correct our mistakes".*

Pezzino (2018) found similar results, namely, that computer-based assessment in MS PowerPoint and MS Excel facilitated higher-order thinking skills, presented an authentic experience, encouraged engagement, and provided immediate feedback. Further, teachers could see the results of learners' usage, and the test questions could be exported and shared on social media. The spreadsheet can be uploaded to different social media platforms for learners to practice at home or for other learners to take the same test. Learners can also create their tests or activities to assess each other in class or at home.

Facebook Page for Redefinition

As an alternative to the traditional revision lesson, learners were asked to create a revision exercise using a combination of e-learning tools such as MS Office, camera, and any app, and upload it on Facebook (see Figure 6 below). The selected e-learning tools were integrated to change the normal classroom dynamics to a more positive classroom atmosphere. Learners' interaction with each other and between learners and teachers changed to a comfortable learning community of practice. Learners' participation improved dramatically (Balcikanli, 2015), as they could share school materials using SHAREit and Facebook Messenger. O4 stated:

> "*Facebook page was the best-selected e-learning tool because learners are familiar with and can express themselves freely in the Facebook platform."*

Facebook is also popular among the learners as P8 added:

> *"It is low cost, as we can access it for free called "Free mode" for text messages and posts."*

P13 further mentioned:

> *"It was quite enthusiastic to see our everyday tools being used for learning in an IsiNdebele lesson. That motivated us to participate, to see what more the teacher can do with these software tools."*

Furthermore, *a* Facebook page has privacy policy settings as well that a teacher must set to protect the learners' data, plus the teacher can see reports of the learners' usage (Moghavvemi *et al.,* 2018).

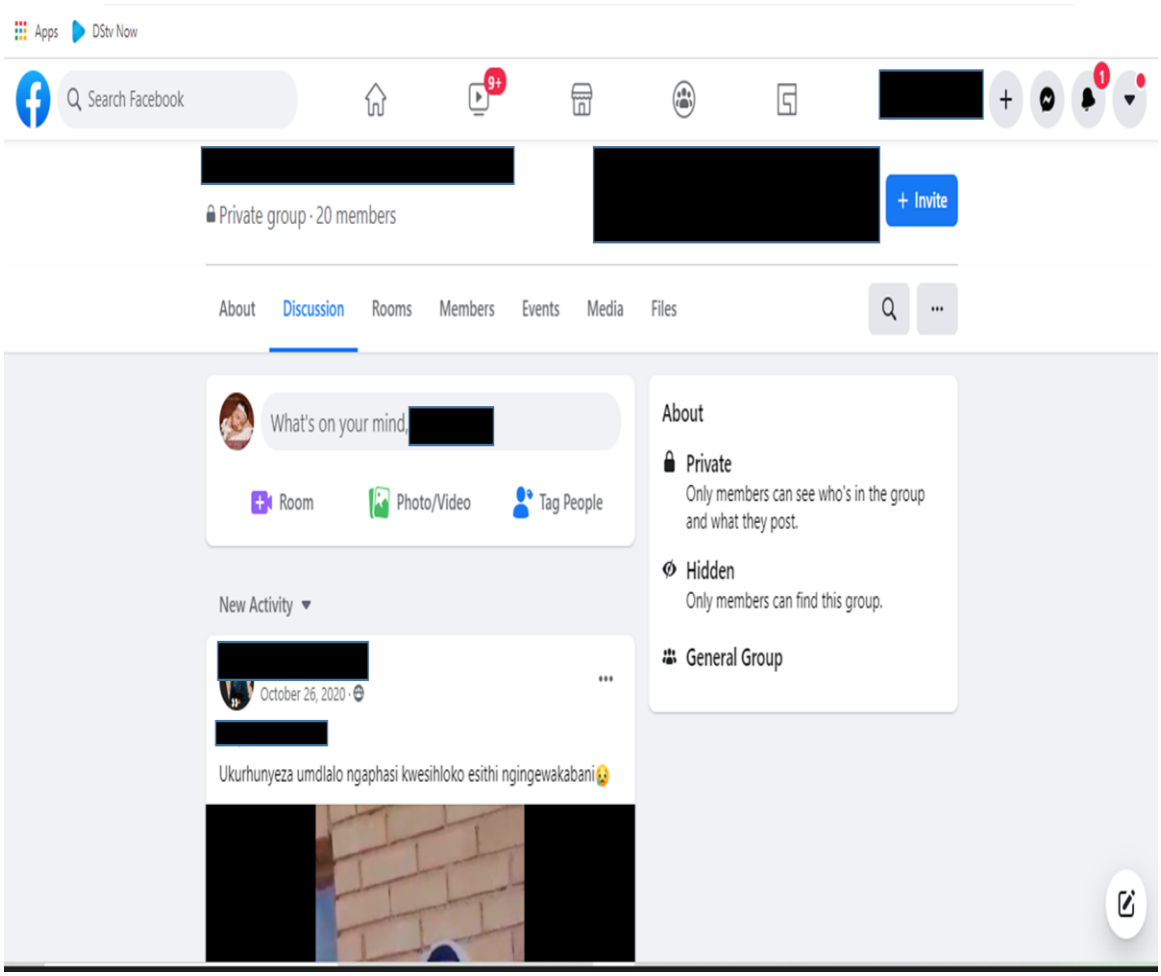


Figure 6: Screenshot of Facebook page

The learners created videos, canvas (posters), computer-based assessments, and game materials that made the learning process more fun. Moreover, R1 noted that:

> "… *learning processes improved as e-learning tools made it easier and more meaningful for learners to summarise information, analyse concepts, and create learning materials. Learners created learning materials where knowledge was easily organised with all the different colours, fonts, and font sizes, which would have required a lot of time and stationery when using crayons, pens, and paper".*

The e-learning tools allowed learners to learn the same material repeatedly until it was retained, which helped learners with difficulties in learning new ideas. By having fun during learning, learners retain the knowledge for a long time. Hence, by repetition of learning, knowledge is retained better (Srivastava, 2018).

The use of social media platforms such as Facebook pages is one of the excellent communication tools that teachers use to communicate with learners, and learners use to communicate among themselves. R1 observed that:

> "… *even shy learners were actively participating on the Facebook page by uploading documents, pictures, videos, audios, commenting, and reacting to the posts".*

Teaching and learning processes are enhanced when teachers and learners can use the tool to distribute learning materials such as soft copies, links, and other multimedia (McQuiggan *et al.,* 2015). Consequently, the teaching and learning of the IsiNdebele language are transformed when the IsiNdebele learning materials are shared on social media, and learners can download them and share them with other learners and teachers from different schools. During the study, R1 discovered that*:*

> *"Facebook can also be used as an online storage service, which allows learners to access their educational resources anywhere, anytime, on any device, provided they have access to the Internet."*

These e-learning tools allowed learners to continue with class discussions anywhere and anytime, using any smart device (McQuiggan *et al.,* 2015). P9 indicated that:

> *"… my parents bought me data to receive texts and be ready to participate in the Facebook discussions by commenting on the posts added by my classmates".*

This shows that online discussions enhance communication since learners are not under more pressure than they are when discussing face-to-face. The e-learning tools allowed teaching and learning processes to continue beyond the classroom, as O4 said:

> *"The selected e-learning tools were best chosen as they can be accessed from any other technology devices for learners to continue with what was done in class."*

A possible solution to ensuring that learners are viewing the same screen as a teacher is to disable all the applications and websites on the devices that would not be used on that particular lesson. O3 proposed:

> "*Have a free monitoring app to restrain learners from downloading inappropriate multimedia such as videos, audios, and pictures during class. It can also restrict them from browsing websites that are not part of the lesson."*

According to R1:

> "… *disabling all the applications and websites that are not going to be used during the lesson helped learners concentrate on and know the applications they will need to complete the task*".

Consequently, this strategy improved classroom management by encouraging learners to learn rather than controlling them and created a climate of trust between a teacher and learner.

DISCUSSION

The literature and findings indicate that most e-learning tools are not designed to achieve educational purposes but can be modified to be used in education (Gon & Rawekar, 2017). This was specifically true for this rural school, where the media player, SHAREit, MS Office and Facebook were used in the teaching of indigenous language in rural areas and utilised the selected e-learning tools to enhance their instructional practices.

The use of educational videos (Media player, SHAREit, YouTube) in the classroom increases social interaction among learners and the teacher by allowing them to discuss the videos and how they relate to them. This approach encourages a positive attitude in learners towards learner-centred activities, where learners can learn from each other during group work, class discussions, and presentations. For that reason, learning is no longer solely dependent on the teacher to provide knowledge to learners, but to facilitate learning (Valenzeno, Alibali, & Klatzky, 2003).

With videos, learners can access it anytime, anywhere, and on any kind of mobile device. In this way, learning is enhanced since learners can study the educational video at their own pace repeatedly and be more deeply involved with the detailed options such as rewind, pause, and stop, to practice the IsiNdebele language. In addition, learners enjoy the experience of innovative learning that facilitates engagement by giving them more control over the pace of their learning (Beheshti *et al.,* 2018).

The teaching and learning processes became enhanced as e-learning tools provided the easiest and most meaningful way for learners to summarise information (GoConqr, MS Word), analyse concepts, and create learning materials. Learners showed more interest in using MS Word than a pen and paper to create mind maps that can insert pictures, sources of articles, graphs, links/URLs, and tables relevant to the topic. A learner can easily organise their knowledge with all the different colours, fonts, and font sizes, which would require a lot of time and stationery when using crayons, pens, and paper. By adding colour to mind maps, knowledge becomes more memorable (Dewantara, 2019).

The computer-based assessments designed using MS PowerPoint and MS Excel, provided rural learners with self-marked assessments that could be administered multiple times, containing similar questions to practice the language and reinforce classroom-based learning. The tests motivated constructivist teaching by providing immediate feedback to rectify learners' mistakes and allow them to retake the test until the knowledge is mastered. According to constructivist learning theory, learners are taught by exploring new situations and making mistakes and reacting to what they see and experience (Pezzino, 2018). Feedback can also be built into these assessments. We observed that learners showed a preference for computer-based assessments over paper tests because they can have tests in the form of games using simulations, and combining a learning environment and recreation activities, as well as providing feedback. These assessments increased learners' motivation and improved their learning performance.

Furthermore, Facebook discussions have significantly improved communication in the IsiNdebele class; learners have participated more willingly and less under pressure than they usually do in face-to-face discussions. Shy learners prefer Facebook to exchange information and communicate freely by uploading documents, pictures, videos, audio, games, comments, and reactions related to the posts. In this way, teaching and learning can continue beyond the classroom by sharing educational resources, continuing with class discussions, and having peer feedback at any time.

According to Loan (2019), using Facebook for writing development increased performance, made feedback less burdensome and tedious, and increased enjoyment of feedback sessions.

Moreover, Facebook is an effective educational tool in the rural context, as it augmented teacher-learner and learner-learner interaction, resource sharing, collaboration, and increased their ability to use online technologies. Although Facebook uses the Internet, it was mostly recommended for the rural school context since learners are familiar with it; it is low cost, or they can access it for free (Free Mode) and express themselves freely. As an online storage service, Facebook allows learners to access their educational resources anywhere, anytime, on any device, provided they have access to the Internet. This flexibility is useful since learners usually lose the printed notes provided by teachers. Therefore, having them stored on an online platform allows learners always to have them available whenever necessary. The last benefit of Facebook observed in this study was that it encourages group learning and creativity, stimulates reflection, organises ideas, and shares practical experiences (Chugh & Ruhi, 2018).

CONCLUSION

Although not created for language teaching, the integration of the selected e-learning tools such as Media player, SHAREit, YouTube, MS Office, GoConqr and Facebook enhanced the teaching and learning of the IsiNdebele language. Using e-learning tools to learn the IsiNdebele language, learners' engagement, stimulation, and interaction increased beyond the classroom. The use of e-learning tools improved learners' classroom participation by showing the possibilities of learners being able to discover knowledge independently, summarise it, and share it with peers.

The e-learning tools are beneficial in improving the teaching and learning of the IsiNdebele language in rural secondary schools. The integration of the selected e-learning tools transformed the teaching and learning of the IsiNdebele language. Although the study set out to enhance learning at the substitution and augmentation level of the SAMR model, it showed that teaching and learning could also be transformed with these e-learning tools in the rural context. The integration of e-learning tools in the IsiNdebele language ensured skills development and provided learners with real-world learning opportunities to participate in the 21st century.

LIMITATIONS

Although this study provided valuable insights on E-learning tools to enhance teaching and learning of IsiNdebele in a rural context, it was also limited in the sense that only one school, one group of learners and one teacher was involved. Trying to implement e-learning tools in these language classes was hindered because stable Internet connection and limited bandwidth forced the researcher to only use tools that can function both online and offline, excluding the possibilities of online tools. Despite these limitations, teachers in similar teaching environments should be able to use the e-learning tools mentioned in this study. To see the full picture of using e-learning tools to enhance teaching and learning in a rural school it is advised that more tools are experimented with.

RECOMMENDATIONS

The study contributes to education research in South Africa's rural context. For this reason, there is a need to conduct similar studies in different rural settings, using different official African languages, to find more e-learning tools that can be used in rural contexts to enhance and transform the teaching and learning of African languages. Also, it might be valuable to explore teachers' teaching experiences using computer-based assessments while evaluating learning outcomes, using the "immediate feedback assessments tools", and the benefits of educational games. Using “immediate feedback assessment tools” and educational games to teach learners how to practice

the language amongst themselves, may also contribute to the developing research of enhancing and transforming the teaching and learning of the IsiNdebele language.

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