INVESTIGATING TECHNOLOGY INTEGRATION READINESS OF ENGLISH FIRST ADDITIONAL LANGUAGE EDUCATORS: A CASE OF SOUTH AFRICAN RURAL PUBLIC SCHOOLS

DOCTOR OF PHILOSOPHY

MS LEDIGA

2023

INVESTIGATING TECHNOLOGY INTEGRATION READINESS OF ENGLISH FIRST ADDITIONAL LANGUAGE EDUCATORS: A CASE OF SOUTH AFRICAN RURAL PUBLIC SCHOOLS

by

MAMAROBA SYLVIA LEDIGA

Submitted in fulfillment of the requirements for the degree

DOCTOR OF PHILOSOPHY

in

ENGLISH STUDIES

in the

FACULTY OF HUMANITIES

(School of Languages and Communication Studies)

at the

UNIVERSITY OF LIMPOPO

SUPERVISOR: PROF. L.J. NGOEPE

2023

DECLARATION

I declare that the thesis hereby submitted at the University of Limpopo, for the degree of Doctor of Philosophy in English Studies has not previously been submitted by me for a degree at this or any other university; that it is my work in design and in execution, and that all material contained herein has been duly acknowledged.

Lediga MS (Ms) 13/04/2023

DEDICATION

In memory of my father, Daniel Kau Lediga and my nephew, Karabo Kau Lediga.

Dedicated to my son, Koketso Shaun Lediga.

ACKNOWLEDGEMENTS

I sincerely express my gratitude and appreciation to the following persons:

- My supervisor, Prof L.J. Ngoepe for her support, encouragement and guidance throughout this study. Her patience and academic advice made the completion of this study possible.
- District Directors and Circuit Managers from Tshwane West in Gauteng, Fezile Dabi in Free State, Mamabolo Circuit in Limpopo, Nkangala District in Mpumalanga and Moretele District in North West for giving me an opportunity to collect data.
- Language HoDs and EFAL educators from the 10 schools that participated in the study.
- Prof S.J. Kubayi for editing the thesis.
- My mother, siblings and son for their prayers and loyal support.
- Mr. Kenneth Maliga, thank you for driving me to different provinces to collect data for my research.
- ULWASA, the writing retreats and support from the ladies gave me an opportunity to focus and make tremendous progress.
- Everyone who contributed to my academic and personal growth in the fulfilment of this dissertation.

ABSTRACT

Technology use is gaining momentum the world over, including South Africa. Therefore, technology use presupposes technology integration, and educators appear better positioned to ensure its integration. As a result, the integration of technology by English First Additional Language (EFAL) educators is of significant importance to learners' academic development. The purpose of this research study was to investigate South African rural public schools EFAL educators' readiness to integrate technology into EFAL content. The study was underpinned by a combination of two theoretical frameworks, the Technology Readiness Index (TRI) and the Technological Pedagogical Content Knowledge (TPACK). The study followed a quali-quantitative approach and an exploratory research design. The triangulation data collection method employed questionnaires, interviews and equipment checklists. Findings indicated that EFAL educators in rural public schools are not ready to embrace the Fourth Industrial Revolution (4IR) and lack relevant and adequate infrastructure to integrate technology. Findings further revealed that EFAL educators need proper training in technology skills and technical support in order to be ready to integrate technology into EFAL. Pertinent intervention strategies should include the collaboration of all stakeholders to improve the Information Communication Technology (ICT) context in rural public schools. Additionally, the Department of Basic Education (DBE) has to bridge the gap between rural and urban schools in SA by providing adequate technology support to rural public EFAL educators.

Key words: Technology integration, EFAL, rural public schools, technology readiness

ACRONYMS AND ABBREVIATIONS

AUC- Actual Usage of Computer

CK- Content Knowledge

DBE- Department of Basic Education

DL- Digital Library

DoE- Department of Education

EFAL- English First Additional Language

GP- Gauteng Province

ICT- Information and Communication Technology

ICT2- Interactive Communication Technology

IR- Industrial Revolution

IR1 – First Industrial Revolution

IR2 – Second Industrial Revolution

IR3- Third Industrial Revolution

4IR- Fourth Industrial Revolution

5IR- Fifth Industrial Revolution

ISTE- International Society for Technology in Education

NDP- National Development Plan

NETS- National Educational Technology Standards

PCK- Pedagogical Content Knowledge

PK- Pedagogical Knowledge

P21- Partnership for 21st century Learning

SA- South Africa

SONA- State of the Nation Address

TAC- Technology Acceptance Constructs

TCK- Technological Content Knowledge

TESOL – Teaching English to Speakers of Other Languages

TIC-Third International Conference

TK- Technological Knowledge

TPACK- Technological Pedagogical and Content Knowledge

TPK- Technological Pedagogical Knowledge

TRI- Technology Readiness Index

VLE- Virtual Learning Environment

WEF- World Economic Forum

WWW- World Wide Web

LIST OF FIGURES

LIST OF TABLES

TABLE OF CONTENTS

CHAPTER 1

INTRODUCTION

1.1 BACKGROUND AND MOTIVATION

In the twenty-first century, educators have been under a lot of pressure to enhance their classroom instruction. The range of technology resources that can be used in classrooms now is more than it was three or four decades ago. For example, cellular technology, television and projectors are among some of the equipment used in today's digital English First Additional Language (EFAL) classrooms. Any use of scientific knowledge for practical reasons is referred to as technology (Warner, Bell & Odom, 2018: 2). These technologies have revolutionised learning in schools.

The majority of urban schools in South Africa (SA), if not all of them, are currently completely ICT-equipped. Unfortunately, the challenges of integrating technology into rural schools highlight these changes. Rural and urban schools in SA now have a 'digital divide' as a result of this (Mdlongwa 2012). Anyone familiar with the secondary school leaving results in SA will concur that urban schools consistently outperform rural ones in terms of academic achievement. Given the digital divide between rural and urban schools in SA, it is logical to infer that technology integration may be responsible for urban schools' comparatively higher achievement levels. Thus, research on the difficulties of integrating technology into rural schools is underway.

In addition to the government's efforts to incorporate technology into education, it is noteworthy that the business sector, parastatals, and non-governmental organizations (NGOs) are also making significant contributions. One or more of the projects is the South African Schoolnet, which was founded when grassroots provincial networks were established to connect communities to the Internet. Schools can participate by acquiring a kit that includes a decoder from Mind-set Learn, a satellite channel that distributes educational programming to schools in South Africa and other parts of Africa. Telkom's Thintana initiatives gave 300 schools access to computer labs, the internet, and teacher training; agreement between the National Department of Education and the Microsoft Foundation to donate free software to South African schools for a five-year term; The Sentech Project, the Western Cape Province's

Khanya Technology in Education, the South African Digital Partnership, and Gauteng Online, to mention a few.

Nonetheless, it must be noted that the majority of these projects are centered in urban regions. This is explained by the fact that urban areas have the necessary infrastructure in place for the initiatives. Contrastingly, Mdlongwa (2012) reports that there is still a struggle among schools in rural areas to provide for basic infrastructure demands. Because of this, rural schools are more prone to view the integration of technologies in education as a luxury than a need. These schools frequently have overcrowded classes or none at all, lack toilets, textbooks, furniture, and other essential facilities.

To summarize the ICT situation in South African schools, it is quite evident that many rural schools are finding it difficult, if not impossible, to adopt ICT. This has led to the creation of a "digital divide," where some (urban schools) have access to technology devices while others (rural schools) have very limited or no access. Due to obstacles, using technology in rural South African schools is extremely challenging. In South Africa, integrating technology into rural schools is further hindered by the unreasonably high cost of implementing ICT (Jedeskog 1999). Notwithstanding the fact that installing ICT is never a cheap endeavour, it is reasonable to anticipate that the cost of doing so in rural areas will be significantly greater, mostly because of logistical and transportation issues. Costs are a natural barrier to technology integration in South African rural schools, thus it seems sense that they should be. While it is true that all schools may acquire equipment at the same price, delivering the equipment to remote rural areas and the professionals needed to complete the installation may be quite expensive due to the frequently poor roads leading to the schools.

The issue of cost is another obstacle to the successful integration of technology in rural schools. After purchasing computers, the cost of ICT does not end. Costs include, for example: purchasing software, performing maintenance and repairs, replacing items, providing training, obtaining internet access, purchasing insurance, setting up a space to serve as a computer center, and, if practical, putting in the required security measures (Cawthera 2001). Although securing computers and internet connection is frequently simpler, the ongoing expenses that come with total ownership could place a significant strain on a school's budget.

Furthermore, EFAL is a language other than the mother tongue that a person or community uses for public communication, especially in trade, higher education and administration (Department of Basic Education (DBE), 2011: 8). Additionally, EFAL learners' educational needs continue to grow, and so does technology. Because it has become an essential component of learning both inside and outside of the English classroom, technology will always be something to keep educators and learners one step ahead in the EFAL learning environment. It enhances EFAL learning processes by boosting language acquisition and allowing educators to modify classroom activities. The importance of technology as a resource to help educators facilitate language learning keeps expanding (Ahmadi, 2018: 115).

From the hazy past of the early eras of human civilisation to the present, the history of technology integration in language learning is a long one. As previously mentioned, the laptop, contemporary tablet, smart phone, and computer have all evolved into teaching tools. The education of those tasked with integrating and applying technology must change over time as it develops and gets more sophisticated (cf. Lawrence & Miller, 2014: 1).

Gauteng Province (GP)'s Minister of Education in South Africa (SA) (2014) announced plans of implementing a new learning strategy that would involve the use of tablets by both educators and learners. The project was presented in 2015 in seven GP schools, and was extended to 375 schools in the following two years. This implies that soon, tools like the chalkboard, written lecture notes, and textbooks will become obsolete (Msila, 2015: 1973)**.** By extension**,** this would augur well for the use of technology in EFAL classrooms.

Furthermore, in the Fourth Industrial Revolution (4IR) where technology is at the centre of almost everything, people's lives are becoming more and more reliant on it. For instance, according to studies from the World Economic Forum (WEF), 65% of learners entering primary school will work in occupations that do not exist now. By 2020, it was predicted that 1.5 million new jobs would be created due to digitization.

Moreover, technologies that enable access to information via telecommunication are referred to as Information and Communication Technologies (ICT). The internet, wireless networks, cellular phones, and other communication tools are included (Ratheeswari, 2018: 45). At the same time, 75% of learners and educators believe

they are unable to match the skills requirements of the Information Technology (IT) workforce, while 90% of organizations today face a skills deficit in IT. Education must evolve as quickly as the need for IT skills does in order to produce the talent required for the digital economy. (Frezzo, 2017:1). It is against this background that the researcher finds it imperative to embark on a study to explore whether rural EFAL educators are ready to integrate technology in their classrooms (see 5.1). To this effect, technology integration is the efficient application of ICT resources to educational objectives. It is a multifaceted process that evolves quickly as new information and communication technologies are developed (cf. Mafojane, 2021).

1.2 RESEARCH PROBLEM

It was during teaching practice as a trainee teacher that the researcher observed that some of the rural public schools had technology devices but EFAL educators seemed reluctant to use technology in their classrooms. Although the schools in question had projectors, laptops and desktops, the educators never used the devices in their EFAL classrooms. As an EFAL educator, the researcher was compelled to improvise the strategies that could enable the learners to understand the additional language by utilising the technological resources that were available at the schools. For example, learners' interest in literature learning was ignited as the researcher used the projector and laptop to teach the Drama textbook prescribed for the learners. When the researcher moved to another school for the second phase of the EFAL teaching practice a similar situation was encountered.

To this effect, the researcher's EFAL teaching practice experience prompted her to undertake a study which sought to examine the rural educators regarding their readiness to integrate technology in EFAL in public schools in five provinces, in the Republic of South Africa (RSA).

Learning in the 21st century is filled with challenges and opportunities. In order for learners to be successful in this century, which is characterised by knowledge-based economy, they require a different way of learning. This century's society is rapidly evolving and advancing on a multitier level, and technology forms an intricate part of it (Newbill & Baum, 2013: 16). Likewise, technology ought to form an intricate part of EFAL learning in rural public schools.

Technology is evolving, and thus, new research is necessary to incorporate the changing needs of educators and learners in the ICT integration. Rural public schools rarely retain the similar momentum in educator professional growth, technological access and on-site instructional assistance despite global developments in the range and accessibility of technology (Ritzhaupt, Dawson, & Cavanaugh, 2012: 230; see Appendix C). Previous studies were conducted in SA focusing on the sciences and content subjects rather than the languages. For example, a study on challenges pertaining to the integration of technology by South African History teachers was conducted by Bester in 2016. Research on integration of technology in teaching and learning Mathematics was also carried out (Umugiraneza, Bansilal & North, 2018; Moila, 2006; Stols, Ferreira Pelser, Olivier, Van der Merwe, 2015; Mofokeng & Mji, 2010). Other studies were in Natural Sciences (Syfers, 2010; Ramaila, 2021). Despite these shortcomings, educators have a duty to provide learners with 21st century technological ready abilities to get them prepared for the future (Larson & Miller, 2011: 123; cf. Appendix B). Thus, rural EFAL educators are no exception to this.

Moreover, for the success of technology integration, training in both new and old technological skills has remained a vital aspect (Loveland, 2012). However, educators' educational and technology integration needs have to be supported with options for education and ongoing assistance from technological experts (Ramorola, 2022: 655). This should be the case with EFAL educators in rural public schools. The question arises whether educators are given enough support and training to integrate and use technology in their EFAL language classrooms (cf. Appendix B).

.

1.3 PURPOSE OF THE STUDY

1.3.1 Aim of the study

The aim of this study was to investigate technology integration readiness of English First Additional Language educators in South African rural public schools.

1.3.2 Objectives

The objectives of the study were the following:

- to determine technology integration readiness levels of South African rural English First Additional Language educators.
- to examine the technological equipment available in South African rural English First Additional Language classrooms.
- to establish gaps in the stakeholders' technological support given to South African rural English First Additional Language educators.
- to suggest how South African rural educators can integrate technology in English First Additional Language classrooms.

1.4 THEORETICAL FRAMEWORK OF THE STUDY

This study adopted a combination of the following two theoretical frameworks: Technological Pedagogical Knowledge and Content Knowledge (TPACK) model, and the Technological Readiness Index (TRI).

Mishra and Koehler's (2006) TPACK model describes specialised types of knowledge needed by educators for effective technology integration. The TPACK model acknowledges that educators need Technological Knowledge (TK), Pedagogical Knowledge (PK) and Content Knowledge (CK).

The technology Readiness Index (TRI) provides insights into educators' attitudes towards technology use. It recognises the following four different dimensions of an individual's attitude towards ICT use: optimism, innovativeness, discomfort and insecurity. These four dimensions can determine whether the individual's attitude influences or inhibits ICT readiness. The first two dimensions, which are optimism and innovativeness are considered influencers of technology readiness, whereas dimensions three and four, which are discomfort and insecurity are considered inhibitors of technology readiness (Parasuraman, 2000).

1.5 SIGNIFICANCE OF THE STUDY

The relationship between technology integration and English language educators' readiness regarding technology use in rural South African high schools is salient. The outcome of the study should enable the affected schools to make informed decisions about the use of technology in English language classrooms. The study should also reveal attitudes of EFAL educators towards technology integration. Thus, this study

will provide a basis for an in-depth study on technology use in EFAL rural public schools. It will also be of significance to fraternity of language educators as they may benefit personally from reflecting on their technology skills and attitudes in language classrooms.

1.6 DEFINITION OF CONCEPTS

Rural public schools

Public schools in rural areas are typically found in isolated, impoverished areas. As a result, many schools lack the basic infrastructure and material resources needed for sanitisation, water supply, roads, transportation, electricity, and information and communication technology (du Plessis & Mestry, 2019: 1). The delivery of high-quality education is negatively impacted by a number of factors that are categorised as existing in rural public schools.

Technology Integration

Technology integration is the use of technological resources, such as computers, mobile phones, tablets, digital cameras, social media platforms, software, the internet, in EFAL daily classroom activities and in school administration (cf. Ghavifekr & Rosdy, 2015: 175).

Technology Pedagogy and Content Knowledge (TPACK)

The TPACK framework places a strong emphasis on content knowledge (CK), pedagogical knowledge (PK), and technology knowledge (TK). It offers a helpful resolution to many of the issues educators encounter while integrating educational technology (edtech) into their EFAL classes (see Mishra & Koehler's, 2006). The TPACK framework states that particular technological are best employed to empower learners towards a deeper, more in-depth grasp of the subject matter, such as EFAL.

Information and Communication Technology (ICT)

ICT is a set of tools that enable, support and reinforce educational reforms (Kreijnsa, Vermeulend & van Buuren, 2014: 217). These include tools for EFAL reform regarding

the integration of technology. Technology facilitates information-related tasks such data collection, processing, storage, and presentation.

1.7 OUTLINE OF THE THESIS

The chapters of the thesis are outlined below.

Chapter 1 introduces the study, which aims to determine the technology integration readiness of EFAL educators in rural public schools in South Africa. The chapter provides the study's background, problem statement, research aim, and objectives. In addition, it has the theoretical framework that guided the study, and the significance of the study.

The emphasis of **Chapter 2** is on the presentation of the literature review and the conceptual connections between the theories (TPACK and TRI).

In **Chapter 3**, the research method and design, population selection and sampling strategies, data processing and analysis methods, and ethical considerations are all presented.

Findings from data gathered through questionnaires, interviews, and equipment checklists are presented in **Chapter 4**.

Chapter 5 postulates the novelty of the study.

Chapter 6 summarises the key findings. Additionally, the chapter presents a conclusion on the technology integration readiness of EFAL educators in rural public schools in SA, and outline the recommendations of the study.

CHAPTER 2

TECHNOLOGIES FOR ENGLISH LANGUAGE LEARNING

2.1 INTRODUCTION

There are many opportunities and problems in education in the twenty-first century. A novel approach to education is required if learners are to succeed in the knowledge-based economy of this century. Some educators are still unable to successfully facilitate 21st century learning due to a lack of necessary skills. This could be attributed to educators' lack of training in technology and their readiness to integrate technology. This chapter reviews relevant literature pertaining to technology integration in the rural public school environment. It discusses ICT learning context as seen by various scholars, and examines the technology integration readiness of rural educators in South Africa. The study further explores trends and innovations in English learning, which encompasses the sequence of the Industrial Revolutions followed by the theoretical framework that forms the basis of the study.

2.2 ICT LEARNING CONTEXT

In this 21st century, the term technology is a significant topic in many fields, and by extension, it is important in English language. This is because, in most countries, technology has replaced traditional means of knowledge sharing. Additionally, integration of technology has led to advancements and changed society. It has changed the way people think, work and live (Dzakpasu & Adom, 2017: 31), including how the English language content is learned. As a result of this, schools, which should train learners to function in a knowledge-based society must take into account technological integration in their curricula (Ghavifekr & Afshari & Amla Salleh, 2012: 2191).

The integration of technology in EFAL refers to the use of computer-based communication that is fused into daily classroom instructional processes. Educators are seen as crucial players in integrating technology into their regular classroom activities, in addition to preparing learners for the present digital environment EFAL material. This is because of the capability of technology to provide a dynamic and

proactive learning environment (Ghavifekr & Ibrahim, 2015: 1). Similarly, English language educators and learners ought to be prepared for the digital era.

The 21st century is characterised by incredible expansions in information technology (IT) (Mahajan, Mueller, Reed, Campbell & Ramakrishnan, 2012: 549). Thus, developments in computer and internet technology in particular have, over the years, revolutionised all aspects of human activities (Cascio & Montealegre, 2016: 350), including the English language. Human interactions are progressively becoming more and more dependent on these technology advancements due to their incorporation into socioeconomic and political institutions. As visible in the banking sector and governance, for example, modern information technology should have a lot to offer in educational practices (Gizaw & Tessema, 2020) such as the English language teaching and learning practices.

In the EFAL content, using technology to promote learning is a common necessity for a 21st-century learning environment. With the use of technology, learners may produce, collaborate on, and evaluate both their own and their peers' work. For the development of 21st-century skills, this technology-enabled production, interaction, and collaboration is considered crucial (Saavedra & Opfer, 2012: 8). Despite this, there are many different technology tools that help education, and many of them depend on the overall goal of the classroom layout. This variety of demands is based on the potential technology support for obtaining 21st century skills provided by multi-user virtual environments utilized in educational settings (Joynes, Rossignoli & Amonoo-Kuofi, 2019: 16).

Others see the usage of tablets as a learning tool as a way to update the classroom to better reflect 21st century learning (Botha & Herselman, 2015: 1). In the end, it appears that the environment and the particular goals being sought will determine the specific sort of technology chosen. As a result, the focus should be on the power of technology to foster new learning environments and the development of knowledge, rather than on developing competences around the ability to use certain devices and software (Voogt, Erstad, Dede & Mishra, 2013). In line with this argument, English language educators should be able to create new conditions for learning and building new knowledge technologically.

Technology has limitless potential utility in the actual learning process, in addition to facilitating the overall administration of schools on a daily basis (Ndibalema, 2020: 247). For example, the World Wide Web (WWW), which can be retrieved through web browsers on computers and mobile devices, offers educators and learners access to an unlimited amount of information at any time and from any location. Educators have access to information online that can help them prepare lessons, enhance the quality of their lesson notes, learn new technology integration strategies, and stay current on pedagogy and subject content (cf. Bhatti, Ahmad & Khan, 2014; Lediga & Ngoepe, 2020) such as English language.

On the other side, learners have access to relevant data that can assist them deepen their grasp of the material they study in class. (Rosnaini & Mohd Arif, 2010: 5). Online social media platforms give educators and learners a platform for cooperation on a local and global scale; and help to extend communication and discussion among learners as well as between educators and learners beyond the classroom (Holcomb & Beal, 2010; Lediga & Ngoepe, 2020).

In educational institutions, ICT infrastructure and internet connectivity provide learners with the opportunity to adopt 21st-century learning strategies and encourage the development of 21st-century ICT skills. The accessibility of internet connectivity in particular offers the foundation for a switch from the use of learner-centered pedagogy (inquiry and project-based learning), which is more participatory and activity-oriented, to educator pedagogy (content-based learning) (cf. Garga, Byabazaire & Busthami, 2015: 72, see Appendix C).

In addition to learners using smartphone technology and features, educators are also doing so and are increasingly expecting their learners to be very technologically savvy when they reach the classroom. This is demonstrated by the inclusion of technology competencies and goals in learning standards. The National Educational Technology Standards (NETS), for instance, published by the International Society for Technology in Education (ISTE), outline goals for educators and learners that make it possible for technology to be used in the classroom to support effective learning and productive living in today's increasingly digital society. The capacity of learners to use technology to exhibit creativity and innovation, communication and collaboration, research and information fluency, critical thinking, problem solving and decision-making, digital

citizenship, as well as technology operations and concepts is covered by these standards (ISTE, 2007; Lediga & Ngoepe, 2020).

Many technological standards, such as the NETS stated above, do not connect English language learning to technology in response to the realisation that educating learners for the information society needs to be one of the primary goals of today's education. However, TESOL has also created a set of technological requirements for educators and learners of English (Tschichold, 2016: 446). These standards concentrate on advising educators on the fundamental skills that learners having access to a wide range of technology ought to possess. Thoughtfully created technology standards, like NETS and the TESOL Technology Standards, show that as technology is transforming how people live, educators and researchers have started to reconsider how learning and teaching are approached. Hence, this study seeks to investigate technology integration readiness of EFAL educators in South African rural public schools.

There are now numerous software programs available that are intended to help learners of all educational levels master specific subjects and courses. For instance, SPSS software can be used to help learners learn statistics. At the school level, educators can choose appropriate free software for use in the classroom from a large selection of internet possibilities. With such resources, educators can use technology to involve learners in a range of learning activities, making the learning process more activity- and learner-centered. Therefore, learners are less reliant on educators for information about subject learning content in countries where access to the internet and computer devices is not a problem. Due to this evolution, the role of the educator is shifting from that of a knowledge provider to that of a facilitator of knowledge growth and understanding (Garba et al., 2015: 73). English language educators are no exception to this educator role development.

Due to the potential for significant educational change, technology-based instruction and learning require careful planning and policymaking. Researchers and decision-makers must have the same understanding of the future strategy. National ICT policy could perform a number of vital tasks. They provide a justification, a set of objectives and a vision of how educational institutions might operate if technology were integrated

into the teaching and learning process. They are also beneficial to learners, educators, parents, and the general people of a specific nation (Dudeney, 2010). For example, the Malaysian Ministry of Education has developed three primary ICT in education policies. All learners must have access to ICT, according to the first policy. This aims to close the digital divide between schools. The second policy focuses on the part that ICT plays in education and how it serves that purpose. In addition, policies might emphasize the use of ICT as a tool for productivity and for communication and access to information (Chan, 2002) .

Then, schools across the country must be given access to infrastructure and technological resources. The availability of enough computer laboratories and ICT resources is essential for effective technology use. This is to guarantee that subject educators can quickly access technology resources as needed (cf. Hennessy, Ruthven & Brindley, 2005; Lediga & Ngoepe, 2020). For instance, research findings indicate that certain schools in Kenya have computers, however this may simply include one computer in the office. The student-to-computer ratio is high even in schools that have computers. In addition, the report revealed that schools with ICT infrastructure are supported by parents' initiatives or community power (Chapelle, 2011). Lack of adequate technological equipment and internet access is one of the key problems that schools specifically in rural areas are facing now . The phenomenon is not only limited to a certain country, hence the researcher opted to conduct research in South African schools, and compiled a checklist (see Appendix C) to determine whether the schools have facilities and infrastructure.

For educators and learners alike, technical issues are a major issue and a cause of frustration in the majority of schools. These technical issues may disturb the learning process. If there is no technical help available or the computer needs repair, educators will temporarily be unable to utilize it. Due to the lack of support with the problem, they will be deterred from using computers due to a fear of equipment breakdown (Jamieson-Proctor et al., 2013). These issues include poor connectivity, virus attacks, and broken printers. But, there are some exceptions. Schools in countries like the Netherlands, the United Kingdom, and Malta have realised how crucial technical support is for assisting educators in using ICT in the classroom (Yang & Wang, 2012).

In general, educators in 21st-century schools have come under a lot of pressure to enhance their instruction. When compared to resources from three to four decades ago, educators today have access to a wide range of technology resources. The usage of gadgets like projectors, televisions, and cell phones in today's digital classrooms is revolutionizing education (cf. Lediga, 2018). In South Africa, the minister of education for the Gauteng Province made public his intentions to establish a new method of instruction that would involve both educators and learners using tablets. In other words, the chalkboard, printed lecture notes, and textbooks will soon be relics of the past. However, from community to community and person to person, even this might be perceived differently (Msila, 2015: 1973)**.** In most cases, these digital classrooms are provided to schools in urban areas, leaving learners in rural schools out, and by the time these learners from latter schools are admitted into tertiary institutions, they are left behind because they are not familiar with various digital technologies.

The ability and preparedness of educators to integrate technology is also crucial to the usage of technology in education. Educators must be highly confident in their ability to use technology in the classroom and have adequate technological skills to integrate it. In addition, they need knowledge of how technology fits into pedagogy in order to effectively integrate it into their teaching methods. Educators who have taken an ICT course have been shown to be more adept at exploiting technological resources than those who have not (Winzenried, Dalgarno & Tinkler, 2010). For instance, a school in Ireland stated that educators who lacked appropriate confidence shied away from using ICT. Similar circumstances occurred in Canada (Hennessy, Ruthven & Brindley, 2005). Some educators acknowledged that they were hesitant to employ ICT because they were concerned about being ashamed if the learners were more technologically savvy than them were (Hennessy et al., 2005). This may be the case with EFAL educators in South Africa, hence the need to enquire about educators' ICT training to determine their readiness in integrating technology in their EFAL lessons (see Appendix A).

Dzansi and Amedzo (2014) note that there have been many government, public, and private sector initiatives in South Africa to increase access to and use of ICTs in education, but that these have primarily been based in urban areas where the necessary infrastructure and support for ICTs is already in place. The picture is less encouraging, though, when one looks at rural and underfunded schools in South

Africa. This has caused a digital divide between urban and rural communities, which is a problem not only in South Africa but across the entire continent of Africa (Fuchs & Horak, 2008). Hence, the study on technology integration readiness of EFAL educators in SA rural public schools.

Despite the widespread use of smartphones and other mobile devices, many South Africans still cannot afford to access the internet or other ICTs, particularly SA citizens who live in underdeveloped or rural areas (Dalvit, Kromberg & Miya, 2014). The digital divide has had an impact on how many rural schools are run. Many are still primarily dependent on the widely used educational paradigm, in which the educator is in charge of the class, and the learners try to learn as much as they can from the educator (cf. Appendix A & B)

The educational system in South Africa has multiple challenges. This is particularly true in rural areas, where socioeconomic conditions are mixed with a frequent absence of basic infrastructure. These remotely based learning institutions continue to be at a disadvantage (du Plessis, 2014)). Consequently, these challenges, together with educators' lack of training and readiness, have a negative impact on rural EFAL learners' development.

Lack of educators and educational resources plagues many schools in rural South Africa (cf. Waller & Maxwell, 2017). ICTs are being provided to educators through projects in SA, as well as other nations, to help them with teaching and to advance their ICT knowledge and abilities. Making sure that the digital tools distributed in schools are considerate of the resource constraints faced by those institutions and are sustainable has been one area of concentration. The abilities and attitudes of educators regarding the use of technology are crucial to this sustainability component (Botha, Herselman, Rametse & Maremi, 2017, cf. Appendix A & Appendix B).

Like other developing countries, South Africa has programmes intended to improve the integration and use of technology, particularly in education. In order to guarantee that all primary and secondary schools have access to broadband internet by the year 2030, South Africa Connect, the nation's national broadband policy, mandates the installation of a broadband connection (with a download speed of at least 100 Mbps). The policy emphasises the need for better internet connectivity for principals and

educators in order to promote learners' access to and usage of learning resources that can enhance classroom instruction and foster the growth of their digital abilities. Although the policy was implemented in 2013, many schools in rural areas still do not have access to the broadband internet (Department of Communications, 2013; Appendix C).

Rural areas are defined as farms and traditional areas characterised by low population density, low level of economic activity and low level of infrastructure (Department of Basic Education, 2017: 20). Numerous difficulties plague schools in rural areas of SA, including inconsistent energy, high dropout rates, inadequate classroom infrastructure, and security issues. (Adukaite, Van Zyl, Er & Cantoni, 2017), and, with particular reference to this study, shortages of qualified educators and teaching and learning materials (Mestry & Ndhlovu, 2014). Due to the distances between schools and towns, the lack of adequate infrastructure, and the limited service delivery, according to the Department of Basic Education's (DBE) Rural Education Draft Policy of 2017 it is challenging to hire, retain, and train qualified educators in a rural setting (Department of Basic Education, 2017: 18) .

ICTs can give educators more power by enabling them to, among other things, access content on the internet, gain a deeper understanding of the content, communicate more effectively with colleagues when they need help, take part in online training, and learn more about current political, social, economic, and financial developments in the world (Kopcha, 2012). The issue is that it will be challenging for educators to include new devices into EFAL classes if they are not trained in their use.

The literature frequently mentions the use of technology to promote learning as a prerequisite for a 21st century learning environment. Using technology, learners may produce, collaborate on, and evaluate both their own and their peers' work. The development of 21st century talents is thought to require this technology-enabled creativity, interaction, and cooperation (Saavedra & Opfer, 2013; Lediga, 2018).

There have been numerous attempts over time to define frameworks for 21st century skills. According to the rationale, they would be a useful resource for individuals and organisations looking to define 21st century abilities, implement learning environments that support them, or use them as a basis for evaluating them, among other things. The KSAVE model, for instance, identifies ten distinct 21st century abilities and groups

them into one of the four categories shown below. The first category is classified as ‘Ways of thinking’ representing higher order skills such as creativity and innovation; the second is ‘Ways of working’ representing the skills needed for working in a 21st century work environment. The third is called ‘Tools for working’, which includes ICT and information literacy skills; and the last category is called ‘Living in the world’, which encapsulates skills needed for personal and career success in an ever changing world (Marilyn, Erstad, Herman, Raizen, Ripley, Miller-Ricci & Rumble, 2012).

The Partnership for 21st Century Learning (P21), which was founded in 2002 appears to have garnered the most backing and widest adoption of any framework (Partnership for 21st century learning, 2015; Ledward & Hirata, 2011). The goal is to foster partnerships among people, organizations, and governments so that every learner can gain the skills they need to succeed in a world that is always changing (P21.org, 2016). The framework is a group of abilities, skills, and information that learners should develop to succeed in life. There are two main components to the framework, from a learner’s perspective. The first category consists of important topics and 21st century themes, such as government and civics, Economics, Science, Geography, History, and languages. The main themes are civic, financial, economic, business, entrepreneurial literacy, as well as global awareness, health, and environmental literacy. These topics are cross-disciplinary knowledge, awareness, and perspective that a learner should acquire through efficient 21st-century learning, not necessarily skills.

Learning and innovation skills are the P21 framework's second element. These abilities include flexibility and adaptability, initiative and self-direction, social and cross-cultural skills, productivity and accountability, leadership and responsibility, critical thinking and problem solving, communication and collaboration, information literacy, media literacy, and ICT literacy. The rainbow below represents the elements referred to as 21st century student outcomes. Students should develop these abilities in order to excel in the workplace and in life in the twenty-first century.

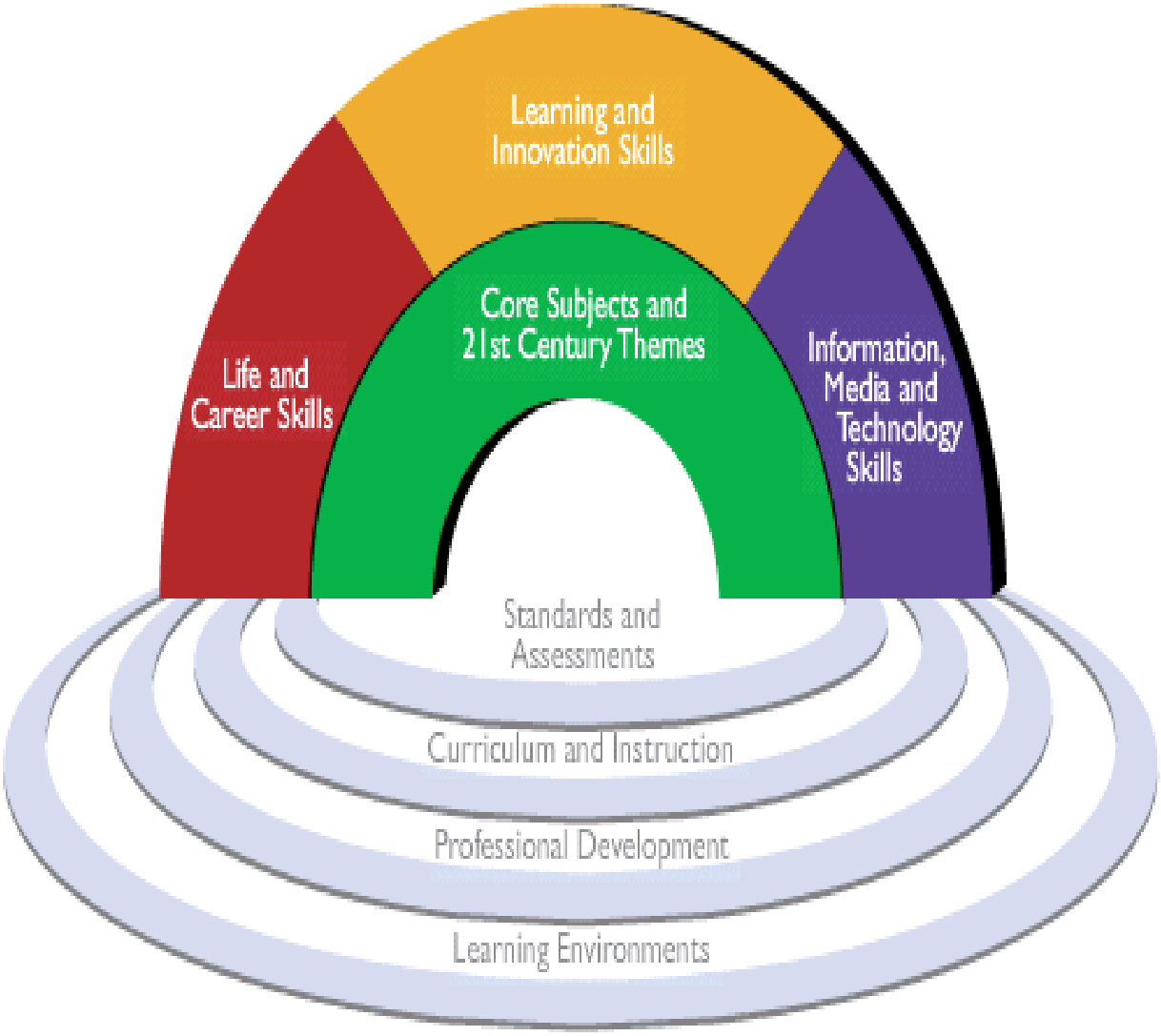


Figure 2.2 The P21 framework

Because the P21 framework goes so far as to define each 21st century talent from the standpoint of the important subjects, it is especially useful. Creativity and invention, critical thinking and problem solving, communication and cooperation skills, information literacy, and ICT literacy are a few of the definitions of 21st century talents based on the P21 framework, with helpful additions from other pertinent sources. (P21.org, 2012).

Finding novel and unconventional solutions to issues and contrasting them with conventional solutions and other learners' methods is what creativity and innovation

are all about. Additionally, learners will be able to explain their newly acquired knowledge to others. (Partnership for 21st century learning, 2015; P21.org, 2012; Marilyn et al., 2012). Therefore, EFAL educators are expected to find new and alternative ways of solving problems. However, problem-solving and critical thinking are largely concerned with making difficult choices and being able to support those choices. Learners should be able to "identify and ask significant questions," critically evaluate and consider their own work and that of others, as well as analyze and synthesize problems or portions of them using supporting data (Partnership for 21st century learning, 2015; P21.org, 2012). This ability has often been called systems thinking (Marilyn et al., 2012). EFAL educators ought to think critically and solve problems.

Learning how to communicate and collaborate requires learners to be able to explain English concepts, listen to others' arguments critically, and work in teams. Additionally, it involves having excellent digital and media communication skills (Partnership for 21st century Learning, 2015; Ananiadou & Claro, 2009). Finding sources of data, gaining access to them, assessing them, and using them to provide answers are all aspects of information literacy. Information literacy involves locating sources of data, gaining access to them, analysing them, and using them to provide answers to queries (Partnership for 21st century learning, 2015; Marilyn et al., 2012). ICT literacy also entails knowing how to successfully use digital tools like smartphones and laptops to conduct research, organise, evaluate, and transmit information (Marilyn et al., 2012). While educators are expected to communicate, collaborate, access and evaluate data, they should use technology effectively in EFAL content.

2.3 LIBRARY DIGITAL RESOURCES

The term "Digital Library" (DL) and other digital resources first appeared in literature in 1990 (Bawden & Rowlands, 1999). However, before and after the notion of the digital library initially emerged, terms like "virtual library," "electronic library," "library without walls," and "hybrid libraries" (Rusbridge, 1998; Oppenheim & Smithson, 1999) have been used interchangeably to describe it (Rahman, Francese, Yilmaz & Beyene, 2011). When it comes to literature, DL offers access to specific digital objects that are organised and include knowledge and information. These information sources, which include data and metadata, are all seamlessly integrated. Additionally, it offers a

community of users cohesive access and retrieval from any part of the world. (Chowdhury, 2010). This implies that EFAL educators and learners can benefit from the digital resources available as they belong to the digital community of users.

Additionally, according to Chen and Lin (2014), DL provides integrated environments with collections, information services, and preserved knowledge that effectively support learning. These environments include full-text indexing, ranking, and searching for information retrieval that is quite different from that found in conventional libraries (de Smet, 2014). The function of libraries has changed significantly as a result of the quick development of information technologies. As a result, libraries are now up against emerging challenges, competitors, demands, and expectations. Libraries are redesigning their services and information products to enhance their offerings and satisfy the community's shifting information demands. Information seekers are no longer satisfied with simply printed materials, even if traditional libraries still handle a lot of pricey, bulky printed items. With more interactive electronic materials, they want to enhance the printed knowledge. Digital information is in more demand (Bamgbade, Akintola, Agbenu, Ayeni, Fagbami & Abubakar, 2015: 2). English language dynamic electronic resources are also essential for rural educators.

Libraries of all shapes and sizes are adopting digital resources, and the majority will continue to offer both print and digital resources for many years to come. Even though digital books (also known as ebooks) are only recently beginning to be included in library materials, new acquisitions as well as purchases of journals, periodicals, and abstracting and indexing services are significantly weighted in favour of digitization (Tenopir, 2003: 1), including SA library collections.

Libraries prefer digital collections for a variety of reasons, including but not limited to the following: indexing and abstracting databases can link to and from online journals. Users can access them from their home, place of employment, or school regardless of whether the actual library is open. Digital collections take up less room, are typically easier to manage, and the library may be able to get usage figures that are not available for print collections. When considering total processing and space expenses, electronic collections may also result in some overall reductions in library spending. (Montgomery & King 2002). Such a dramatic switch from print collections to digital

collections would have an impact on English language library users and their perceptions of the library.

According to Lynch (1994), digital libraries give consumers coherent access to a sizable, well-organised collection of knowledge and information. The digital library will consist of a number of dispersed knowledge sources, according to Berkeley Digital Library Project at the University of California. Libraries and online resources are thus necessary for EFAL educators in rural areas.

Table 2.1: Contrast between traditional and digital libraries (Source: Library Philosophy and Practice, 2010).

Traditional Libraries	**Digital or Electronic Library**
Print collection	All resources in digital form
Stable, with slow evolution	Dynamic and ephemeral
Individual objects not directly linked with each other.	Multi-media and fractal objects
Flat structure with minimal contextual metadata	Scaffolding of data structures and richer contextual metadata
Scholarly content with validation process	More than scholarly content with various validation processes
Limited access points and centralised Management	Unlimited access points, distributed collections and access control
The physical and logical organisation correlated	The physical and logical organisation may be virtually
One way interactions	Dynamic real time dialogue
Free and universal access	Free as well as fee-based.

Table 2.1 above presents advantages of a digital library over a traditional library, which are that, unlike the traditional library, the digital library has nearly unlimited storage space at a much lower cost. There are no physical boundaries, and they are available around the clock. Further, there is multiple access to material and enhanced information retrieval. Digital libraries are accessible universally (Bamgbade et al.,

2015: 5). Rural EFAL educators will need to retain traditional libraries while being introduced to digital libraries.

In addition to paper-based resources, modern university libraries increasingly provide access to digital information sources. The phrases "digital collections" and "electronic collections" are now used interchangeably with the introduction of ICT, which boosted digital collections. Digital resources from the internet, databases, e-books, journals, and other sources that were previously in other or paper form but were decoded into digital form make up library digital collections. These already digitised resources are also referred to as born digital resources. In other words, these resources were digitised on purpose to enable wider and easier access while still preserving them.

Digital resources are stored electronically and accessed in locations with computers to enhance printed or paper-based library collections. Academic libraries subscribe to digital collections, which are forms of electronic resources like e-books, full-text e-journals, online bibliographic databases, institutional repositories, and websites that are either in the form of proprietary-based or open access, in order to meet the ever-increasing needs of users. Users get remote and in-person access to digital collections. Digital resources, according to Sivathaasan and Velnampy (2013), are sources of information that contain electronic or e-format documents that may be accessed online. Additionally, the resources are available in a variety of formats, including e-books, digital libraries, online journals, magazines, tutoring services for online courses, test e-journals, discussions forums, e-news, data archives, and email online chatting. They give a collection of information, whether it be text, an image gallery, or other multimedia items like numerical or graphical forms. Rural educators need the resources to access electronic documents that are available in diverse forms (see Appendix C).

The digitisation of print information sources into digital or electronic sources is one of the transitions of the information era, according to Adedoyin, Imam, and Bello (2012), quoting Rothenberg (1999). The need to stay up with technology and the preservation of digital information resources, or the preservation of resources that were born digital, are two areas that present problems in the digital environment. The information resources that are digitised in order to be preserved in the digital world are encoded

in types of data that can only be decoded by particular devices. For libraries to acquire this information, they will need to make the appropriate investments in equipment. Given that technology is dynamic, information loss will happen if the tools used to access it become obsolete. The evolution will not stop. Since technology is involved, the library should stay current.

a) Grey literature

Grey literature is writing that is created at all levels of government, academia, business, and industry and is published in print and electronic formats without being under the editorial supervision of commercial publishers (Mahood, van Eerd & Irvin, 2014: 221). In the 1970s, the phrase "grey literature" first emerged in academic journals. Prior to this time, the phrase was only used to refer to reports because the majority of the items included by the label were technical, scientific, and economic studies. At the same time, other labels like "informal," "non-conventional," "running away," "invisible," or "half-published" were also used to describe this literature. Due to the limited homogeneity of the collection of publications, attempts to characterise grey literature are difficult. Materials are identified from other groupings primarily by their most distinctive characteristics. The following common features can be found among the most often listed features: they typically appear as limited editions and are challenging to locate in bookstores. They are difficult to find in libraries and are not listed in publisher's catalogues or library collections because they do not have bibliography registration. They frequently take longer to publish or are not published at all (Nahotko, 2008: 152).

The inclusion of grey literature, or studies that are unpublished, have a small audience, and/or are not listed in bibliographical retrieval systems, is a crucial consideration within the realm of publishing status. Incorporating grey literature into a meta-analysis may help to address some issues with publication bias and offer a more thorough and impartial response to the central topic (Adam, Hiller-Brown, Moore & Lake, 2016). Rural EFAL educators should be encouraged to source grey literature to support their teaching and learning environment.

b) Managing resources

Multimedia-related services and products have grown significantly in the digital age. It follows that managing the services and products in a wide range of formats is necessary. Libraries serve as a crucial, core element of a system of education and are significant components of academic institutions. Library and information Centres (LICs) are one of the many fields that have been transformed by the rapid development of information communication technology (ICT) in the twenty-first century. ICT has therefore altered libraries' collection, organisation, and services. Online information access is progressively displacing the traditional model of information acquisition (Bhattacharya & Gautam, 2014: 483). Ideally, EFAL educators should be able to access information online while in the rural areas.

The collections of contemporary libraries are not just comprised of print media; instead, they are actively archiving electronic resources. Users' expectations of academic libraries have changed in many ways as a result of ICT innovations. Users' expectations have evolved. They choose digital resources over paper ones more. E-Resources are becoming a more significant part of libraries, and the trend has been toward digital/electronic libraries (Bhattacharee & Gautam, 2014: 483). EFAL educators also deserve electronic resources to function effectively in teaching and learning.

The word e-resources is quite broad and encompasses a wide range of different file types, including CD-ROMs, full-text databases, electronic books, journals, and theses. It has become vital to convert valuable printed resources for future usage in the ICT era and age of rapid access to knowledge. The creation of electronic resources, access preservation, and administration of those resources have grown imperative despite the time-consuming and occasionally challenging nature of the process (Bhattacharee & Gautam, 2014: 483).

2.4 TRENDS AND INNOVATIONS IN ENGLISH LANGUAGE LEARNING

Building independent learners with a growth mindset that enable them to comprehend their learning responsibilities and learning inclinations is the first step in producing 21st-century learners (Ornstein & Eng, 2015: 21). Similarly, the 21st century needs independent educators supported by educational tools. Therefore, technology tools and learner-driven instruction, which enables learners to access, assess, and retrieve

knowledge, enhance the development of 21st-century literacy. With the use of technology tools, learners can participate in cutting-edge projects that allow them to exhibit their knowledge and advance their ability to collaborate, evaluate, and solve problems. As a result, when opportunities are genuine, relevant, and interesting, learners participate actively in their learning, enabling student-driven applications, conversations, and products (cf. Monge & Frisicaro-Pawlowski, 2014: 59; Lediga, 2018: 18).

The English language's form and appearance have evolved as a result of Internet usage. The English used for messaging, e-learning, and many other developments is distinctive. Many literature laureates in literature, however, are opposed to the use of electronic devices to advance the study of English because they believe that using the language for social networking sites and the use of slang and acronyms is fundamentally different from using English for literacy (Mittal, 2014: 599). Therefore, EFAL educators need to be well versed in English for technology.

Learner interest is sparked by the educator's disposition, resourcefulness with materials, ability to respond to inquiries from learners, and use of instructional methods. Although traditional approaches cannot be completely abandoned in the classroom, incorporating some innovative and cutting-edge teaching techniques will assist learners stay engaged on the learning process. To enable learners to strengthen their problem-solving and lateral thinking skills, educators might use assignments like those in the Sandblot, newspaper, and advertisement activities. A failure to do so could prevent facilitators from assessing their uniqueness and ability for learning (cf. Rani, Hapawat & Devi, 2019: 1947).

In the interest of the learners, teaching strategies and materials should be updated. Innovative educational techniques including role-playing games, reading newspapers, watching TV, and using dictionaries should be incorporated in the classroom. Skill-based and knowledge-based learning is essential for the growth and development of learners (Rani et.al., 2019: 1947). EFAL educators should use electronic resources optimally.

Role-playing games, reading newspapers, watching TV, and utilizing dictionaries are just a few of the cutting-edge instructional methods that should be used in the classroom. Despite having studied English as a second language since grade 2,

learners, especially those from rural backgrounds, find it exceedingly difficult to read, write, and speak the language. The exposure these learners receive is insufficient for them to significantly improve or develop their English. For these learners, the educator's role is crucial, and it should incorporate cutting-edge teaching methods to help learners steadily progress in their language acquisition (cf. Rani et.al, 2019: 1947).

2.4.1 THE INDUSTRIAL REVOLUTION

People's daily life, including how they work and study, have undergone significant changes as a result of new technologies and online connectivity. Additionally, it is likely that new technology will keep changing how people live for many more years to come. According to many, civilisation has just begun a new period in the history of technology advancement that may be much more disruptive than everything that has come before. Recent developments, particularly in the area of artificial intelligence, are beginning to straddle the border between science and science fiction, giving rise to signs that interactions with technology may be about to undergo more profound transformation than most people may have anticipated. This transformation is being labelled as the fourth Industrial Revolution (4IR) (Ganon, 2019: 1). This transformation also affects EFAL rural educators. English language teaching and learning can be done online through technology in the 21st century.

The discussion in this section will focus on the first, second, third, fourth and fifth industrial revolutions. The order of the five industrial revolutions is displayed in the table below. Each revolution sets the scene for the next one.

Table 2.2: Industrial Revolutions sequence

1st Industrial Revolution	2nd Industrial Revolution	3rd Industrial Revolution	4th Industrial Revolution	5th Industrial Revolution
Mechanisation	Electrification	Automation and Globalisation	Digitalisation	Personalisation
Occurred during the 18th and 18th centuries, mainly in Europe and North America	From the late 1800s to the start of the First World War	The digital revolution occurred around the 1980s	Start of the 21st century	2nd decade of the 21st century
Steam engines replacing horse and human power	Production of steel, electricity and combustion engines.	Computers, digitisation and the internet,	AI, robotics, IoT, blockchain and crypto.	Innovation purpose and inclusivity.
Introduction of mechanical production facilities driven by water and steam power	Division of labour and mass production, enabled by electricity.	Automation of production through electronic and IT systems	Robotics, artificial intelligence, augmented reality, virtual reality	Deep, multi-level cooperation between people and machines. Consciousness.

2.4.1.1 The First Industrial Revolution

In the latter half of the 18th and the beginning of the 19th centuries, there were significant socioeconomic developments. The Industrial Revolution (IR) or First Industrial Revolution (IR1) was the term used to refer to the modifications. The IR was viewed as a change from human and labour technologies to machines, the development of machine tools, new chemical manufacturing techniques, and iron processes (Mohajan, 2019: 378).

In local, regional, national, and continental contexts, the IR is seen as a significant historical process. The IR is responsible for the economic change of Europe and North America from agrarian to industrial economies. The transformation was called a structural change to an industrial economy by economic historians (O'Brien, 2006: 26). Prior to the IR, wool was used by home workers for doing spinning and weaving in their premises. During the IR revolution, a mechanised cotton spinning technique was developed. Water was used to provide the energy needed. The technique increased the output and changed the textile industry immensely while technological factors played the strongest role in the IR (Agarwal & Agarwal, 2017: 1063).

2.4.1.2 The Second Industrial Revolution

During the years 1860 through 1914, the second Industrial Revolution (IR2) began. During this time, a great deal of new technologies were developed, including electricity, the chemical and petroleum industries, radio, telegraph, and other electrical communication methods, as well as indoor plumbing and running water. These inventions and innovations were science-based (Mohajan, 2020: 1). Although rural schools seem to be lacking electricity and running water, they have to develop and adapt the English language learning to the new essential technologies.

Further, during the IR2 there were enormous benefits. Contrary to the IR1, which observed huge developments in the fields of wool manufacturing, steam power and iron making, the IR2 saw vast technological developments. There were inventions of elevators, electric machinery and consumer appliances, consequently bringing comfort in people's daily lives. The inventions of cars, trucks and airplanes made transportation easier and comfortable. In addition, the construction of sewers to carry wastewater away made the cities clean (Mohajan, 2020: 11).

2.4.1.3 The Third Industrial Revolution

Microelectronics and the Internet, two of the most well-known examples of general-purpose technologies that fall under the category of ICT, were at the center of the Third Industrial Revolution (IR3) (Taalbi, 2017: 2). However, EFAL rural educators lack the infrastructure associated with the IR3.

The IR3 led to the development of infrastructure, which resulted in the opening of millions of new enterprises and jobs. It created the framework for a 21st-century global economy that is sustainable. The IR3 foundation was built concurrently on a number of pillars because each pillar can only work in relation to the others. The IR3's five pillars are converting to renewable energy. The second involves converting every continent's building stock into small power plants to capture renewable energies locally. The third is the use of hydrogen and other storage technologies to store sporadic energy sources in each building and across the infrastructure. The fourth is to use internet technology to turn every continent's power grid into an energy internet that functions similarly to the internet, and the final two are to convert the transportation fleet to electric plug-in and fuel cell vehicles that can buy and sell green electricity on a smart, continental, interactive power grid. A new economic paradigm is produced by

the interactions between the pillars, and it has the potential to change the world (Rifkin, 2012: 3). Although the educators lack pillars that can create the new IR3 economic paradigm, they shoulder the responsibility of transforming the EFAL learners that they teach.

2.4.1.4 The Fourth Industrial Revolution

The executive chairman and creator of the World Economic Forum, Klaus Schwab, coined the term Fourth Industrial Revolution (4IR) to define a society in which individuals move between the online and offline worlds while using linked technology to enable and regulate their activities (Miller 2015: 3). The English-speaking community should migrate between online and offline worlds in accordance with 4IR aspirations, rather than falling behind this development.

In this 4IR era, it is essential to shape the next generation in line with anticipated technology advancements. The traditional educational system has a significant impact on the current rates of economic and technical advancement. A crucial question addressing how higher education institutions will be impacted by the 4IR and how the scope of education will change should be addressed in order for higher education to provide future generations with the appropriate set of skills and knowledge (Suganya, 2017: 1). Thus, English language educators should strive to shape EFAL learners for the future technological developments irrespective of their technological plight.

When compared to earlier industrial revolutions, the Fourth is developing more rapidly than linearly. Additionally, technology is causing disruption in practically every industry worldwide, and the magnitude of these changes signals the transformation of whole production, management, and governance systems (Schwab 2015). The rural public schools should be seen as systems of producing and of managing relevant EFAL learners.

In his State of the Nation Address (SoNA), in an effort to embrace the 4IR, the president of South Africa said the following words:

> *To ensure that we effectively and with greater urgency harness technological change in pursuit of inclusive growth and social development, I have appointed a Presidential Commission on the 4th Industrial Revolution. Comprised of eminent persons drawn from different sectors of society, the Commission will*

> *serve as a national overarching advisory mechanism on digital transformation. It will identify and recommend policies, strategies and plans that will position South Africa as a global competitive player within the digital revolution space (Ramaphosa, 2019).*

The advancement of technology permits the reduction of industrial wastes and the redesign of production and consumption systems to be more resource-efficient. Although the Internet offers numerous potential for expanding knowledge and best practices, sophisticated societies will benefit the most from it since it enables for rapid learning and collaboration (Prisecaru, 2016: 59). Therefore, the English language community of educators and learners should be part of the technological progress through the use of the internet, for example.

The first industrial revolution centered schooling around traditional teaching methods like the McGuffey reader. With the transition into the 3IR, learners will be able to use a customer-learning model because education is service-oriented. Technology in the 4IR causes a blending of the biological, digital, and physical worlds. Higher education is impacted by disruptive innovation, which reimagines how universities traditionally distribute their course materials to students. The emphasis shifts from teaching modes to learning modes when new curriculum and instructional modalities emerge. Alternative curricula are continually being created (Jules, 2017). Similarly, basic education, which encompasses English language learning, will be affected by disruptive innovation.

2.4.1.5 The fifth industrial revolution

The fifth industrial revolution (5IR) remains primarily focused on creative human-machine interfaces than on automating human labour. It combines the best elements of both worlds, with humans and machines collaborating for greater efficiency. The human component of manufacturing will once again be introduced by the 5IR. The 4IR is primarily focused on technology, robots, and networked systems, whereas the 5IR examines how people interact with factory systems. The combination of human intellect and cognitive computing will result in more useful results (George & George, 2020: 215).

The previous revolution focused on the change of manufacturing facilities, whereas the 5IR will emphasize the incorporation of human hands and brains back into the industrial structure. The 5IR is a revolution where man and machine come together and learn how to collaborate in order to improve resources and production efficiency. Since the 5IR situations are still in their relative infancy, manufacturers must be actively organizing ways to combine human and machine workers in order to maximize the special advantages that can be obtained as this movement continues to grow (George & George, 2020: 220). Therefore, the 5IR will afford EFAL educators an opportunity to apply their technological skills using tools.

2.5 TECHNOLOGY READINESS OF EDUCATORS

Due to the fact that their perception and comprehension of educational innovation affects their actions, decisions, and practices in the classroom, educators have a significant role in shaping the outcomes of 21st century learning. Learners primarily master the 4Cs of the 21st century, which include creativity, communication, cooperation, and critical thinking, with the assistance of their educators (Rusdin, 2018: 1294). EFAL rural educators should also contribute to learners' performance in mastering the 21st century skills.

ICTs have been designated as a priority area in the Department of Education's (DoE) White Paper on e-Education, a policy document created to clarify their response and approach surrounding the adoption of ICTs into schools (Department of Education, 2004). The National Development Plan (NDP) states that one of the primary justifications for integrating ICTs into education is the expectation that doing so will result in significant advances and developments (National Planning Commission, 2011). The White Paper's policy objectives included the requirement that all educators possess ICT proficiency by the year 2013 (Department of Education, 2004). ICTs are believed to improve the way that lessons are taught and learned (Department of Education, 2004; Summak, Baglibel, & Samancioglu, 2010). However, successfully integrating ICTs to improve teaching and learning is a complex process. This suggests that integrating ICTs is a multi-step process that involves a variety of factors (Summak et al., 2010). However, it is still unclear if EFAL rural educators possess the ICT skills required by the White Paper.

ICT development is surely quickly changing how people work. Technology increases student learning, therefore educators must be ready to embrace and adopt it. They should comprehend that the 21st century classroom must offer instructional resources that are backed by technology (Padmavathi, 2016). To influence educators' adoption and use of technology favourably, training, development workshops, and school policy should be revised (Sun, Strobel & Newby, 2017).

Technology will also change how learners learn and educators teach in the classroom since it will allow educators to interact with knowledge in a positive and proactive manner. The 4IR's new technology is now recognised as a contemporary instrument to enhance and promote new approaches to learning and teaching, rather than just a tool that may be added to existing ones (Sun, Strobel & Newby, 2017).

Understanding what the phrase technology readiness entails is crucial in order to gauge how prepared educators are for using new technologies. The concept technology readiness has been explored by various studies conducted nationally, continentally and internationally. An international study by Badri, Mohaidat, and Rashedi (2013: 2672) in the United Arab Emirates (UAE) found that educators' preparedness to embrace and adapt technology has a direct impact on their success in this area. Similar to this, a continental study carried out in Nigeria by Aremu and Adediran (2011: 181) asserts that readiness or preparedness has to do with awareness, understanding of usage, attitude toward use, as well as developing technical skills in the use of information technology. Hence the study aims to investigate EFAL educators’ readiness to integrate technology in SA.

Similar to this, a study carried out in Kenya by Ouma, Awuor, and Kyambo (2013: 97) contends that computer literacy, perceptions of technology, and attitudes of both educators and learners are important indicators of preparation for technology integration. Before implementation can be accomplished effectively and efficiently, it is crucial to closely assess the readiness of learners, educators, and communities, particularly in South Africa, in terms of prior knowledge and attitudes toward ICT (Department of Education, 2004: 33).

It was discovered that, specifically in the South African context, a platform for acquiring the necessary ICT expertise is most necessary to enable ICT integration into schools (Howie & Blignaut, 2009; Mndzebele, 2013). Learning the requisite ICT

skills is crucial in light of the literature's contention that educators are distinct individuals with a variety of experiences and backgrounds who grew up in varied surroundings (Department of Education, 2004; Department of Education, 2007; Department of Education, 2010; Ertmer & Ottenbreit-Leftwich, 2010).

This suggests that many educators may not have had much exposure to technology and may have only had limited access to gadgets. They might therefore struggle to adjust to the current trend of integrating technologies into the classroom because they may not be at ease using them. Having a training or development program in place that would assist educators in acquiring the skills necessary to successfully integrate technologies is necessary for a number of reasons, and this is just one of them. (Department of Education, 2004). It is vital to have a deeper understanding of the ICT training scenario in order to identify initiatives taken to support educators and ensure their preparation. It is hoped that the educators will be given a platform to acquire the required ICT knowledge to enable technology integration into EFAL lessons.

In order to fulfill their tasks and obligations, educators must adjust their behaviour as the modern classroom changes. Educators no longer work alone in the classroom; instead, they now co-teach, team-teach, and collaborate with other department members (Doucet et al., 2018). They share responsibility for educating learners with other stakeholders including administrators, board members, parents, and learners; they are not alone in charge of this. Educators are engaged in their own learning as lifelong learners. They look for professional development that will enhance both their own performance and that of their learners (Xing & Marwala, 2017).

The learning abilities of pupils are being impacted by current technologies, according to earlier studies on educators' preparation. Additionally, academics have not paid enough attention to instructors' awareness of the necessity of integrating technology in the classroom. The attitudes of educators about utilising technology in teaching and learning are influenced by their views about employing it (Sun et al., 2017), hence this study about investigating educators’ readiness to integrate technology in EFAL classrooms.

Another study found that internet-related technologies are considered significant educational advancements by policy makers and educational leaders (Kumar et al., 2008). Literature demonstrates that educators' attitudes ultimately influence how

educational technologies are used in the classroom, and that their views play a significant role in the successful adoption of those technologies. (Abukhattala, 2016).

Furthermore, Abdulrahman (2014) assessed the level of readiness among educators to incorporate Virtual Learning Environments (VLE) into e-learning. The results showed that, despite some schools having Internet access but poor service, educators lack the skills to use technology to teach, and they are not yet prepared to implement e-learning in elementary schools. The need of providing ICT equipment in these rural schools must be emphasised, and educators need training programmes in e-learning.

An empirical study by Kumar et al. (2008) sought to determine the influences on educators' use of technology and how this can effect their professional development practices. The study examined the association between English language teachers' actual computer usage (AUC) and technology acceptance constructs (TAC) in a secondary school in Malaysia. Overall, the study discovered that secondary school educators displayed a modest level of AUC. The dimensions of attitude, computer compatibility, work relevance, and perceived ease of use additionally demonstrated a substantial positive connection with AUC. The AUC of EFAL rural educators is yet to be determined.

A quantitative study was undertaken by Al-zaidiyeen, Mei, and Fook (2010) to find out how educators felt about adopting Interactive Communication Technology (ICT2) in the classroom. The study also looks into how much ICT2 is used in educational contexts. The results demonstrated that educators had a low degree of ICT2 use for educational reasons and that they had good sentiments concerning its use. Additionally, a strong positive association between instructors' views toward ICT and their level of ICT2 use was discovered. The results indicate that ICT use for educational purposes should receive more attention than it does at the moment.

Abukhattala (2016) used qualitative research to perform a study that looked into how ready Libyan English language educators were to use technology in their classes. The study's conclusions indicated that Libyan educators are not yet prepared to employ technology in the classroom. Therefore, it follows that Libyan English language educators are not ready to integrate technology into their classrooms.

2.6 TECHNOLOGY IN LANGUAGE LEARNING

> Since the beginning of human civilization, there has been teaching and learning—the passing of information from one generation to another. The oral tradition and memory recall were the primary methods of instruction in prehistoric communities. The invention of writing was the first fundamental step in the development of a teaching tool. Thus, script creation and writing might be regarded as the first teaching instrument. The first writing may have been done with sticks first, then fingers, and possibly even on soft surfaces like the ground or sand. The carvings on stone tablets are what have survived as the first writings. Ironically, one of the most cutting-edge educational tools being used now is a different type of tablet (Muttappallymyalil, Mendis, John, Shanthakumari, Sreedharan & Shaikh, 2016: 588).

Since then, the teaching tools of today have evolved into the computer, laptop, contemporary tablet, and smart phone. The history of technology in education and learning is a long one, going all the way back to the earliest days of human civilization. Over time, as technology develops and gets more complex, so too must the education of people who create it (Lawrence & Miller, 2014: 1), including EFAL rural educators in SA.

In general, educators in 21st-century schools have come under a lot of pressure to enhance their instruction. When compared to teaching tools from three to four decades ago, there are also many different resources available to educators now. The usage of projectors, televisions, and cell phones in today's digital classrooms is revolutionizing teaching and learning in educational institutions. The Minister of Education for the Gauteng Province in South Africa revealed intentions to deploy a new teaching method that would involve the usage of tablets by both educators and learners in 2014. This suggested that textbooks, the chalkboard, and written lecture notes will soon be obsolete tools. However, from community to community and person to person, this announcement was greeted differently (Msila, 2015: 1973).

In almost every element of people's life when they begin the 4IR, technology will be a major factor. According to research by the World Economic Forum (WER), 65% of kids starting elementary school will end up working in jobs that do not exist yet (Frezzo, 2017). It was also estimated that by 2020, there would be 1.5 million new digitised jobs across the globe. Therefore, EFAL rural educators should not lag behind.

Both in and out of the classroom, the use of technology in education has become essential. Most language classes incorporate some sort of technology. The usage of technology has benefitted and improved language learning. It gives educators the ability to modify lessons, which improves language acquisition. Its significance as a tool to assist educators in facilitating language learning for their learners keeps growing (cf. Ahmadi, 2018: 115; Lediga & Ngoepe, 2020).

Many people believe that using ICT in the classroom will solve all of South Africa's educational problems. Operational, strategic, and pedagogical difficulties have, however, severely restricted the use of ICT in education in SA (Padayachee, 2017: 36), hence this study, which investigates EFAL educators' readiness to integrate technology in rural public schools.

2.6.1 Benefits of using technology in language learning

Continual technology advancements have had a huge impact on lives since the information era began. Technology's widespread use is also anticipated to revolutionise teaching and learning in educational settings. In order to encourage the use of technology in schools, governments and authorities have invested a sizable amount of money and assistance. The integration of technology in learning processes is believed to benefit learners in various ways and in a whole range of curriculum ideas (LI, Chen & Yeung, 2015: 185). Technological support meted out to EFAL rural educators remains to be fathomed through this study. Although it is well known that some educators are hesitant to embrace current technology for teaching reasons and that some ICT usage tends to be superficial, this idea regarding technical benefits still exists (Yeung, Taylor, Hui, Lam-Chian & Low, 2012b: 861). The EFAL educators' technological benefits will also be revealed.

Numerous studies have proven the value of integrating technology into the classroom. Learners can be involved in meaningful projects that encourage critical thinking and problem solving through the use of technology. Thus, the classroom can be restructured and redesigned using technology to provide a setting that encourages the development of higher-order thinking abilities. (Kurt, 2010). Additionally, it can boost the level of learners' participation, which is a powerful tool for learning. Learners collaborate on projects or examine the work of their peers to pick up knowledge from one another (Keser, Huseyin & Ozdamli, 2011).

For example, benefits of adopting Wiki technology were demonstrated in one study that examined if Wiki technology would enhance students' writing abilities in a college English as a foreign language writing class. Students were urged to sign up for a Wiki page where they could add passages, read them, and reply to those of their classmates. Participants in the study stated that one advantage of adopting this type of technology was getting fast response from the teacher. They also claimed that reading the work of their peers helped them improve their vocabulary, spelling, and sentence structure (Lin & Yang, 2011).

An additional study was carried out to look at how pre-service teachers used technology in math sessions. The study revealed a beneficial impact on math student learning. Pre-service teachers saw that the internet offered mathematics tasks at several levels, allowing pupils to select the level they feel most comfortable working at. The results demonstrated that students were actively participating in the technology-enhanced mathematics courses and were able to discuss what they had learnt the previous day. The students' recollection of the material shocked the teachers. Some of the students who took part in the lessons felt that the computer made it easier for them to comprehend what the teacher was saying. Consequently, technology can be employed to provide an engaging and practical Math lesson (Herron, 2010).

A study that examines the effects of information and communication technologies on students' Mathematics and Science achievement was conducted with 4,996 students in Turkey. The data was obtained from the results of The Program for International Student Assessment (PISA), a standardised test given to 9th Grade students. The study results indicated that students' exposure to ICT at home and school had a positive impact on their Mathematics and Science achievement scores. Students' who spent a lot of time using technology were shown to have increased science knowledge. They also performed better in Mathematics skills. It was concluded that ICT has a positive effect on student learning, and should be included in classroom instruction (Bulut & Delen, 2011). ICT could be included in an EFAL classrooms.

Moreover, according to a different research, the majority of students believe that integrating technology into the curriculum enhances their learning. Students who participated in the survey stated that employing technology in class helps them learn

more and makes studying enjoyable. They held the opinion that technology enhances learning by making it engaging, fun, and interactive. Today's children adore learning through doing, interacting, and finding new things. The use of technology in the classroom has the potential to promote student engagement, motivation, and social relationships, as well as produce beneficial results (Baytak, Tarman & Ayas, 2011). EFAL rural educators can increase learners' motivation, positive interactions, enhance student learning and enhance engagement through technology use.

Furthermore, the study discovered that using technology and peer-led book discussions could boost student motivation and engagement. Wikis, online literature circles, and online book clubs are some of the technological tools employed in these small-group literary conversations. Students were able to interact with readers from other schools, states, and even countries courtesy to these technologies. This kind of technology is an effective and inspiring approach to introduce learners to different concepts and civilisations. These online book discussions have the power to encourage positive social interaction and a sense of community (Coffey, 2012).

2.6.2 Use of technology in English language learning

Learners must use technology as a powerful instrument that plays a vital role in the learning process. To improve learners' actual usage of technology in learning language skills, educators should set an example of how to use technology to complement the curriculum (Costley, 2014). Technology can enhance learner cooperation. Learners can collaboratively design tasks and learn from one another by reading the work of their classmates (Keser, Huseyin & Ozdamli, 2011).

English is considered as one of the most important languages in the world and it is commonly used as a means of communication globally (Akhtar, 2016). As such, it is vital to develop English language skills among learners as early as primary level. It is also necessary to introduce to the learners modern approaches and ICT tools to develop better understanding and acquire basic ICT skills. The use of internet, projectors, mobile phones and email facilities has, in many urban and private schools, assisted in making the teaching and learning of English language attractive and convenient (Akhtar, 2016). Unfortunately, the same cannot be said about public rural schools as the infrastructure makes it almost impossible for educators and learners to optimally perform their duties.

Gilakjani (2017) supports the view that technology has changed language learning methods. The application of technology supports learners' interests, and satisfies both the visual and auditory senses of the learners. According to Lam and Lawrence (2002) and Gilakjani (2017), technology allows learners to modify their own learning processes and gives them access to a wealth of knowledge that their educators are unable to impart.

The application of technology has considerably changed English teaching methods. It provides so many advanced, interesting and productive alternatives (Patel, 2013). In conventional classrooms, educators use a chalkboard or whiteboard to present lectures, explanations, and instructions to learners while standing in front of them. Technology forces a shift in these procedures. Multimedia texts are used in the classroom to assist learners become familiar with vocabulary and grammatical structures. To further develop learners' linguistic proficiency, this use of multimedia also takes use of print texts, movies, and the internet. The usage of print, film, and the internet allows learners to gather knowledge and provides them with a variety of resources for context and language analysis and interpretation (Arifah, 2014). Given a chance, rural educators can use film and the internet to teach EFAL.

Internet use boosts learners' motivation, and using films to teach language encourages learners to interact with the material and expand their knowledge. With the internet and computers, learners can strengthen their higher-order thinking skills and learn in a meaningful way when technology is integrated into the learning process. It can be argued that a successful fusion of multimedia and instructional techniques can be crucial for drawing learners' interest in learning the English language (Arifah, 2014).

2.6.3 Technology and motivation

The integration of technology in modern life has led to transformation in fields such as education and language learning. It is considered important to embrace new virtual tools to support teaching. The lack of appropriate ICT in classroom activities and the importance of adopting different teaching strategies highlight the need to increase interest in practising a language. To foster motivation in English, virtual learning tools

need to be integrated (Barreto, 2018: 119). Motivation influences learning. It is fundamentally significant that educators stimulate and increase learners' interest, and help them achieve established goals .

According to Frydrychova Klimova and Poulova (2014: 53), educators could make learning engaging and fun by changing up the routine of classroom activities and making assignments more enticing. They should also be able to provide work in a motivating manner and foster student cooperation to raise motivation levels. Technology integration in the classroom can lead to the fulfilment of these requirements. As a result, learning that is both more collaborative and participatory as well as more independent and personalized learning may ensue. Additionally, it is possible for instruction to change and adapt to the current needs of the learners.

It makes sense to incorporate computers and tablets into the classroom because many kids spend a lot of time using them. This need to be consistent with what is taught in the English curriculum. Learners should be given the chance to hone their abilities in associating content to their own experiences, living situations, and interests in order to deal with spoken language as well as texts. They should have the chance to learn skills pertaining to material that interests them, using computers and tablets, and this should be included in education (Skolverket, 2011: 32).

There are already several study studies about the motivational effects of ICT in a variety of literature. For instance, a study by Kreutz and Rhodin (2016) titled "The Influence of ICT on Learners' Motivation Toward Learning English" was carried out in a Swedish school. The study looked at how ICT affected students' motivation and whether it had an impact at all. As a result, Andersson (2003), who was referenced by Kreutz and Rhodin (2016), claims that many pupils are disengaged because Swedish schools continue to use antiquated teaching methods. Through survey questionnaires, the data was analysed and gathered. According to the study, integrating ICT in various EFL lectures enhanced students' motivation in a good way. The study came to the conclusion that ICT promotes motivation to learn a foreign language based on the data presented.

In contrast, the research paper "The Motivational Effect of the ICT on Pupils" created by Passey, Rogers, Machell, and McHugh (2004) examined the effects of ICT on pupil motivation and took into account the ways in which educators may improve the

motivational impact on students. As a sample, 17 schools from all throughout England were chosen. The study's data were gathered through questionnaires, observations, and interviews.

The results revealed that ICT most definitely has a beneficial influence on learners in general. Additionally, it was noted that most students enjoyed using ICT in a pleasant atmosphere, and educators generally agreed that ICT enhanced learning through teaching. Once more, the idea of incorporating technology into the classroom yields advantageous results for customising lessons that allow learners to demonstrate their technological competence.

Furthermore, the research entitled *"The benefits of Using ICT in the EFL Classroom: From Perceived Utility to Potential Challenges"* led by Azmi (2017) indicated that the usage of ICT improves performance in the EFL classroom by encouraging autonomy and motivating learning. In this document review study, the material published over the previous two decades was taken into account and reviewed (1990-2014). The analysis of research papers revealed that the right use of ICT in the classroom could produce the required change.

Moreover, the educator's style, which can be a throwback to the 1950s with a focus on the board and chalk, is another aspect that can affect learners' motivation. Technology in many respects provides a wide array of tools for teaching and learning without limits of place or time; as a result, today's learners find learning to be more inspiring. As a result, it is essential that instructors encourage lifelong learning and modify their methods to match the interests of their learners. This information leads to the conclusion that learners' motivation is crucial to their interests in and success in their learning (Chen, 2010; Lediga & Ngoepe, 2020).

2.7 EFAL CONTENT

The National Curriculum Statement (NCS) Curriculum and Assessment Policy Statement (CAPS) Grade 10-12 EFAL incorporate four main learning areas; listening and speaking, reading and viewing, writing and presenting as well as language structures and conventions. The aim of CAPS is to strengthen the content knowledge of educators (Department of Basic Education, 2011).

Regardless of their socioeconomic status, race, gender, physical ability, or intellectual prowess, learners are to be provided with the knowledge, skills, and values necessary for self-fulfilment and meaningful involvement in society as citizens of a free country through the NCS. This is accomplished by granting access to higher education (HE), easing learners' transfer from educational settings to the workplace, and giving employers a complete picture of a learner's competencies (DBE, 2011: 4), which should include profiles of their use of technology.

The NCS is also founded on ideas like social change, which involves making sure that historical educational inequalities are corrected and that all segments of the population have access to equitable educational opportunities, particularly those involving the use of technology. By promoting active and critical learning methods over rote and uncritical memorization of predetermined truths, active and critical learning is promoted. Both EFAL educators and learners can benefit from the active and critical learning that technology integration can foster. In addition, the notion of high knowledge and high skills is realised by setting high, attainable standards in all areas while minimizing the knowledge and skill requirements for each grade. According to the Republic of South Africa's Constitution, social and environmental justice, human rights, and inclusivity are ingrained values and practices (RSA). The NSC strives to provide an education that is equivalent in quality, breadth, and depth to that of other countries while being sensitive to issues of diversity like as poverty, inequality, racism, gender, age, disability , and other characteristics (cf. DBE, 2011: 5). So too should EFAL's use of technology.

Additionally, each school's organisation and planning should prioritise diversity. This is only possible if all educators have a good grasp of how to identify and remove learning obstacles as well as how to prepare for diversity. The secret to managing inclusion is making certain that obstacles are recognised and addressed by all pertinent support networks within the school community, including educators, district-based support teams, institutional-level support personnel, parents, and special schools as information centres. The First Additional Language level assumes that learners do not necessarily know the language when they enter the FET phase, including how to use technology in an EFAL environment (DBE, 2011: 5).

By the time they enter grade 10, learners should be proficient in their first additional language in terms of both intercultural communication and cognitive academic abilities. Technology use could also be used to learn these abilities. The truth is that many learners still have trouble speaking their additional language fluently. As a result, the challenge in Grades 10–12 is to support the learners while also providing a curriculum that allow learners to meet the requirements for Grade 12. These requirements must be made so that learners can utilise their second language with a high degree of competency to get ready for further education or the workforce (cf. DBE, 2011)Technology use in EFAL can help prepare learners for the post-school world.

Learning a first language should give learners the ability to use that language for academic learning across the curriculum, as well as to confidently listen to, talk, read, watch, write, and present in that language. Through the use of technology, EFAL educators might better plan for and put these skills and attitudes into practice. Together, they constitute the foundation for lifelong learning. To develop into independent, critical thinkers, learners should be able to articulate and defend their own thoughts, feelings, and opinions both orally and in writing. The ability to access and organize information for learning across the curriculum and in a wide range of other contexts, as well as to express their experiences and discoveries about the world, should be made possible by this. In the future, with the help of technology, they will be able to read texts for a variety of purposes, including enjoyment, research, and critique, and express themselves, interact critically with a wide range of texts, and interact critically with a wide range of texts in order to challenge the perspectives, values, and power relations embedded in those texts.

Reading and writing should receive a lot of attention in Grades 10–12. Grammar, phrase structure, and sentence and paragraph organisation should all continue to receive support. In addition, learners need to refine their conversational skills from previous grades and grow more self-assured and receptive. Their sense of what is appropriate will increase facilitated by the use of relevant software. For example, where learners are not able to interact with speakers of the language, they need to practise a variety of informal and formal spoken forms in the classroom. EFAL learners ought to work with a range of texts and these texts have to increase in difficulty as they

move through the grades. Moreover, EFAL learners ought to be well prepared for using their Additional Language to prepare them for examination (DBE, 2011: 12)

Listening and speaking

Listening, which is the skill of understanding spoken language, is important for anyone who has to carry out many tasks on a daily basis. Pre-listening, while listening, and post-listening are the three stages of listening. The pre-listening stage is what learners do before they listen to the spoken language. For example, learners prepare themselves by activating their background knowledge of a text by conducting research on the topic they are going to listen to (cf. Role of Theory). The while-listening stage is what learners do when listening to a text. The aim is to listen for meaning, that is, to elicit a message from a spoken word. During the while-listening stage, it is important for learners to establish and understand the gist of a text. This could be played repeatedly online to the satisfaction of the learner. There are various purposes that learners can pay attention to during listening, as such, Learners might listen for specific information, for critical reflection and assessment, for engagement, and for enjoyment (cf. DBE, 2011: 20). The post-listening stage is what learners do after listening to a text. Some of the activities learners do may add to what they were doing during the pre- and while-listening stages. Post-listening allows learners to reflect on the text they have listened to, on speech sounds, how the language is structured and the words that were used (Nunan, 2001). Thus, the pre-listening, while listening and post listening stages render themselves applicable through technology use.

Speaking involves a wide range of formal and informal situations like casual conversation, informed researched debate and presentations. EFAL learners have to learn to speak fluently, coherently and confidently. The two stages involved in speaking are planning, researching and organising, as well as practising and presenting could be implemented through platforms such as Zoom, Google Meet and Teams. In formal situations, learners demonstrate their planning, researching and organising skills for oral presentations by using resources and referencing materials to find and select information. In an argument, they offer different types of proof such as statistics and specific instances. They also use audio and/or visual aids to enhance and appeal the accuracy of presentations. Further, with practising and presenting,

EFAL learners demonstrate their skills by using appropriate forms of address, using correct language structures and conventions as well as speaking with appropriate, clear intonation and pronunciation. Formal speaking in the EFAL classroom includes prepared speech, unprepared speech, prepared reading aloud as well as interviews. Further, formal speaking in an EFAL classroom could also be used in argument and viewpoint during presentation such as panel discussions and debate. It could also be used for specific purposes and contexts such as giving directions, instructions, introducing a speaker and offering a word of thanks . In conversational English, formal speaking could be used for asking permission, offering help as well as apologising (cf. DBE, 2011: 28)

Reading and viewing

Reading is not an act of passively receiving a message that is already complete and clear. As readers, EFAL learners have to interact and engage with the text in order to extract and construct meaning by using relevant software. When reading a new text, it is important to make connections with existing knowledge. Pre-reading, while-reading, and post-reading are the three stages of the reading process. The goal of the pre-reading activities is to introduce the text and determine strategies for its reading. This prepares learners for reading a text in their Additional language and make them more receptive of the information. To do this, learners need to engage their schematic knowledge, which is the mental framework or system according to which they organise existing information and store new information. Background information can be about the type or genre of text. Knowing the type of text—creative, factual, informative, persuasive, or argumentative—can assist learners understand what to expect, how the text will convey its message, and what the text's overall aim is (DBE, 2011: 28).

During the while-reading stage, for optimal reading comprehension, it is important to read actively. While reading, learners are already constructing meaning and developing understanding. They are able to question and clarify different points of the text, and connecting different parts to one another. This part of the reading process will rely on the learners' understanding of language and grammar. The goals of post-reading activities are to establish and test learners' comprehension of the text and to help learners to process the text, organise and store the information that they have

extracted from it and add this information to their schematic knowledge of the topic. In this part of the reading process, learners should reflect on the text and evaluate it (Wyse, Jones, Bradford & Wolpert, 2013: 182).

Moreover, during reading, EFAL learners employ various strategies to decipher meaning from texts. This can include, among others, digital dictionaries, thesauruses and other reference works to determine the meaning, spelling, pronunciation and parts of speech. Learners are able to identify the meaning of common prefixes such as de- , co-, non- and common suffixes such as –er, -ess. Further, learners are able to distinguish between commonly confused words such as homophones, homonyms, homographs, synonyms, and *etcetera.* In addition, EFAL learners can apply their grammatical knowledge to understand sentence construction. This will enable them to identify, explain and analyse the meaning and functions of language structures and conventions in texts. This will enable learners to analyse text structure for different purposes and use transactional words or conjunctions such as and, if, though and etcetera (cf. DBE, 2011: 31).

Furthermore, learners will be able to apply their knowledge of genre and formal texts to understand the meaning, intention and effects of texts. For summary and note taking, EFAL learners will apply their understanding of text features to summarise text by skimming and scanning for main idea and theme, separating main ideas from supporting detail, paraphrasing main ideas using their own words as well as using conjunctions to link words together in a text. EFAL educators can assist learners to self-assess themselves technologically. Subsequently, when studying literature, EFAL learners will be able to read, evaluate and respond to the aesthetic qualities of literary texts. This will assist learners to understand different literary forms such as distinguishing characteristics of a poem to that of a novel or a short story. Learners will also be able to identify and explain figurative language and rhetorical devices such as simile, metaphor, personification, irony, anti-climax and etcetera (DBE, 2011: 31).

Writing and presenting

Writing is usually inspired by stimulus. In any kind of writing, simulation is important as a way of engaging with a topic. The three stages in writing are pre-writing, while-writing and post-writing. The strategies involved to generate ideas during the pre-writing stage include, among others, brainstorming, free-writing and clustering. Writing down as many thoughts or phrases regarding a particular subject as rapidly as you can is known as brainstorming. Similar to brainstorming, free writing uses sentences rather than words or phrases. It is used to develop a flow of ideas and can serve as warm-up exercise. Clustering is also called mind-mapping, and focuses on exploring the connection between the ideas. Thus, ideas for writing could be generated online. It is imperative for EFAL learners to keep in mind that when writing, they are writing for a reader. It is an act of communication and should clearly convey the message. To communicate the message effectively, post writing is crucial. This phase consist of two components, which are, revision and editing. Revision entails making changes to the content and structure in a written piece and ensuring that the writing responds properly and completely to the topic (Wyse et. al., 2013). Computers programmes such as Microsoft can be used to edit and revise written work.

During the writing process, EFAL learners need to acquire knowledge on how to use appropriate register, for example, how to construct business English language in a business letter. EFAL educators can help learners download examples of appropriate register in context. Learners also need to establish an individual voice, that is, write from their own point of view, know and use a wide range of vocabulary, know connotative and denotative meaning of words, know what part of speech a word is and how to use it in a sentence as well as using dictionaries to expand their vocabulary. When constructing sentences, EFAL learners have to know different types of sentences such as simple, compound and complex sentences. They have to be able to use conjunctions such as and, but, or to join clauses in compound sentences and use subordinating conjunctions such as when, if, in order to, because, to join sentences in complex sentences. Educators could consult a variety of e-grammar books that are accessible online. Further, in paragraph writing, EFAL learners have to learn how to use connectors such as firstly, moreover, similarly, afterward, to link sentences in a paragraph. Moreover, learners have to know and be able to use

punctuation marks such as full stop, comma, colon, semi-colon and question marks appropriately and accurately. Finally, EFAL learners need to acquire skills to write long transactional texts such as information report, short transactional text such as directions, argumentative, discursive, narrative essays, e-mail, diary, obituary, business letters, as they form part of their curriculum content (cf. DBE, 2011: 44). To this effect, EFAL educators can access samples of different types of texts from the Internet.

Language structure and conventions

Without a solid understanding of language structures and practice using them, it is impossible to put the skills of listening, speaking, reading, and writing into practice. Language conventions and structures, as well as portions of grammar and vocabulary, are taught to EFAL learners in the context of reading and writing. Additionally, as part of a systematic programme and in reaction to frequent problems discovered by educators, there should be activities that expressly address grammar (DBE, 2011: 15). In this instance, the ability of EFAL educators to access e-grammar books cannot be over-emphasised.

As part of vocabulary development and language use, EFAL learners have to learn figures of speech such as simile, personification, irony, know idiomatic expressions, neologisms and etymology as well as parts of words. Thus, the educators can use digital libraries to access relevant sources to apply figures of speech in the NCS content accordingly. Additionally, EFAL educators must be familiar with a variety of noun types, including countable nouns (cup/cups) and uncountable nouns (water), determiners (indefinite article: a car), pronouns (I, she, it), adjectives (The young man), adverbs (carefully), prepositions (on, at), verbs (He bought a car), verb tenses (simple present, present perfect), concord (sub (colon, apostrophe) (cf. DBE, 2011: 48).

2.8 EFAL RURAL EDUCATORS IN PUBLIC SCHOOLS

EFAL educators in public schools experience many challenges, from learners not attending school regularly because of socio-economic challenges such as the distance from home to schools, and high drop-out rates. Educators and learners rely on school

transport such as minibuses and busses to ferry them to and from schools. During rainy seasons, the gravel roads makes it difficult for the educators and learners to access the schools. This implies that there is a possibility that both educators and learners might not attend schools for weeks during these seasons, meaning these remotely-based learning institutions are disadvantaged. Further, transport difficulties also make visits from district officials to isolated schools less frequent (du Plessis & Mestry, 2019: 2). According to Dichaba and Ndandani (2013), when it rains heavily, rural learners and educators from some parts of Kwazulu-Natal and the North-West Provinces cannot get to school by road and face other risks. This also has a negative impact on the EFAL educators as they sometimes miss important information because they are oblivious of what is happening around them.

Another challenge faced by educators in rural schools is lack of resources. Many schools do not have libraries, and this is one of the essentials needed for schools to thrive, including rural public schools. Further, there is no technology resources such as computers, laser projectors as well as computer laboratories in many rural schools (see 4.2). EFAL educators still rely on the traditional method of chalk and textbooks. Some of the schools have computer laboratories that are non-functional and the school management does not intervene, as they are not aware of the importance of these resources. Additionally, the infrastructure in some of the schools are dilapidated old structures. The classroom conditions are not conducive for both educators and learners as the walls and floors are cracked, the chalkboards are chipped and there are no glasses in some windows. These challenges have serious impacts for EFAL educators in terms of maintaining discipline, planning for lessons and conducting assessments for learners (du Plessis & Mestry, 2019: 1).

Furthermore, finding competent EFAL educators for public schools in rural South Africa is challenging. In accordance with Brown and Swanson (2003: 61), the ideal rural educator at the basic level must be prepared to teach various grades or subjects, coordinate extracurricular activities, and acclimatise effectively to the environment and community. It is difficult to find EFAL educators who are prepared to do all this and fit into a rural community. Alternatively, rural schools rely on EFAL educators who are not well qualified to teach certain phases because qualified and interested educators do not want to migrate to the rural areas. There are numerous contextual difficulties for EFAL educators deployed to rural schools.

EFAL rural educators in public schools lack the 4IR essentials. The educators and schools are still in the 2IR (see. 2.4.1.2) as there are some technological developments happening in schools but they still lack the infrastructure associated with 3IR, one of them being the internet. The EFAL community still lags behind with these technological developments as they do not move between digital domains and offline reality in line with the 4IR expectations.

English is a second language (L2) for many SA EFAL educators and learners in rural schools. Their home language is an African language. The learners lack exposure to English beyond the classroom, and are not well developed on basic communication skills as well as grammatical and semantic systems. Another challenge includes educators who are not adequately trained to teach English as a second or additional language. Lack of resources such as libraries and computer laboratories in rural schools further exacerbates the situation. In order for rural EFAL educators and learners to be adept in the English language, they require access to the necessary resources in their schools. To assist in reducing these problems, it is recommended that there should be increased diffusion of ICTs to rural schools to assist in developing and training educators as they are required to impart knowledge to learners, but they are also not well equipped for this. Hence, this study investigates technology integration readiness of EFAL educators in rural public schools.

2.9. THEORETICAL FRAMEWORK

The two theoretical underpinnings of the study are the Technology Readiness Index (TRI) and the Technological Pedagogical and Content Knowledge (TPACK). The theoretical framework incorporates some of the dimensions that are related to educators' readiness, such as the attitude towards the use of ICT, technological knowledge, and technology and content-related issues.

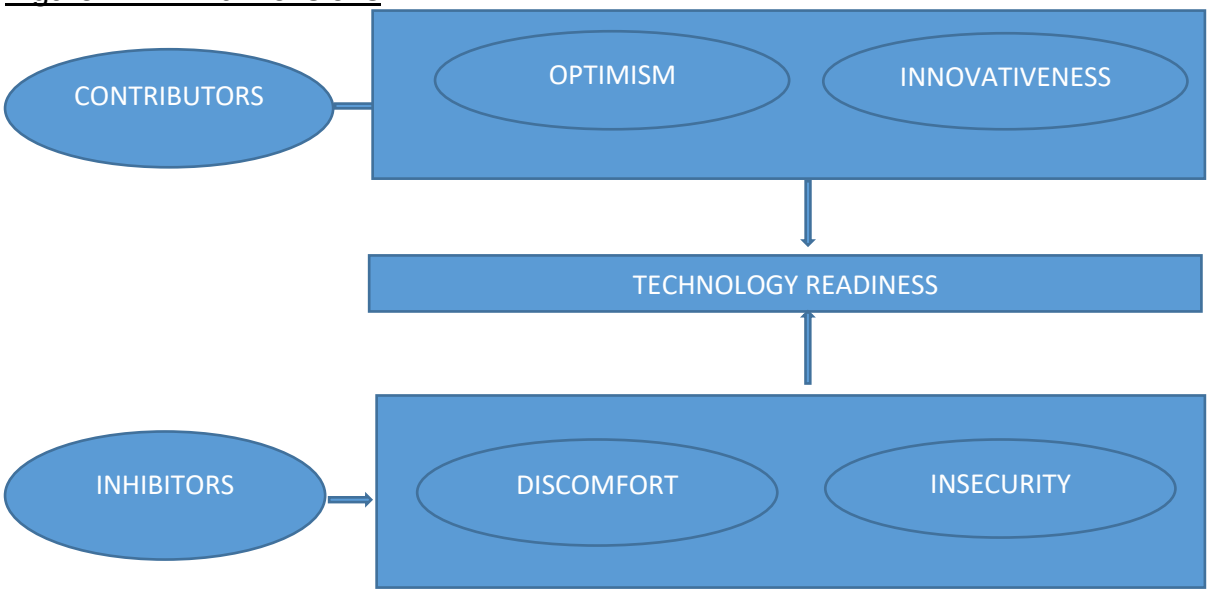
2.9.1 TECHNOLOGY READINESS INDEX

Technology Readiness Index (TRI) is defined as people's propensity to embrace and use new technologies in order to accomplish goals in home life and work. The TRI consists of four dimensions of an individual's attitude towards technology use. From the four dimensions, two dimensions harbour positive feelings that contribute to the adoption of new technologies, while the other two harbour negative feelings which inhibits the adoption thereof. Therefore, the optimism and innovativeness dimensions

contribute towards positive feelings, whereas discomfort and insecurity contribute towards the negative feeling. Parasuraman's (2000: 308) study empirically supports the extent to which these four dimensions determine the predisposition of people to use technology. It remains phenomenal that educators can embrace and use new technologies to accomplish the teaching of EFAL.

Figure 2.2 below shows the four TRI dimensions of an individual's attitude towards technology use.

Figure2.2: TRI dimensions



To comprehend an individual's mental state, the TRI applies four concepts. In this study, individuals are EFAL rural educators. The positive and negative dimensions are discussed below.

2.9.1.1 Positive dimensions

As mentioned before, there are positive dimensions that harbour positive feelings in motivating the adoption of new technologies, namely, optimism and innovativeness.

2.9.1.1.1 Optimism

The definition of optimism is having a favourable attitude about technology and believing that it gives users more freedom, flexibility, and productivity in their daily lives. According to this dimension, technology in general is beneficial. People prefer

using a computer to do business since it does not need them to be present during typical business hours, to name a few reasons from the optimism dimension. People's daily activities are given more control by technology, which also increases the effectiveness of such tasks. For instance, a research looked for instances where educators thought technology use helped improve classroom relationships. They were therefore hopeful that the outcome would be higher levels of learner engagement, together with enhanced learner outcomes and improved digital skills (Partin & Lauderdale, 2013). Rural educators need to be optimistic about the use of technology in integrating technology into their EFAL content.

2.9.1.1.2 Innovativeness

Innovativeness is the propensity to be a thought leader and technology pioneer. It refers to the degree to which an individual thinks that he or she is experimenting with new technological goods or services. On matters relating to technology, those with high degrees of inventiveness are regarded as thought leaders. People who are adept at using new technologies without assistance and those who adopt new services or products in their own environments before others are some examples of those who fit the innovativeness dimension. Thus, a person who actively engages with information sources to learn about emerging technologies and their effects on society will be considered innovative (Falloon, 2013). Rural educators should be eager to try technology products or services for teaching EFAL.

2.9.1.2 Negative dimensions

Negative dimensions that harbour negative feelings which inhibit the adoption of technology are discussed in the next section.

2.9.1.2.1 Discomfort

The perception of losing control over technology and a sense of being overtaken by it both contribute to discomfort. It refers to the extent to which people demand a need for control over their use of technology and who generally have a dread of using it. The notion that technology has not been created for "regular" people is one example of how the discomfort dimension manifests itself. In the TRI, discomfort is conceptualised as being present, for instance, when individuals find it difficult to

understand how technology is used (Ifenthaler & Schweinbenz, 2013). Some educators may lack control over technology and could feel overwhelmed by it.

2.9.1.2.2 Insecurity

According to the TRI, mistrust stems from, for instance, worries about security and privacy and is what leads to insecurity. The way that educators view technology might be impacted by their discomfort and insecurity. This may reduce the potential benefit of technology diffusion (Ampofo et al., 2014) including that of EFAL educators.

According to the TRI, the study placed educator optimism and innovation as technology enablers since they would help EFAL instructors in their drive to use ICTs. While this was going on, the TRI was used to treat educator discomfort and insecurity as barriers to ICT adoption that might have an impact on how educators perceived ICT use for teaching and learning as well as how they could evaluate other educators who quickly adopt ICTs.

Studies on the adoption of new technologies have revealed the importance of technology preparedness. Studies of telecommunications technologies served as the basis for this study (Parasuraman, 2000). The notion of technology readiness is frequently utilised, particularly in the area of corporate marketing, where research focuses on finding market segments that are most likely to adopt new technologies, such as mobile data services(Blut, & Wang, 2020), distance learning (Hendry, 2000), and online insurance (Taylor et al., 2002), among others. The authors created the technological readiness model for each of these investigations in order to analyse respondents' propensity to embrace new technologies (cited in Caison et al., 2008). Therefore, the TRI dimensions can be used to assess the technology readiness of EFAL educators.

2.9.2 TECHNOLOGICAL PEDAGOGICAL AND CONTENT KNOWLEDGE

The specialized knowledge categories required for successful technology integration are described in Mishra and Koehler's (2006) Technological Pedagogical and Content Knowledge (TPACK). The TPACK paradigm recognises the requirement for content knowledge (CK), pedagogic knowledge (PK), and technological knowledge (TK) among educators (TK). CK refers to educators' understanding of the material that needs to be taught or learned. This is the understanding of subject matter, such as

concepts, theories, ideas, frameworks, evidence, and proof, as well as accepted procedures, including how to acquire such knowledge. PK is the educators' deep knowledge about the processes and practices or methods of teaching and learning. The processes and practices encompass, among other things, overall educational purposes, values and aims. Understanding how learners learn, classroom practices management techniques, lesson planning, and assessment are all included in this general category of knowledge. PK is concerned with how learners learn best and what instructional strategies that educators need to meet the learners' needs (Koehler & Mishra, 2009). Similarly, EFAL rural educators need CK, PK and TK specialised knowledge.

To incorporate ICTs into teaching and learning, TK (knowledge of how to use technology) is a fundamental form of knowledge. It entails understanding particular approaches to considering and using technology, resources, and tools. This necessitates having a thorough understanding of information technology to use it efficiently in both work and daily life, knowing when information technology can aid in or obstruct the achievement of a goal, and being able to consistently adjust to changes in information technology (Koehler & Mishra, 2009). Educators should know what digital tools are available, and which would be most appropriate for the lesson at hand.

By combining the three types of knowledge mentioned above, Pedagogical Content Knowledge (PCK), Technological Content Knowledge (TCK), and Technological Pedagogical Knowledge (TPK) are created. PCK refers to knowledge about how to impart topic material in relation to a particular teaching and learning situation in order to improve learning. However, PCK is crucial to lesson plans in the classroom. PCK incorporates educators' ability to convey the conceptual approach, relational knowledge, and adaptive reasoning of the subject matter in the teaching and learning process (Kathirveloo, Puteh & Matematik, 2014). PCK combines pedagogical and topic knowledge to produce learning that is based on in-depth subject knowledge and effective teaching and learning techniques. Therefore, EFAL educators need TPK and PCK.

One aspect of TCK is understanding how to use technology to impart subject matter. It explains how educators are aware of how material and technology may both affect and compete with one another. It also entails knowing how the subject matter can be

communicated using various edtech products and taking into account which particular edtech tools could be best suited for particular subject areas or classrooms. The content, how it is presented to learners, and how they can interact with it are all improved or transformed by the use of digital tools by educators.

On the other side, TPK expertise focuses on how to use technology to improve teaching and learning techniques (Koehler, Mishra & Cain, 2013: 14; Koehler, Mishra, Kereluik, Shin & Graham, 2014: 102). The educator must be familiar with using digital resources to facilitate learning outcomes. With the introduction of new pedagogical affordances and limits, TPK describes educators' understanding of how certain technologies might alter both the teaching and learning processes. Another aspect of TPK is comprehending how these tools can be applied in tandem with pedagogy in ways that are relevant to the discipline and the creation of the lesson at hand.

Technological Pedagogical Content Knowledge (TPACK), which is the main tenet of the TPACK paradigm, is created when all of these knowledge kinds are connected with one another. To successfully implement TPACK in an EFAL classroom, educators must integrate different knowledge forms. The TPACK model is the cornerstone of effective teaching with technology, and it calls for knowledge of the representation of concepts using technologies, pedagogical techniques that use technologies in constructive ways to teach content, what makes concepts difficult or easy to learn and how technology can help solve some of the problems that students face, knowledge of students' prior knowledge and theories of epistemology, and knowledge of how technologies can be used to enhance learning (Mishra & Koehler, 2006: 1029). Educators can employ the model to determine the knowledge they should concentrate on in order to teach effectively using technology. The TPACK framework can help EFAL educators identify relevant knowledge to teach effectively using technology.

The TPACK framework is illustrated in the Figure 2.3 below:

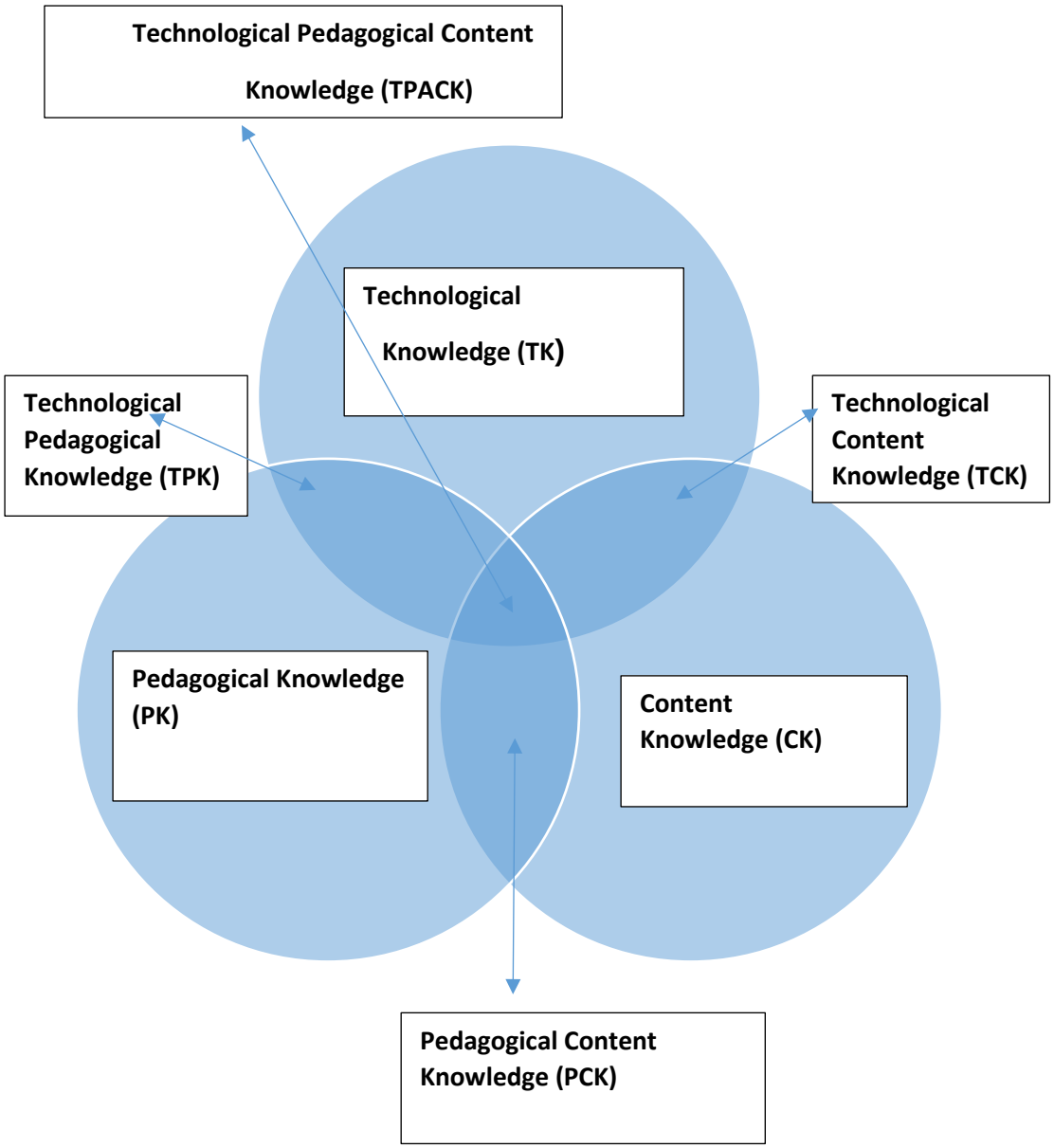


Figure 2.3: Technological pedagogical content knowledge framework (source Koehler & Mishra 2008).

There are several overlaps between the three main categories of knowledge. Each of these points represents a deeper degree of awareness, making their junction important. A complete understanding of how to integrate technology is represented by the TPACK acronym in the diagram's centre. Understanding how to teach concepts using technology in a way that improves learners' educational experiences is the goal of TPACK.

2.10 CONCLUSION

This chapter reviewed the literature on the integration of technology by EFAL educators. It focused on the description of ICT learning context, technology integration readiness of rural educators in SA, library digital resources, trends and innovation in English learning and technology in language learning. The chapter highlighted the sequence of the industrial revolutions that led to the emergence of technologies that are pertinent in this study. These are issues that are of great importance in enabling the researcher of this study to fulfil the objectives set in Chapter 1.

The next chapter discusses the research methodology.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 INTRODUCTION

This chapter will present a detailed account of the research method and design. In addition, the study will address population selection as well as sampling techniques, research instrumentation, and data collection procedures. Data analysis and processing methods will be outlined and, ethical considerations towards participants will also be expanded upon in this chapter.

3.2 RESEARCH METHODOLOGY

Tuli (2010: 102) defines research methodology as a research strategy that converts ontological and epistemological premises into rules that specify how research is to be performed. The methods employed to perform a study are sometimes referred to as methodology by McMillan and Schumacher (2010: 21).

3.2.1 Research design

McMillan and Schumacher (2010: 20) define research design as the methods used to carry out the study. Consequently, the purpose of a research design is to outline a strategy to allow the researcher to produce empirical evidence that will be used to address the research questions and objectives. The study is based on the exploratory research design, which is a two-phase sequential model, which is investigated quanti-qualitatively to see whether the results are generalisable. This research design is employed in this research study as individual educators and HoDs are pedagogical practitioners who are expected to engage with technology to improve the quality of education in general and that of EFAL specifically, to comply with the requirements of the 21st century. The exploratory study is also considered by the researcher to be convenient in the current study in that new instruments are developed and tested in order to generalise results to different groups (Richards, Ross & Seedhouse, 2012: 308). The exploratory study also helped the researcher to gain various perspectives, more information and to generate more conclusions rather than rely on information from a single case.

3.2.2 Approach

To explore the technology readiness of EFAL educators in rural public schools, a mixed method approach was followed mainly to ensure that the study findings are grounded on participants' experiences. As a methodology, it includes philosophical assumptions and analysis of data from multiple sources in a single study.

In this study, a mixed method approach is used as it is interpretive, rigorous, reflexive and deep in nature (Mortari, 2015: 5). Further, the mixed method research approach was relevant in that the researcher was concerned with the explanations and the descriptions of technology integration readiness from the perspective of EFAL educators rather than from outsiders. In addition to this assumption, educator participants are familiar with technology contexts in school; they have content knowledge, pedagogical knowledge and varying levels of technological knowledge. All these types of knowledge mentioned are the basis of the theoretical model that informed the study. Therefore, educators could be probed to express what they feel and know regarding technology integration readiness at their schools (cf. Theoretical Framework). Through these interactions, the researcher was afforded an opportunity to gain an in-depth understanding of educators' experiences and perspectives on the social reality of ICT readiness in the schooling system.

3.3 PARTICIPANTS

The research sample that was selected from the population is discussed below.

3.3.1 Population

Population is a larger group to which a researcher wishes to generalise. It includes all members of a defined class of people, events or objects (Ary, Jacobs & Sorenzen, 2010). The population of this study comprises all Grade 11 EFAL educators and HoDs in all rural public schools in all nine provinces in the Republic of South Africa (RSA), namely, Eastern Cape, Gauteng, Free State, KwaZulu Natal, Limpopo, Mpumalanga and Northern Cape, North West, and Western Cape. The educators and HoDs in rural schools are therefore the population of the study. The participants were selected as the researcher believes that they interact with learners that are about to exit secondary

schools to Institutions of Higher Learning (IHL) where they will be exposed to diverse technologies. As such, it is imperative to the researcher to determine whether the educators are ready to integrate technology in their EFAL classroom content as this will also determine and support the success and readiness of learners in preparation for IHL.

3.3.2 Sampling

The sample of the study is made up of those who meet the required criteria (Alvi, 2016: 30). Based on the aim and objectives of the study, the researcher used non-probability purposive sampling in selecting the research participants who provided the required information due to the fact that their schools are situated in the rural areas. In purposive sampling, the sample is approached with a prior purpose in mind. All the schools selected in the study are situated in the rural area, and thus meet the required criteria. The research sample size in this case study consisted of ten rural secondary schools from five provinces in South Africa, 10 Grade 11 EFAL educators and nine language HoDs. However, the researcher was unable to interview the tenth HoD as she or he was on a six-month leave. Although the sample is small, it represents schools in the rural area context of this research as the two schools from each province belonged to the same district. Together they constituted a case study, which, according to the researcher, was appropriate to yield rich and relevant information regarding technology integration readiness of EFAL educators in rural public schools.

To this end, two schools were selected from Gauteng Province in Tshwane West District. In Free State, the selected schools were under the Fezile Dabi District. In Mamabolo Circuit, Limpopo Province, two schools were selected. In Mpumalanga, the two schools were from Nkangala District. Finally, in North West Province in Moretele District, two schools were selected. The researcher was not familiar with four of the selected provinces and relied on District Directors and Circuit Managers to select the schools that participated in the research.

3.4 DATA COLLECTION

The process of obtaining data is made up of connected tasks designed to find relevant data to address the research objectives (Creswell, 2013: 145). Data of this mixed

method approach study was gathered through three instruments, namely, questionnaires, interviews and equipment checklists (see Appendices A, B and C). Open ended quantitative questionnaires were used to gather information from English language educators in order to investigate their technology integration readiness. Interviews were conducted with English language HoDs to determine their technology readiness levels, and an equipment checklist was used to examine the availability of technology facilities and resources at the schools.

The study also used a convergent parallel model in the collection of data in which independent data sets were designed to help answer parallel questions in both the quantitative and qualitative instruments. Data was collected concurrently, analysed separately and then merged to produce findings (Creswell & Plano Clark, 2011: 180

3.4.1 Research instruments

3.4.1.1 Questionnaires

According to the standardization principle, Johnson and Christensen (2012: 170), each research participant must get the exact same stimulus (a list of questions). Questionnaires were used as one of the instruments to collect data related to the current study. The use of questionnaires in the study enabled the researcher to collect data efficiently across the five provinces in South Africa. Questionnaires are a well-known method of collecting data because researchers can get information easily and the responses are also easily coded (Sekaran & Bougie, 2013: 115). The researcher formulated a hardcopy questionnaire which was presented to the participants, who were allowed to keep the questionnaire overnight. The researcher collected the questionnaire the following day. This approach was used mainly because the researcher had to set appointments with HoDs before interviews. As a result, questionnaires were collected the day interviews were conducted. The questionnaire was informed by the aim and objectives of the study.

3.4.1.2 Interviews

Interviews are the most common format of data collection in research. Sekaran and Bougie (2013:120) explain that in structured interviews, questions should be asked to everybody in the same manner. The interviews with all participants were conducted in

English. Prior to the interviews, the researcher made appointments with the interviewees in order not to disrupt their schedule The interviewees did not have access to the interview questions prior to the interviews as the researcher aimed to gain a true reflection of their views, not premeditated responses. Permission to record the interviews was requested from the participants.

3.4.1.3 Equipment Checklist

An equipment checklist with items that were relevant to the study was prepared to evaluate whether schools' infrastructure, especially technology-related was sustainable enough for the participants to integrate technology in their teaching. To determine EFAL educators' readiness to integrate technology in their teaching, it was imperative for the researcher to also check whether the selected schools have relevant ICT resources and equipment. The checklist checked, amongst others, the quintile number of the school, laptops and desktops available and Wi-Fi connectivity at the selected schools.

3.4.2 Triangulation

To increase the trust in future findings, the research method known as triangulation combines more than one study technique or design in a single examination (De Vos, Strydom, Fouche & Delport, 2011: 442). Methodological triangulation, or using many methods to collect data, was used in this study by the researcher. Interviews, questionnaires, and equipment checklists were the methods employed in the data collection process. Additionally, by utilizing a variety of methodologies, the researcher was able to enrich the inquiry and conduct cross-checks to strengthen the validity and veracity of the research findings.

3.5 DATA ANALYSIS

To better understand the information, the researcher must study and analyse the data collected using any data gathering techniques. The information will also help the researcher properly explain and assign meaning with the goal of drawing reliable conclusions. As a result, Hashemnezhad (2015: 60) defines data analysis as the act of analysing data and interpreting the findings. At this research step, the enormous amounts of data are divided into components that are more manageable and then assessed with an emphasis on patterns, themes, and concepts. Therefore, in order to

provide meaning, the researcher interprets, summarises, and reduces what participants have said.

To analyse the quantitative data, Qualtrics and Microsoft Excel were employed. The researcher's first action was to become familiar with the data. Reading and rereading textual material (interview transcripts, questionnaire responses), as well as listening to audio recordings, allowed the researcher to become fully engaged in the data. The equipment checklist was organised into smaller pieces. After breaking down a large amount of data into manageable chunks of meaning, data was then coded in a meaningful and systematic manner. To find areas of resemblance and overlap between codes, coded data were examined. The creation of themes and sub-themes was done in order to reflect and depict meaningful and cogent patterns in the data. For open-ended questions, Qualtrics Statistical Analysis Software was employed. It is a tool that is used primarily for survey data collection. A dashboard was created in Qualtrics to monitor the responses as they were recorded and produced preliminary reports. The Text IQ feature was used to measure the sentiments in open-ended questions.

3.6 QUALITY CRITERIA

In line with the mixed approach followed in this study, the trustworthiness of data implies checking the credibility, transferability, dependability, validity, reliability and confirmability of research findings (Denzin & Lincoln, 2013) in order to determine the degree of confidence in the data, interpretation and the method used to ensure the quality of the study (Pilot & Beck, 2004). Since the study embraces both qualitative and qualitative approaches, for qualitative data, the elements of credibility, transferability, dependability and conformability were observed. Further, the elements of validity, reliability and objectivity were also observed and discussed for quantitative data.

3.6.1 Credibility

Credibility establishes if the research findings are a valid interpretation of the participants' initial perspectives and represent plausible information derived from their original data (Korstjens & Moser, 2018: 121). The researcher made sure that techniques for gathering data, such as questionnaires and interviews, allow for the

inclusion of additional background data from research participants. This extra data was collected in order to learn more about the participants' exposure to technology, the educational environment and whether or not they are expected to integrate it, as well as their ICT skills. A more accurate image of educators' readiness for technology integration might be drawn thanks to the researcher's ability to depict the circumstances and situations in which the research participants operate after gathering more background material.

3.6.2 Transferability

The extent to which the findings can be applied in different circumstances is known as transferability (Babbie & Mouton 2009:277). When talking about transferability, it is important to keep in mind that each person's experiences are particular to them and cannot be applied to the entire community. There might be some transferability because the individuals were selected on purpose. This indicates that the participants had some things in common, such the fact that they were all EFAL educators. This kind of selection enables study replication (Guba, 1981: 86).

3.6.3 Dependability

According to Elo, Kääriäinen, Kanste, Pölkki, Utriainen & Kyngäs (2014: 2) dependability describes the stability of the research study and findings throughout time and under many circumstances. In other words, dependability refers to the notion that same results would be obtained if the research study were to be performed with the same or similar research participants and situations (Babbie & Mouton, 2009.) Additionally, the researcher made sure that the questionnaire and its many items consistently assessed the ICT attitude and knowledge of the educators.

3.6.4 Confirmability

Confirmability is concerned with the idea of impartiality. The researcher must protect the inter-subjectivity of the data. The evidence rather than the researcher’s personal opinions and worldview must support the interpretation (Korstjens & Moser, 2018: 122). The researcher maintained neutrality to guarantee confirmability. The researcher's views and viewpoints informed the interpretation of the data, which was

nevertheless supported by the facts. The researcher was forthright and honest throughout the study, and most importantly, correctly reflected the feelings of the participants.

3.6.5 Validity

Validity must be the cornerstone of any trustworthy and accurate analysis method. (Bond, 2003: 179). Utilising three different types of instruments, questionnaires, interviews, and equipment checklists to gather data allowed this study's validity to be guaranteed. Educators first completed questionnaires, HoDs were then interviewed, and finally, the researcher completed a checklist with the assistance of EFAL educators.

3.6.6 Reliability

According to Creswell (2012:164), using several data gathering methods improves a study's validity and reliability (in this case questionnaires, interviews, equipment checklists). A weak instrument can be balanced out by another's strength. When a researcher measures the same variable more than once or when the same variable is measured by more than one person, it is likely to produce the same results (Brink, 2000: 157). In the same settings, but under different conditions, multiple instruments have produced consistent results. Therefore, reliability is related to the measurement precision of the data collection tools. If an instrument's measurement properly represents the true scores of the attribute being studied, it can be called to be dependable (Polit & Beck, 2004: 416).

3.6.7 Objectivity

The process of gathering data using several tools lessened the possibility that findings would contain bias (Polit & Beck, 2004: 319). Only participant-generated data from the questionnaires, interviews, and equipment checklists was shared by the researcher.

3.7 SIGNIFICANCE OF THE STUDY

The study is significant as the relationship between technology integration and educators' readiness towards computer use in rural South African high schools seems to be a burning issue. The outcome of this study will enable rural public schools to make informed decisions on the integration of technology in the EFAL classrooms, and to change their attitudes towards technology integration, thus providing a basis for in-depth discussion of the development of ICT in rural public schools. The study will also be of significance to all educators in SA as they may benefit personally by reflecting on their attitudes, feelings, perceptions and skills with regard to technology use in the classrooms.

3.8 ETHICAL CONSIDERATIONS

Ethical considerations are defined as parts of the research. If the study does not feature these considerations, then it is doomed to fail. In this study, ethical issues such as permission, informed consent, confidentiality, anonymity and protection from harm were observed (Bell & Bryman, 2007).

3.8.1 Permission to conduct research

Ethical clearance was sought from Turfloop Research Ethics Committee (TREC). Permission to conduct the study was also sought from the Department of Education districts in the five provinces that were earmarked for the research. EFAL educators and subject HODs were requested to participate in the study.

3.8.2 Informed consent and voluntary participation

All participants were requested to sign a consent form and were informed that their participation was voluntary. No respondents were forced to participate in this research study or answer questions if they felt uncomfortable to do so.

3.8.3 Confidentiality, anonymity and protection from harm

Confidentiality and protection of identity of participants were upheld. On the subjects of respect for human dignity, safety from danger, freedom of expression, and information access, assurances were provided. Other than the researcher, no one else

will have access to the information from this study. Alphabetic numbers, namely HoD A, B, C et. cetera were allocated to all the research participants to protect their identity. Thus, the researcher will make sure that participants are protected from harm.

Participants were not exposed to any danger or risk, including to COVID-19. The researcher when visiting schools for data collection purposes observed all COVID-19 protocols. Implicitly, researchers should not expose research participants to unnecessary physical or psychological harm, unusual stress, embarrassment or loss of self-esteem. No direct payments or other forms of remuneration was offered to participants as an incentive or reward for participation in the study (cf. Leedy & Ormrod, 2013).

3.8.4 Permission to record the interview

A recorder was used to capture information from the participants. Before the commencement of interviews, participants were informed that their responses would be recorded. They were encouraged to answer all the questions because this was going to help the researcher gain a better understanding of their views regarding the integration of technology in their EFAL lessons.

3.9 CONCLUSION

This chapter provided an overview of the methodology that was adopted in the study. Questionnaires, interviews and equipment checklists were employed as data collection instruments, which collected mixed method data. The research was conducted in accordance with accepted ethical guidelines after ethical considerations were considered.

The next chapter focuses on the presentation, analysis and interpretation of data collected through questionnaires, interviews and an equipment checklist.

CHAPTER 4

ANALYSIS OF RESULTS

4.1 INTRODUCTION

This chapter focuses on the analysis and discussion of data gathered through questionnaires filled by Grade 11 EFAL educators, interviews with language HoDs as well as equipment checklists.

4.2 ANALYSIS OF QUESTIONNAIRE DATA

Ten (10) Grade 11 EFAL educators filled in a questionnaire on technology readiness; two participants from each of the provinces were selected for the study. Questionnaire data was analysed in terms of EFAL educators' biographical background, their technology readiness, their usage of technology, training on the use of technology as well as their attitude towards technology integration.

Table 4.1: Biographical background of EFAL educators

Participants	Gender	Age	Teaching Qualification	Highest Qualification	Other Qualification
Educator A	Male	26-30	B. Ed	B.Ed Honours	ICT
Educator B	Female	26-30	B. Ed	B. Ed	–
Educator C	Female	36-40	BA/BSc/BCom with PGCE	PGCE	ACE
Educator D	Female	26-30	B. Ed	B. Ed	HC in Events Management
Educator E	Male	Above 45	Diploma	Diploma	ACE
Educator F	Male	Above 45	Diploma	Diploma	ACE
Educator G	Male	26-30	B.Ed	B. Ed	–
Educator H	Male	Above 45	Diploma	Diploma	ACE
Educator I	Female	Above 45	Diploma	PhD	–
Educator J	Female	31-35	BA/BSc/BCom with PGCE	MA	–

The participants comprised five males and five females. Four of the participants were above 45 years of age. Another four were between the ages of 26 and 30. The other two participants were between 31 to 35, and 36 to 40, respectively. Four of the educators held diplomas, 4 held Bachelor of Education (B. Ed) degrees and two had a Post Graduate Certificate in Education (PGCE). The highest qualifications from the participants ranged from Diplomas to a doctoral degree (PhD). Three participants indicated that their highest qualification was a diploma and another three held B. Ed degrees as their highest qualification. The other four participants held BA, B. Ed Honours, Master of Arts and PhD, respectively. Therefore, the educators' qualifications suggest that they are academically qualified for their current positions. Additionally, some of the participants indicated that they had other qualifications besides their teaching qualifications. Four of the participants held Advance Certificates in Education (ACE), one held a Higher Certificate in Events Management (HCEM) and the other one an ICT certificate.

Table 4.2: Educators' teaching experience

Participants	**Teaching experience**	**Average class size**	**Current grade(s) responsible for**	**Grades taught before**
Educator A	6-10 years	More than 50 learners	8 & 11	9 & 10
Educator B	Less than 5 years	45-50 learners	10 & 11	-
Educator C	6-10 years	41-45 learners	10 &11	9
Educator D	Less than 5 years	41-45 learners	10 & 11	-
Educator E	Over 25 years	45-50 learners	9, 11 & 12	8-12
Educator F	16-20 years	45-50 learners	11	8 & 10
Educator G	Less than 5 years	41-45 learners	11 & 12	-
Educator H	11-15 years	45-50 learners	10, 11 & 12	8 & 9
Educator I	Over 25 years	36-40 learners	11 & 12	-

Educator J	Less than 5 years	36-40 learners	10 & 11	-

Regarding the educators' teaching experience, four of the participants indicated that they have been teaching for less than five years. Three have been teaching for six to 10 years, whereas two have over 25 years of teaching experience. The other one has 16-20 years of teaching experience.

Furthermore, with regards to average class size, four educators indicated that they had 45-50 learners in their classes. Two indicated that they had 36-40 learners while another two indicated 41-45 learners. Further, the other two participants had 31-35 learners and more that 50 learners, respectively. All participants indicated that they were currently responsible for teaching EFAL in the FET phase (grade 10-12) with two participants also being responsible for Senior Phase (grade 8-10). With the educators' years of experience in teaching, three educators indicated that they have taught grade 8 in the previous years, and three have taught grade 9. Five of the educators have been teaching the same grades since, with three teaching grades 10 and 11, whereas two have always taught grades 11 and 12.

Technology readiness

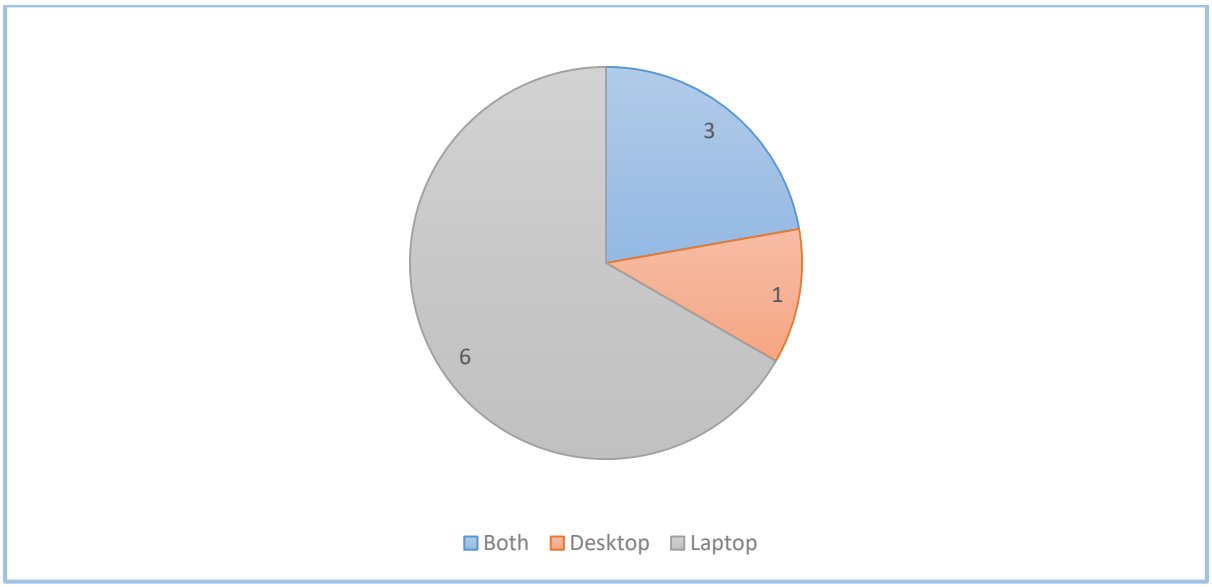
Table 4.3*:* Computer availability at schools

Interview question	**Yes (There is a computer at school)**	**No (There is no computer at school)**
Is there a computer your school?	10 educators	0 educators

In connection with technology readiness, the educators were asked to state whether their schools had a computer or not. All the surveyed educators indicated that their schools had a computer. The question that followed asked the educators to indicate

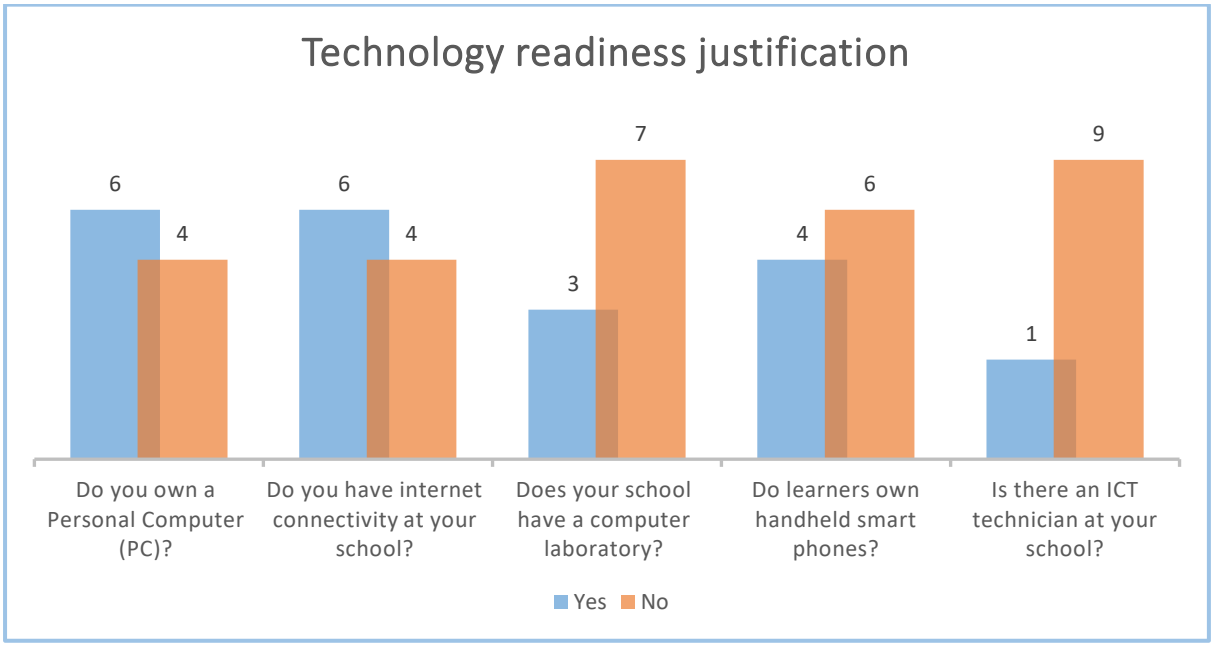
whether the said computers were desktops or laptops. The results are shown in Figure 4.1 below:

Figure 4.1*:* Availability of a desktop or laptop at school



The chart above indicates that six of the 10 schools had only a laptop, one had only a desktop and three schools had both a laptop and a desktop. This indicates that there is at least one technological device at schools. This implies that although schools are in possession of these devices, these were not adequate to accommodate every educator. It was also disconcerting to learn that the devices were mainly used for administrative, and not for learning, purposes. In order for educators to be able to integrate pedagogical and technological knowledge into the EFAL content, they need to have adequate technological devices (Apau, 2017: 167).

Figure 4.2: Technology readiness justification



Regarding technology readiness, the EFAL educators were asked justification questions pertaining to technology readiness at their schools. The above figure recorded all the responses. The results indicate that although a majority of the educators (six in10) own a personal computer and have internet connectivity available at the school, there are still no computer laboratories or ICT technicians at the sampled schools. This corroborate with the assertion by Mdlongwa (2012) that many rural schools do not have the infrastructure as well trained personnel to take care of technology devices. This is a gap that needs to be closed if the integration of technology at the schools is to be realised. The system needs to be fully equipped with all the necessary gadgets. The results also suggest that there are no handheld smart phones for learners, which again indicates that rural public schools are not ready to integrate technology into their curricula (cf. Lediga & Ngoepe, 2020).

Table 4.4: Ability to operate PC

Interview question	**Yes (I can operate a PC)**	**No (I cannot operate a PC)**
Are you able to operate a PC?	10	0

Regarding the use of a computer, the educators were asked to indicate their capabilities to operate a computer. All of them said they were able to operate a computer. This is a good indicator because being able to operate a computer is one of the key areas that educators need for the success of technological integration into the curriculum.

Training on the use of Information and Communication Technology (ICT)

The table below mainly shows the number of educators that have received training on the use of ICT and those who have not.

Table 4.5: Educators' ICT training

Educator	Trained on the use of ICT?	When was it?	How long did it last?
Educator A	Yes	2018	2 weeks
Educator B	No		
Educator C	Yes	2016	2 weeks
Educator D	No		
Educator E	Yes	2010	21 hours
Educator F	Yes	2019	1 week
Educator G	Yes	Every Wednesday (May & June)	2 months
Educator H	Yes	2021	2 hours
Educator I	No		
Educator J	Yes		

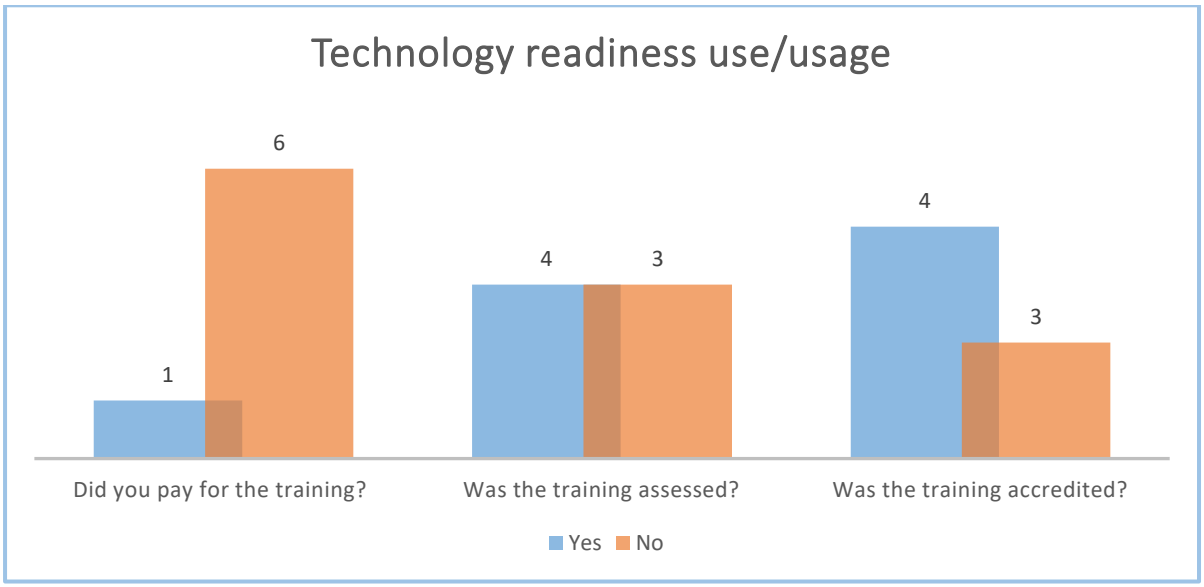
In as far as training on ICT in general is concerned, the data collected is captured in Table 4.5 above. The majority of the educators (seven in 10) indicated that they received training in differentiated periods between 2016 and 2021, with one educator having received the training in 2010. The training lasted at least a week for four educators, and less than a day for two educators. Additionally, Table 4.6 below depicts educators' quotations:

Table 4.6: Training on the use of ICT

Participant	Training
Educator A	"Use of ICT for teaching and learning in language".
Educator C	"Microsoft word, PowerPoint, Excel".
Educator E	"Professional development in the ICT skills for teachers' course".
Educator F	"The training was based on a software called Moodle, which we were trained to use it and introduce online learning".
Educator G	"How to use a smart-board in class. How to use GDE online content".
Educator H	"The use of PowerPoint when presenting a lesson".
Educator J	"Basic ICT skills, Microsoft word, Microsoft Power point and PC operating skills".

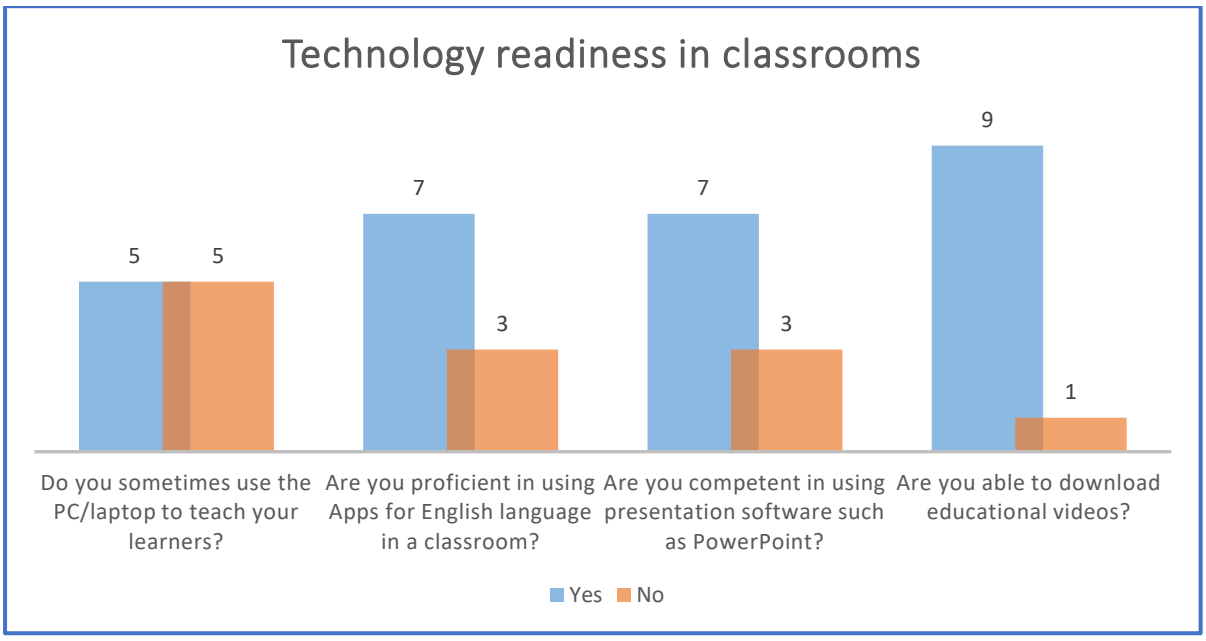
Furthermore, the training was mainly about basic Microsoft Office packages, with one educator indicating that the training was about the use of smart-board in class. In Figure 4.3 below are some of the details of the training given to the educators:

Figure 4.3: Educators' technology training



Seven (7) educators responded to the question which is in line with educators who attended computer training (see Table 4.5). The results indicated that majority of them did not pay for the training. However, four of the educators indicated that the training was assessed and accredited.

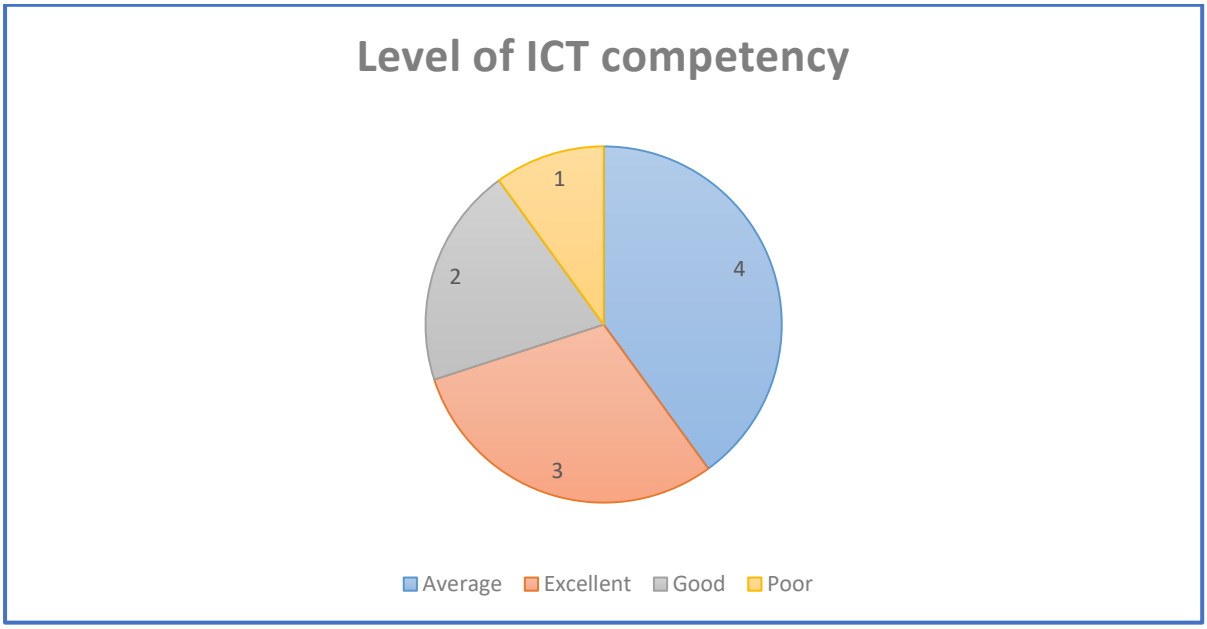
Figure 4.4: Technology readiness by EFAL educators



The figure above illustrates that 50% of the EFAL educators used laptops in their lessons with the learners, and the other 50% did not. This suggests that there are educators who still prefer the traditional approach to EFAL content. These are the individuals that need to be trained on the use of technology integration.

Additionally, 70% of the educators indicated that they are proficient in English language applications in the classroom, and are also competent in using presentation software. Further, nine of the 10 educators indicated that they are able to download educational videos.

Figure 4.5: ICT competency



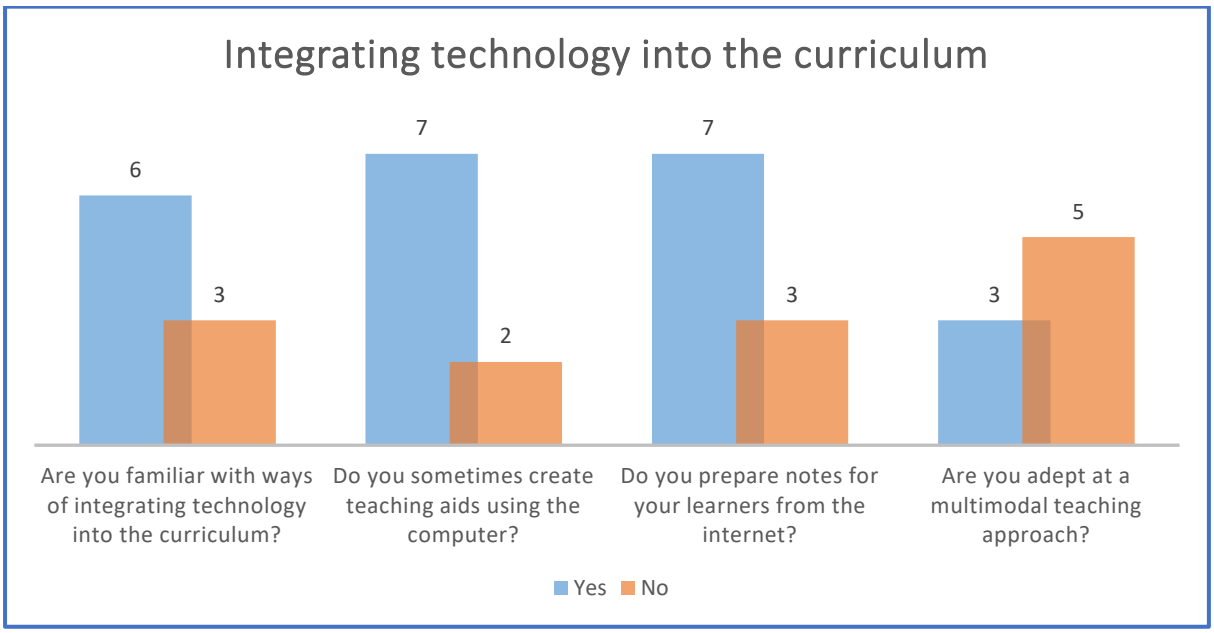
Regarding the educators' level of ICT competency, Figure 4.5 above shows that below 50% of the EFAL educators (40%) are average users, while only 30% are excellent users of ICT. Only one in 10 indicated they are poor in the application of the ICT. This suggests that the educators need support in the form of ICT training to upskill them before the integration of technology in EFAL rural schools (Apau, 2017: 168). The educators are quoted in Table 4.7 below as follows:

Table 4.7: Further ICT training needed by educators

Participant	Statement
Educator A	“Skills to assess learners using ICT”.
Educator B	“How to teach using technology, e.g. PowerPoint”.
Educator D	“The use of Apps for English language in a classroom”.
Educator E	“How to operate Microsoft applications, e.g. PowerPoint, Excel, Word etc”.
Educator G	“How to assess learners' performance when they use their tablets with my own”.
Educator H	“Excellent operation of a smart board”.
Educator J	“I am compatible with many ICT applications required/suitable for my profession”.

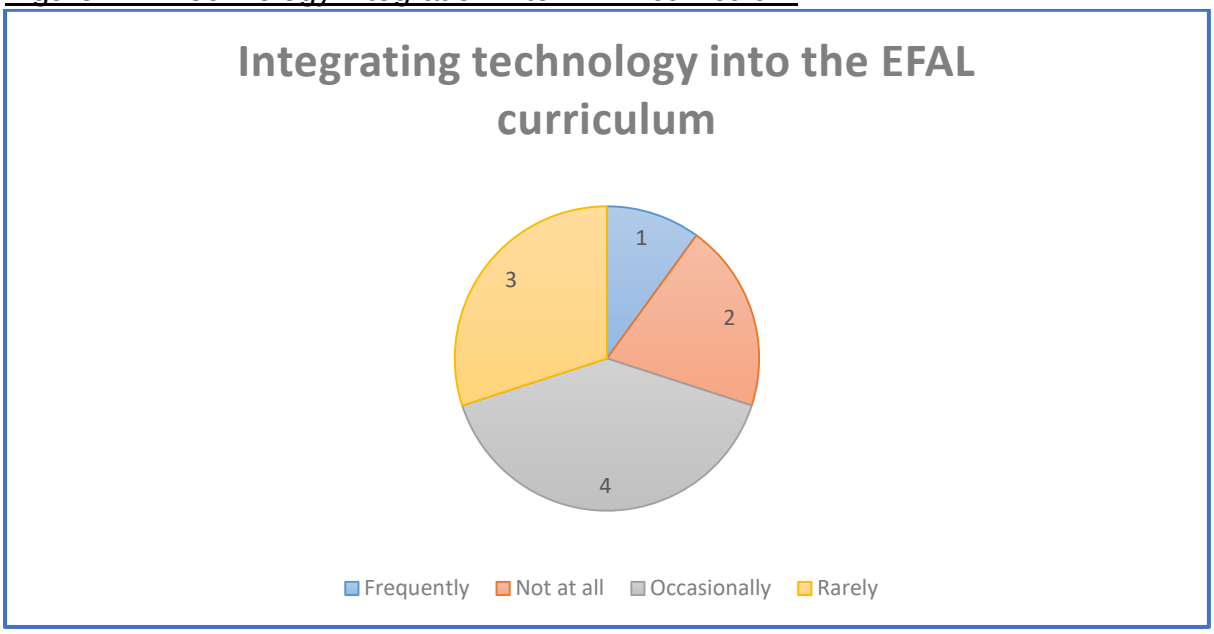
Table 4.7 above depicts educators’ responses to one of the questions asked regarding the technology usage training they wished to attend. The results revealed that they wanted training on the basics of Microsoft packages, skills to assess learners using technology, English language applications and ICT teaching tools. However, one participant (Educator J) indicated that he/she is compatible with many ICT applications required for the teaching profession, as such, no further training would be needed.

Figure 4.6: Integrating technology into the curriculum



The results suggest that six in nine educators are familiar with ways of integrating technology into the curriculum. One participant (Educator D) did not respond to the question. Seven in 10 participants prepared notes for their learners from the internet and seven in nine educators often created teaching aids using the computer. Additionally, only three in eight were skilled in multimodal teaching approach. This further indicates that, if training is provided to EFAL educators, and rural public schools were to be provided with technological devices, the prospect of integrating technology into the English language content can be achieved.

Figure 4.7: Technology integration into EFAL curriculum



The figure above indicates that four in 10 educators do integrate technology into the curriculum occasionally, three in 10 rarely integrate it, and two in 10 do not integrate it at all. This is not a good indicator of readiness since only one in 10 educators integrate technology all the time. Lack of technology resources in rural public schools can be the reason many EFAL educators are not integrating technology into the curriculum (cf. Munje & Jita, 2020: 266).

Attitudes towards technology integration

The educators' attitudes towards technology integration are presented in Table 4.8 below.

Table 4.8: Educators' comfortability using technology in an EFAL classroom

Participant	Statement
Educator A	"Yes, it makes things simple and teaching and learning take place effectively".
Educator B	"Yes".

Educator C	"…it makes my life easier as a teacher because when I teach leaners cartoon, advertisements, it's a challenge when you do not have enough textbooks".
Educator D	"…If given the opportunity, yes, and also, if "all" learners would be given access to technology, e.g. tablets and Internet access".
Educator E	"…No, but since we were offered laptops, one is forced to learn to use it. I for one will learn with my learners".
Educator F	"…mainly because it is quick, and I am able to get different range of information. I have also noticed that using projectors motivate learners and learning".
Educator G	"…It is faster, but sometimes I switch to manual teaching".
Educator H	"…because it limits the traditional way of writing on the chalk board and it also saves lesson time/duration. You are able to teach and assess learners in an hour's time".
Educator I	"No".
Educator J	"Yes".

In line with Table 4.8 above, most of the EFAL educators stated that they would be comfortable using technology because it would make things easier and faster; there would be ease of access to information; and it would serve as a motivation to learners since the current generation of learners are technologically savvy. They further added that ICT integration would provide simplicity and bring effectiveness to learning as it would limit writing on the chalkboard. Thus, EFAL educators would be comfortable using technology in an EFAL classroom. Therefore, they will have a positive attitude towards technology integration in the EFAL content.

The educators were asked if they think computers are valuable tools. Their responses are captured in Table 4.9 below.

Table 4.9: Computers as valuable tools

Participant	Statement
Educator A	“teaching should take place in an environment that accommodates learners' needs”.
Educator B	“…yes, we are now in the technological era, everything is now dependent on technology”.
Educator C	“…they are valuable tools because we use computers to set activities and tests for learners”.
Educator D	“…they lessen the time needed to plan and prepare a lesson”.
Educator E	“…I believe most concepts will be better explained using this tool. It is always best watching processes unfold than explanations of how they occur”.
Educator F	“…computers help teachers to search for any new information to record, prepare lessons and also learn”.
Educator G	“…because they are convenient, faster and you get exposed to lot of information on the same platform”.
Educator H	“They are valuable because you can prepare a lesson using a computer and even search from the internet at the same time”.
Educator I	“…helps with setting question papers and notes for learners”.
Educator J	“…we are lining in the technological era. Educators have to be trained on how to operate computers and schools be provided with them”.

According to Table 4.9 above, the respondents indicated that they thought computers were valuable tools for them. They all gave reasons why they believe that computers are valuable tools. Educator A indicated that teaching must take place in an environment that caters for learners’ needs. Educator B further elaborated that, since we are in the technological era, everything is dependent on technology. Hence,

technology in the 21st century needs to be embraced by educators, including EFAL educators (Gopo, 2022: 47). It can, therefore, be concluded that the educators concurred that computers are valuable tools for them because they bring convenience as they accommodate learners, reduce time taken to prepare for lessons, and give access to new information, for example.

Table 4.10: Opinions about technology integration in English language learning

Participant	Statement
Educator A	“ICT provides development to educators and allows them to move with times in regard to technology”.
Educator B	“It will help the learners to concentrate more in class as they are unfamiliar with technological methods of teaching and learning”.
Educator C	“ICT in English language will help us a lot because we not well resourced schools. We do not have enough textbooks for learners”.
Educator D	“It will improve learners' language skills (reading, writing, speaking, and listening) as they will have more resources to practice them individually because it is difficult to assist all learners in overcrowded classrooms”.
Educator E	“I am positive that it will take the language to greater heights. Learners will realise quality results and be globally competent”.
Educator F	“I believe that it is needed mainly because it will motivate learning. Help learners to see different English words and learners may interact/participate”.
Educator G	“It's mostly for literature if you want learners to get exposed as to what you are teaching about is rooted from role plays, poetry analysis and stories”.

Educator H	“It is the best way of teaching method because you can teach, assess and give feedback in the same lesson by just a click of a button”.
Educator I	“It is a good idea”.
Educator J	“ICT integration in English language teaching will help in both developing language skills and providing more opportunities for communication between peer learners”.

In connection with the integration of technology in EFAL learning, the findings presented in Table 4.10 above showed that technology integration in English language learning will be beneficial mostly to learners’ language development. It will improve their concentration and participation in class and their vocabulary; expose them to different literatures; and improve their communication and competency in English language as well as language skills development. The majority of learners, according to Baytak, Tarman, and Ayas' study, think that integrating technology into the classroom curriculum enhances their learning. According to survey participants, employing technology in the classroom makes learning enjoyable and aids in learning more. They had the opinion that learning is more engaging, fun, and participatory thanks to technology. The way that today's learners learn is via doing, interacting, and finding (Baytak, Tarman, & Ayas, 2011). The use of technology in the classroom has the ability to improve learners engagement, learning, and motivation while also increasing social connections and yielding fruitful results. The table above shows the views of the 10 participants.

The respondents were also asked to indicate what they would prefer between traditional method and technology integration. Their responses are depicted in Table 4.11 below.

Table 4.11 Traditional method versus technology integration

Participant	Statement

Educator A	“No, times have changed. As teachers it is important to be well equipped with skills that will make teaching and learning better”.
Educator B	“I think using both of them will be beneficial”.
Educator C	“the traditional method of teaching is time consuming, so ICT will make learning interesting for learners and it will save time for teachers and learners”.
Educator D	“I would integrate both methods because some learners need special attention and need teachers to explain content in a language, they are familiar with (home language) to understand more”.
Educator E	“…with the use of ICT I think we will be advantaged to acquire the pronunciation and articulation that frustrates us with the traditional method”.
Educator F	“No, I prefer ICT”.
Educator G	“Traditional method works best for me, you do not experience technological glitches. With ICT, loadshedding may disturb the lesson, and some learners are not exposed to such, so it need time”.
Educator H	“ICT does it all. ICT replaced the traditional method because it can do what the traditional method does. It is faster and convenient”.
Educator I	“Yes”.
Educator J	“I believe in using both methods”.

The findings emanating from participants’ responses indicated that some educators prefer technology integration because it is faster and convenient, and saves time, whereas the traditional method is time-consuming. Some educators still prefer to use the traditional way of dealing with content over ICT integration, while others prefer both

of them. Participants who still prefer the traditional method pointed out challenges that would emanate from technology integration, indicating that the issue of loadshedding is one hindrance that will disturb the integration of technology in EFAL.

The EFAL educators were further asked if they think integrating technology in the English language curriculum may have a positive effect on learners' performance. The table below presents their responses.

Table 4.12: Integrating technology in the English language curriculum

Participant	Statement
Educator A	"Learners are more interested in technological devices, hence bringing them to class ensures that they are ready to learn in a way they enjoy".
Educator B	"Some of the novels we teach are available as videos. Learners will benefit if we use these and it will have a positive effect".
Educator C	"It will have positive effect because learners will have the knowledge of technology, they will not struggle when they go to universities or higher learning institutions".
Educator D	"Only if formative assessments were to be written digitally because when assessing transactional texts we check language and editing skills. However, a computer can be set to "auto-correct" that. Hence I don't think it will develop their writing skills if they have to write using pen and paper".
Educator E	"It will definitely boost their self-esteem. Through watching debates and the likes of spelling bee competitions their eyes will be open".
Educator F	"Yes, because this helps us as educators to give learners feedback immediately and if I'm not available at school I could send work while home".
Educator G	"It will help learners with a lot of information in whatever that they may be lacking on. Information will always be available to them".

Educator H	"…because of the audio-visual clips they are used in the lesson, the learners easily understand the lesson".
Educator I	"Yes, it will help learners with a lot of information in whatever that they may be lacking on. Information will always be available to them".
Educator J	"Integrating technology in teaching will change learning and the learning environment drastically. It will lead to increased learner collaboration, hands-on learning opportunities and increased confidence in students".

According to Table 4.12 above, the educators pointed out that integrating technology in the English language curriculum may have a positive effect on learners' performance because technological devices excite learners and play a vital role in preparing them for higher learning where technology is mostly utilised. They further stated that integrating technology into the classroom would boost learners' self-confidence, which is essential for active involvement in class, which is an integral part of class participation. It will also bring practicality to lessons as well as ease of access to information (cf. Zhang, 2022).

Additionally, they said that integrating technology into the classroom will increase learners' self-confidence, which is necessary for active participation in class. The educators' input is shown in Table 4.13 below**.**

Table 4.13: Effectiveness of digital technology

Participant	Statement
Educator A	"Yes, curriculum needs should be integrated with learners' needs".
Educator B	"Yes".
Educator C	"Yes, innovation in education encourages students and teachers to research, explore and use all the tools to uncover something new".

Educator D	“Yes, it will save time by using e-books, internet (websites) to find more information and learners will engage more!”.
Educator E	“Yes, if work is simplified, we can cover the syllabus on time and intensify the revision. Differentiated learning can be easily applied”.
Educator F	“Yes, learners are sharing textbooks, so if learners are able to access study materials this will allow all the learners an opportunity to study at their own pace”.
Educator G	“Not sure, but I believe that it is easy, content is accessible, faster. It saves time of making copies and all”.
Educator H	“Yes, because you can teach and make research at the same time, in the process of teaching and to find solutions in the same time”.
Educator I	“?’”
Educator J	“Yes”.

In the table above, eight educators concurred about the effectiveness of digital technology. However, one was not sure and another one did not agree. They mentioned that because technology approaches save time, boost learner participation, and simplify their work, adopting it could be helpful in enhancing the application of the curriculum. These responses suggest that the integration of technology will improve the implementation of the curriculum because technology eliminates the manual and tedious ways of learning. As such, the turnaround times of activities will improve. Another factor that emerged from one of the participants is ease of access to information. Educators seem to hold a strong belief that the integration of technology would enable them to multitask because information would be easily accessible (cf. Wood, Mirza & Shaw, 2018: 554).

Table 4.14: Innovative teaching methods

Participant	Statement

Educator A	“Methods that enhance teachers' development are important to meet the needs of learners when it comes to their development”.
Educator B	“Yes, traditional teachers’ methods can sometimes be boring to learners”.
Educator C	“It will enhance the modes of communication, paperless, better teaching and learning methods, especially during the Covid-19 era and school holidays”.
Educator D	“Yes, however the lack of adequate resources and overcrowded classrooms can limit that”.
Educator E	“Yes. Just that today’s learners are a large problem. One cannot separate them to work on their own”.
Educator F	“mainly because it helps with learner engagement. Meaning that those learners who are shy to answer questions loudly in class will be able to answer online quiz that educators may have prepared”.
Educator G	“It exposes learners to many strategies in order to understand a particular lesson presented”.
Educator H	“…because innovation makes the lesson flexible that addresses the problem encountered during the lesson. The use of projectors and pointers is very important”.
Educator I	“Yes”.
Educator J	“Yes, especially teaching through collaboration”.

Regarding innovative approaches to EFAL, findings that are shown in Table 4.14 above revealed that educators were not in favour of outdated teaching methods as they can sometimes be boring to learners. However, innovating new teaching methods would improve their development, as well as that of learners. Further, it will improve the methods of teaching and learning and learner participation, bring flexibility to learning, and expose learners to different learning strategies.

Pertaining to the benefits of technology in English language, educators gave various responses that are presented in Table 4.15 below.

Table 4.15: Benefits of ICT

Participant	Statement
Educator A	“Teachers will be in par with times that need technological knowledge within the classroom”.
Educator B	“I think it will prepare learners for tertiary education as it is used at tertiaries”.
Educator C	“Teachers need to acquire skills in ICT. Proper training needs to be put”.
Educator D	“Learners will engage more. Saves time”.
Educator E	“It will bring alive the settings of the stories and plays and poems in literature. In that way they will be able to differentiate, visualise and explain in depth”.
Educator F	“It will help learners to acquire more knowledge and information about language English. Learners will be able to interact with other people from other countries”.
Educator G	“Learners' cognitive skills will improve. It improves their communication skills. Learners learn to become involved and to learn on their own”.
Educator H	“That is the usage of ICT that help teaching a lot in a short space of time, meaning that a lot is taught and assessed”.
Educator I	“It would make learning more interesting and accessible for learners”.
Educator J	“Time management leading to the completion of tasks; easy student management; saves or eliminates the usage paper which is enviro-friendly and also enhances data and information security”.

The table above shows that the integration of technology in English language will save the environment through reduced paper usage, and benefit learners through improved class participation, improve cognitive skills and acquisition of new knowledge, and improved communication skills. In addition, the educators will be skilled in ICT and adapt to modern approaches. All these attributes will yield a conducive classroom environment and will also save time needed for content preparation and the actual sharing of relevant content among educators and with fellow EFAL educators (cf. Mwapwele et al., 2019:6).

Pertaining to measures that could be taken to improve educators' readiness to integrate technology, the educators identified the following points that are presented in Table 4.16 below.

Table 4.16: Measures to improve educators' readiness

Participant	Statement
Educator A	"Teachers should be provided with workshops. Provision of technological devices".
Educator B	"Providing teachers with training and workshops".
Educator C	"Teachers need to acquire skills in ICT. Proper training needs to be put in place before implementation".
Educator D	"Educators should be trained while at tertiary level rather than focusing on theory. There should be training that actually allows teachers to practice".
Educator E	"First of all is the infrastructure. In our area, the signal depends on the weather and availability of electricity".
Educator F	"Schools need to have computer labs. Educators need to be trained. In a term at least once. Provide educators with laptops. Schools must have a Wi-Fi".

Educator G	"Organize workshops and provide educators with quality ICT equipment, e.g. PCs together with accessible connectivity every time".
Educator H	"Consistent training for educators is of vital importance since it will develop their skills and excel in their lessons".
Educator I	"Provide learners and teachers with technological devices
Educator J	"By teaching and training them and also by making sure that they have all the necessary resources".

The findings depicted in Table 4.16 indicated that educators must be provided with ICT training and workshops. Thus, proper training of educators needs to be given priority before implementation. Educators and learners must also be provided with technological devices. Additionally, connectivity infrastructure, as well as the building of computer laboratories at schools will also assist.

In terms of improvement of the ICT infrastructure, educators suggested the following in Table 4.17 below.

Table 4.17: ICT infrastructure improvement

Participant	Statement
Educator A	"Provide computer labs to schools and ensure that learners are also provided with computers or any mobile devices".
Educator B	"By providing each school with computers and iPad for learners"
Educator C	"The government need to employ security companies to look after the infrastructure because crime is South Africa is high. Should the learners break the infrastructure, the parents must pay"..
Educator D	"All learners should be given tablets but with software that restrict them from downloading social media, songs, movies and other applications that distract learning. All schools must have computer labs and overhead projectors".

Educator E	“I am not conversant with its policies, but if costs of using could be reduced as well as network coverage could be strengthened”.
Educator F	“….”.
Educator G	“Fast Wi-Fi connectivity is needed. Regular technicians at the institution. Laptops and tablets must be updated on time”.
Educator H	“It must have all the ICT gadgets necessary for the lessons and control the movement in the center. It must be fully equipped with monitored accessibility”.
Educator I	“?”
Educator J	“No idea”.

ICT improvements depicted in the table above were as follows: learners and schools must be provided with technological devices, and Wi-Fi connectivity must be installed as well. Once these are done, there should be security enforcement at schools, and parents must take accountability for the damage of their learners’ devices. The enforcement of security at schools is another obstacle to the successful integration of technology as it comes with costs (Cawthera, 2001). Additionally, computer laboratories must be built at schools and computer technicians must be on site to oversee and service the functionality of the computers.

Table 4.18 below shows responses of educators to whether English Language Subject Advisors (ELSAs) ever discuss issues pertaining to technology integration.

Table 4.18: ELSA’s involvement

Participant	Statement
Educator A	“Yes, but not frequently”.
Educator B	“No. they a]re not making any effort to assist educators”.
Educator C	“No”.
Educator D	“Haven’t attended any ICT workshop or training”.

Educator E	"Unfortunately we do not have the ELSA in our sub-district at the moment".
Educator F	"No".
Educator G	"Sometimes, most of the educators are older generation, as a result, they are mostly used to the to the traditional method than ICT integration".
Educator H	"Yes, they encourage us to use it and they even use ICT in their presentation during their meetings".
Educator I	"Teams for memo discussions".
Educator J	"No. They are more concerned about what is in the curriculum, that teachers are up to date with lesson plans rather than what they are teaching".

According to Table 4.18, three educators indicated that the technology integration issue is not gaining momentum from the ELSAs as they rarely discuss the issue. Educator H said: "*…but not frequently. They encourage us to use it and they even use ICT in their presentation during their meeting*". Educator G said: "*…most of the educators are older generation, as a result, they are mostly used to the traditional teaching methods than ICT integration*". This suggests that having older educators may be one of the factors that hinder the integration of ICT because they are used to the traditional way of dealing with content.

Educators were asked whether they were familiar with the term Digital Citizenship (DC), and to explain the term in one or two sentences. Their responses are presented in Table 4.19 below.

Table 4.19: Digital Literacy

Participant	Statement

Educator A	“No, it is an unfamiliar term”.
Educator B	“No, I have never heard of the phrase”.
Educator C	“Refers to the responsible use of technology by anyone who uses computers, internet and digital devices to engage with society on any level”.
Educator D	“No”.
Educator E	“A person who strives to learn and develop technological skills and knowledge to effectively use the internet”.
Educator F	“No”.
Educator G	“Not sure but I think it is how you interact with other people through internet and how we also commit ourselves in teaching the coming generation the importance and how to use the digital platforms”.
Educator H	“Yes, this is the usage of technology efficiently to communicate with other people or sectors”.
Educator I	“No”.
Educator J	“Yes. It refers to one's ability to use the internet regularly and efficiently”.

In connection with DC, responses to the question posed were captured in Table 4.19 above, with 60% of them indicating that they were not familiar with the term DC, and the other 40% mentioning that they did not know the term.

From the responses gathered from Grade 11 EFAL educators from the five provinces in SA, it is evident that many of them are not yet ready to integrate technology in their EFAL classrooms. The shortage of computers, laptops and a lack of computer technicians in most, if not all, rural public schools is also a major challenge.

4.3 INTERVIEWS WITH ENGLISH LANGUAGE HODS

The second instrument used to collect data was interviews. Nine (9) English language HoDs were interviewed on their readiness to integrate technology, the schools' readiness regarding ICT as well as support given to the schools by the districts.

The researcher also tried to establish if Heads of Departments (HoDs) were computer literate. Their responses are depicted in Table 4.20 below.

Table 4.20: HoDs' computer literacy

HoDs	Statement
HoD A	"I would say yes, they are".
HoD B	"No".
HoD C	"Not that much, because I am not that fast [operating a computer]. Some I can do and some I ask for assistance".
HoD D	"No".
HoD F	"Yes".
HoD G	"Yes".
HoD H	"Yes, they are".
HoD I	"Yes".
HoD J	"Yeah, most of us are".

The results indicated that six of the interviewees out of the nine English language HoDs were computer literate. Two indicated that they were not computer literate and one indicated that he/she is not that much good as he/she sometimes needs assistance in operating the computer.

Moreover, participants were asked to mention the subjects they oversee as HODs. Their responses are presented in Table 4.21 below.

Table 4.21: Subjects HoDs are responsible for

HoDs	Statement
HoD A	"EFAL, life orientation and Sepedi HL".
HoD B	"It's English and Sepedi languages".

HoD C	“Setswana and English”/.
HoD D	“English and Setswana”.
HoD F	“The language department, English, and Setswana”.
HoD G	“English and Setswana”.
HoD H	“I’m overseeing English First Additional Language only”.
HoD I	“English, Afrikaans, and Sesotho”.
HoD J	“I’m only doing English for the whole school. From Grade 4 to 12”.

Table 4.21 indicated that seven educators were responsible for the English language and an additional subject, while two were responsible for English only.

On whether or not EFAL educators think they are ready to implement a digital curriculum, Table 4.22 below shows their responses as follows:

Table 4.22: Educators’ readiness to implement digital curriculum

HODs	Statement
HoD A	“Yes, I think I'm ready for that”.
HoD B	“I wouldn't say we are ready. It looks like we are scared to get into this digital curriculum. We, especially the older teachers, but with the new ones, they don't have a problem they are prepared to integrate”.
HoD C	“Not that much ready. Some need to be a maybe go through workshops and Training”.
HoD D	“No. They are not ready because some are old and then they don't know how to use the technology as it is, unless the young ones”.
HoD F	“Yes”.
HoD G	“Yes”.
HoD H	“Yes, they are ready”.

HoD I	“I don’t think so”.
HoD J	“Well with mine with my subordinates I think, we are young so it's doable”.

In Table 4.22, five of the nine respondents indicated that educators are ready to implement the digital curriculum, with only two showing some uncertainty about the initiative, hinting at a need for a workshop and some training. One also mentioned that they may be scared of implementing the digital curriculum because of their age. Only one said that educators are not ready to implement the initiative.

Another question asked how many English language educators were computer literate. The answers are captured below.

Table 4.23: Computer literate EFAL educators

HoDs	Statement
HoD A	“We have five English First Additional Language educators; I would say three out of them are computer literate. And then because you would see that they are willing to help learners using available resources within the school premises”.
HoD B	“We have two”.
HoD C	“Four”.
HoD D	“Two of them are excellent. Only one is trying”.
HoD F	“Seven of them are computer literate”.
HoD G	“They are five”.
HoD H	“I'm short stuffed, so they are five because one of them is a temporary educator”.
HoD I	“I think all of them. I think three English teachers, with me it's four”.
HoD J	“We have five”.

Table 4.23 indicates that majority of educators from the sampled rural schools are computer literate.

In connection with school readiness regarding ICT, HoDs were asked if the schools motivate them to use technology in their classrooms. The responses are depicted in Table 4.24 below.

Table 4.24: School motivation to technology use

HoDs	Statement
HoD A	"…the school does that because obviously, it will start from the management in terms of how they use the funds provided. Are they providing computers? Are they providing machines? Are they providing a whiteboard which needs obviously learners to learn via virtual, a technological material? So, I would say they do motivate teachers to use technological equipment".
HoD B	"…the school does. Already with the maths and science, they are already using technology when teaching. And we are just waiting to incorporate other subjects".
HoD C	"…a lot because this is changing time. We have to adapt; we have to use technology".
HoD D	"Yeah, but the problem is that we are in rural areas. And then you will find that the teacher does not have any laptop, and then she must ask or use the telephone".
HoD F	"Yes, they do".
HoD G	"Yes, we have smartboards. For our lessons, we integrate with this. We normally use the Smartboards. Some of them use the PowerPoint presentation, and they also use the textbooks which are put in the smartboard. Then also, sometimes if they have worksheets they display on a smartboard, and mostly they normally use it for writing. So, we do not use chalks anymore. But we have whiteboards in case when there is no electricity".
HoD H	"Yes, they do motivate them".

HoD I	"Not in the teaching as such but setting the question papers and all those things you have to use a computer to do it. We do not have projectors for every class…".
HoD J	"…because we are in the farm. We try to but, our resources are limited".

HoDs as in Table 4.24 concur that schools motivated them to use technology. Although the results show that some of the schools motivated their educators to use technology by providing them with smartboards, other respondents indicated that their resources are still limited. For example, one sampled school is motivated to use technology. One educator stated that they use smartboards and PowerPoint presentations. The school no longer uses hard copy textbooks but soft copies are uploaded on the smartboards. This could imply that technology use among educators develops at a very slow pace.

HoDs were further asked whether there was a vision of integrating technology in their school. Their responses are captured in Table 4.25 below.

Table 4.25: Schools vision to integrate ICT

HoDs	Statement
HoD A	"Yes, they do. They do that".
HoD B	"Yes, they are".
HoD C	"Yeah, it has".
HoD D	"That is our wish".
HoD F	"Yes, we do have".
HoD G	"Yes, we normally use the smartboards".
HoD H	"They have started. They have started. Presently, we are having challenges due to something that happened to where the internet is based in the room that you normally called the computer room.

	So, we are having challenges but most of the time educators are ready".
HoD I	"No, I don't think so".
HoD J	"Yes, we do".

Table 4.25 above is about the schools' vision to integrate technology. The majority of the respondents (7) indicated that their schools have a vision of integrating technology, whereas one HoD stated that it was their wish to do so. The last one, however, did not agree that there was a vision to integrate technology. The findings suggest that nearly all the sampled schools (7) have a vision to integrate technology in the curriculum. They, however, need to be supported in implementing their vision.

With regards to the availability of computer laboratories at the schools, the HoDs indicated that:

Table 4.26: Computer laboratories at schools

HoDs	Statement
HoD A	"No".
HoD B	"No, we don't have".
HoD C	"No. No computer lab".
HoD D	"No computer laboratory".
HoD F	"No there is no laboratory but there are laptops. There were computers but they just decided to disregard them and use laptops".
HoD G	"There is but not functional".
HoD H	"…we used to have a computer [laboratory], but it's no longer in use that much, it still needs to be renovated and stuff, but anything pertaining to internet is being installed in that particular level".
HoD I	"There is a laboratory for Computer Applications Technology (CAT), we don't have a laboratory for English".

HoD J	"Yes, we do have because we have a grade 10, 11 and 12, and we have CAT as a subject".

According to Table 4.26 above, five out of nine respondents said that their schools did not have a computer laboratory, two indicated that there is a laboratory which was not functional, and another two said that they did have laboratories. However, the two laboratories were only used for CAT subject, not for EFAL.

Furthermore, the researcher asked if the schools allocate budget for ICT resources. The responses of the HoDs are presented in Table 4.27 below.

Table 4.27: Budgeting for ICT resources

HoDs	Statement
HoD A	"I would say because that will be from the standards and norms of the school because there is certain money which is for teaching and learning resources. So, I would say because currently, I would say maybe they add computers to the school laptop. And now I would say they are also striving to ensure that one teacher, one laptop".
HoD B	"The management will just request educators to request for this. But then it is not that up to scratch. We are a bit slow in implementing it. I think it could be the reluctance of the educators rather than the school itself. The school has availed funds, but then we are reluctant".
HoD C	"Yes because you there are some laptops which are bought for the school. It is in the budget. Even the Wi Fi is budgeted for".
HoD D	"Not yet".
HoD F	"No, we don't budget but the department is offering us the laptops. Like yesterday they offered the new three laptops to be used by educators. The other year they offered 4 and that other year they offered 4".

HoD G	"No, the advantage is that we have a sponsor, so in most of the classes they have installed the smart boards. So, you find other schools sometimes most classes they don't have smartboards. So, ours, most of them though at the current stage, they are not functioning those smartboards anymore at the lower grades, grade eight and grade nine but for FET we have GDE smartboards, they are functional, and utilise them and moreover, our sponsor was also helping us with the training for teachers for integration of ICT".
HoD H	"We have it in abundance, even though we do budget for it presently, but we do have it in abundance. We are being supplied by the department of education. We do have internet in our classes, and even in the office that I'm using right now, there is internet. The educators have been supplied with cables, internet cables. Each of these have been supplied with Wi-Fi routers".
HoD I	"No".
HoD J	"No".

The results in Table 4.27 show that some of the schools are allocated funds for ICT resources. For example, HoD B stated that *"The management will just request educators to request for this. But then it is not that up to scratch. We are a bit slow in implementing it. I think it could be the reluctance of the educators rather than the school itself. The school has availed funds, but then we are reluctant".* It would seem that although some members of the school management are keen to integrate technology at schools, educators are delaying the process because of their reluctance to utilise funds allocated to them for ICT resources. This does not augur well for the integration of technology in EFAL.

On whether or not schools encourage educators to adopt technology in their EFAL classrooms, the HoDs response in the table below indicated that:

Table 4.28: Technology adoption in EFAL classrooms

HoDs	Statement
HoD A	“They do that. Yes. Because I would say maybe if you look at the school environment now, some teachers are still reluctant, but there are teachers who are willing to take a laptop and also just take it to the classroom to ensure that they do different teaching and learning styles using technology”.
HoD B	“They do, a lot, they tell us a lot to use this technology. Like I said, we are just dragging our feet”.
HoD C	“Yes, a lot, because it's time for technology now”.
HoD D	“Yes. Because we have to go with times”.
HoD F	“…they don't encourage but this is what teachers are doing. They're using technology but the management is not saying please use technology use laptops, but the teachers are doing it”.
HoD G	“…they do that even in our briefing we also encouraged them to utilise the smartboards so that we can save money instead of buying markers and scissors. Instead of cutting a previous question papers in case we use what we call the computer to download. If we need a picture, we just download that picture and paste it will be clearer if you use ICT than when you cut using a scissor”.
HoD H	“That's a very great initiative…”.
HoD I	“No”.
HoD J	“Yeah, we try to”.

The results in Table 4.28 show that six schools try to encourage educators to adopt technology by providing them with smartboards and laptops, but some educators are still reluctant to take up the initiative. Educators find the initiative relevant, stating that they are in the technological era, and as a result, they need to move with times. Only

three educators said that their schools were not making any effort to encourage them to adopt the initiative. This implies a more concerted effort of encouraging educators in rural schools to adopt technology.

Table 4.29: ICT situation improvisation

HODs	Statement
HoD A	"That can be done maybe by providing workshops because I believe that most teachers do need to be workshopped on integrating especially because young people would say language cannot be taught to us maybe technological equipment…".
HoD B	"I think the first thing would be to bring all that we need for ICT and then we try it and then we see where it takes us. In any case, it is what is happening currently. We cannot dwell in the past. This is what is happening, and you can cover a lot using this ICT. So, I think we should encourage the oldest educators to go for it. Maybe we can also have some workshops where we can work from them on how to use this this ICT".
HoD C	"Maybe by engaging educators have workshop. Educators be trained in the use of technology".
HoD D	"At least if we can have ICT room where teachers will be able to teach learners and then even for themselves".
HoD F	"Yes, by using their laptops and also by using them what do you call the CDs are the videos in teaches in some are using that and some are using videos, like oral listening, they use videos, and then also for the books that we are reading. They use the videos for the learners to watch over the laptop or the screen".
HoD G	"Other than smartboards and laptops, we don't have any other than that".
HoD H	"Yes. What actually happened was after the smartboards were installed, they regularly update them they put in materials the book supposed to use for language, activities, the book and also

	the study guides that we need to use for literature. So almost everything".
HoD I	"If we had money to buy devices for teachers and learners, then we could have used this. So, money is our biggest problem because we're quintile one school".
HoD J	"We need more equipment. If we had like, for example when, let's talk about computers, the only time learners use computers it's only when they do the CAT subject, otherwise you would have to make your own means of providing ICT in the class environment. So, we need more facilities".

On improving the English language technology situation in schools, Table 4.29 depicts results indicating that the schools should be provided with technology equipment or be allocated funds to purchase the equipment. Additionally, educators must be workshopped and trained on the use of technology. Since there are educators that are still reluctant to take up the initiative, the suggestion was that there should be extrinsic motivation for them (see. Table 4.24). One educator indicated that money is the biggest problem to them. As a quintile 1 (non-fee paying) school, there is no money to buy technological devices for educators and learners. Rural schools should make a conscious effort to tackle English language technological issues.

Pertaining to general views on the use of ICT in the English subject, and whether they had ICT resources that can enhance the learning of EFAL, HoDs' responses are presented in Table 4.30 below.

Table 4.30 ICT resources that can enhance EFAL learning

HoDs	Statement
HoD A	"Not enough but yes, we do have because some materials obviously in rural-based school cannot just have things which need Wi Fi or internet connection, at most case, but we do have".
HoD B	"No, so far no".

HoD C	“We do have. There are laptops here, and some of them are having resources for English, different books, even for Setswana language there, even learners in grade 12 have been given these tablets and they have different resources”.
HoD D	“No, we don't have”.
HoD F	“Yeah, we do have”.
HoD G	“We have smartboards and laptops”.
HoD H	“We have smartboards”.
HoD I	“No”.
HoD J	“Yes, I think we do, it’s just that space like facilities…”.

According to Table 4.30, six HoDs indicated that their schools had laptops, tablets and smartboards to improve the effectiveness of EFAL learning in English. Irrespective of all these resources, Internet connection is still a challenge in rural-based schools. This implies that more should be done to ensure that technology is integrated in EFAL rural schools.

Table 4.31 EFAL educators’ interest to use technology

HoDs	Statement
HoD A	“No, not that much but they [are] willing to try for a week, but they will lose interest because they will say [it’s a] waste of time and all that, but yes”.
HoD B	“Yes, they are, though not all of them, like I said, the younger ones are very much prepared”.
HoD C	“Exactly. I am using it. I am using it in life sciences, even in Setswana. In grade 12 there are literature books in there, there are different techniques that you can use there”.

HoD D	“Yes, they do because sometimes they use their phones and sometimes one will ask for a laptop to show the stories using projectors”.
HoD F	“They do”.
HoD G	“When I go to a class I just go with a pointer. I have a point I just go to class with my pointer. So, I use a smartboard. Most of the time, most of the lessons. If you can check it’s a PowerPoint presentation and then even the worksheets are there, so not I normally use the smartboard. So, you find that if there is no electricity that's when I'll be using a whiteboard, because we do not have the powerful generator that can accommodate all of our classes”.
HoD H	“Yes, they are. It makes our life easier because we have so much to do”.
HoD I	“We would be interested in using it if we could [have] our resources, but we do not have”.
HoD J	“Of course, it’s easier”.

Regarding English language educators’ interest in using technology, the results in Table 4.31 show that there is an interest from the larger proportion of educators in using technology, more especially by younger educators, citing that the initiative will provide simplicity and ease in their interaction with learners. However, some HoDs showed a sense of reluctance with the initiative, pointing out a lack of resources as a hindrance.

The researcher also tried to establish whether HoDs would concur that both educators and learners will benefit from the integration of technology in EFAL classrooms. The HoDs responses are captured in Table 4.32 below.

Table 4.32 Educators and learners' benefitting from integrating technology

HoDs	Statement
HoD A	"Yes, it would help a lot because we are moving into an industrial revolution that would need learners to be technologically improved. So studying it from language I think it's very much important because now we have a lot of social [media] networks, and I think from social [media] networks, we start by reading English, we also teach reading, we teach viewing so doing that would also ensure that we are teaching language skills, but using technology so I do concur on that one".
HoD B	"I would because it makes teaching and learning easier and you are able to access more information than just relying on the textbook that is at hand…".
HoD C	"Exactly. It will be of great use to both of us, educators, and learners".
HoD D	"Yes, they will be able to know a lot of things when they use this technology".
HoD F	"Yes, a lot".
HoD G	"Yes. Because technology also saves time. If we have a PowerPoint presentation, we have the old method of getting the notes, you just write the notes on the board, it takes time. Yeah, if I have a PowerPoint presentation, I just display in there. And then the only time that I will take is to explain not to write".
HoD H	"They will benefit most, our learners are more into this internet stuff. So, the minute they stand in front of them and try to explain anything without using technology they tend to get bored, so they enjoy it always when you refer them to the internet to the smartboards".
HoD I	"I think so I believe so".

HoD J	"Very, they would because it will teach them to be computer literate, and it will enhance them for the future purposes in life".

The results in Table 4.32 show that all the participants agreed that technology integration into the system would benefit both educators and learners greatly because it will enable them to be computer literate and technologically savvy. The initiative will also advance their knowledge, provide ease of access to information as well as reduce time needed for learning. HoD A argued that… *"it would help a lot because we are moving into an industrial revolution that would need learners to be technologically improved".* Another benefit would be that.. *"we have a lot of social [media] networks, and I think from social [media] networks, we start by reading English, we also teach reading, we teach viewing so doing that would also ensure that we are teaching language skills, but using technology so I do concur on that one".*

On HoDs occasionally arranging for EFAL educators to be trained on how to use technology, their responses were captured below:

Table 4.33: EFAL educators' training

HoDs	Statement
HoD A	"I would say maybe quarterly Yes. We do have such workshops although they're not available at school, but maybe by the circuit but within the school we haven't done that".
HoD B	"Unfortunately, no, especially because I am also not technologically advanced myself. But I think it's something that needs to be done and pretty soon".
HoD C	"Yeah. Engagement is there because we have to improve, or we have to change from the old traditional way of teaching".
HoD D	"Not yet".
HoD F	"It's not us who are arranging but the department is".

HoD G	“Yes, we do that, right now we have GDE facilitator for ICT and then they’ll be coming here every Wednesday to help the educators with the training”.
HoD H	“It's not a matter of me arranging it but it comes automatically. We do have workshops that are being arranged by the Department of Education. They organise these workshops and then they show us how to teach learners using the internet”.
HoD I	“They are more trained than I am at this moment. The young ones teach me about [Microsoft] teams and whatever”.
HoD J	“Most of the time No, because most of them already like I said, they are already computer literate”.

According to Table 4.32, some HoDs indicated that there were occasional training workshops, sometimes on a quarterly basis. The training was not initiated by the school, but the circuit office. Others never arranged for the training. Interestingly, one educator indicated that every Wednesday a facilitator from the Department of Education trained educators on ICT. The HoDs’ inputs suggest that the Department needs to plan with them for the training of educators.

Moreover, the opinions of HoDs on whether technology integration in EFAL should be given high priority is presented in Table 4.34 below.

Table 4.34: Prioritising ICT integration in EFAL

HoDs	Statement
HoD A	“Absolutely, yes”.
HoD B	“Yes. And please, yes, please, because it makes teaching easier. We can even refer learners to the online for research. In any case, we are living in the Fourth Industrial Revolution and then what type of learners are we preparing if they are not ICT compliant”.

HoD C	"Yes. It should be given high priority since English is a medium of instruction and English is mostly your so it should be given higher priority".
HoD D	"Yes, because they will learn a lot".
HoD F	"Yes".
HoD G	"Yeah because the most thing that you do in English is to explain, like, reading, analysing a poem, you understand. So maybe we can have a reader on the smartboard and then just be with my daily read for learners, and then to just come in, through explaining, or you also involve the learners because at the end you must also train them how to read".
HoD H	"Definitely yes".
HoD I	"Yes, I believe so".
HoD J	"Then it's less people work for us".

In Table 4.34, HoDs responded that technology integration in EFAL must be given a high priority because it would improve learners' language skills. The integration would also enable learners to do desktop research for themselves. Further, learners are now living in the 4IR, and as a result, they need to be prepared to be technology compliant. Learners can also benefit by using smartboards to read and analyse poems. However, one HoD stated that technology integration in EFAL meant less work for educators. This implies that rural EFAL educators must be supported in their technology integration endeavours (cf. Hartman, Townsend & Jackson, 2019: 238).

On whether it is necessary for school management and circuits to be involved in technology integration in EFAL classrooms, participants responded in various ways as depicted in Table 4.35 below.

Table 4.35: Circuits' readiness

HoDs	Statement
HoD A	"Yes, they are".

HoD B	“I don't think they are ready because they've never said anything about it. We attend meetings even last week we attended an English meeting for the circuit. But nothing said about incorporating ICT”.
HoD C	“Yeah, they took pains because like, in the first instance, when these tablets were brought here, the circuit was also involved and even the curriculum implementers are aware of the use of this”.
HoD D	“They have not started anything yet”.
HoD F	“Yes, they do. They encourage us, they train us, they give the learners the iPad”.
HoD G	“Yes”.
HoD H	“Remember I indicated that we do have workshops. So they are the ones who initiates”.
HoD I	“I do not know”.
HoD J	“Partially”.

The majority of the HoDs in Table 4.35 above indicated that their circuits are ready to integrate technology in English language because they have provided them with training together with the resources. However, HoD B did not share the same sentiment as he asserted that…*“I don't think they are ready because they've never said anything about it. We attend meetings even last week we attended an English meeting for the circuit. But nothing was said about incorporating ICT.”* In contrast, HoD C indicated that…*“Yeah, they took pains because like, in the first instance, when these tablets were brought here, the circuit was also involved and even the curriculum implementers are aware of the use of this”.* HoDs sounded divided on the issue of training. This suggests that it would benefit EFAL educators more if circuits could review the logistics of integrating technology into EFAL.

Regarding educators ever being invited to technology integration training by English Language Subject Advisors (ELSAs), HoDs shared some interesting responses as shown in Table 4.36 below.

Table 4.36: ELSAs training in ICT integration

HoDs	Statement
HoD A	"Yes".
HoD B	"Never. That has never happened".
HoD C	"Sometimes it's done in the workshops, they even stress the use of technology. Yeah. When we are in workshop, they advise us to use technology".
HoD D	"Yes, like I have attended one of Setswana, not in English".
HoD F	"Not necessarily they don't do anything they will send us then what do you call this. They will send us the link, that we should get into that link. And then there is information that has been given through the link".
HoD G	"I don't have records for that, but the teachers, they are sometimes invited for training, not specific for that subject, but for all subjects. We do not have these ones that will only accommodating English as a subject. We have a general training".
HoD H	"The department of education organise everything".
HoD I	"No".
HoD J	"With us we have never".

In terms responses depicted in Table 4.35, the majority of the HoDs indicated that the ELSAs had never invited them to technology integration training. Although some were invited, this was not for EFAL but for other subjects. This suggests that ELSAs should collaborate with English language HoDs to assist educators to integrate technology in EFAL.

Pertaining to suggestions on how HoDs think circuits should drive the process of integrating technology in the EFAL, Table 4.37 depicts HoDs' responses.

Table 4.37: Process of integrating technology in EFAL by circuits

HoDs	Statement
HoD A	"Workshops, obviously, maybe not even doing them quarterly but ensuring that maybe on a monthly basis HODs are called as to ensure what needs to be improved or maybe to even check the process because sometimes clicking the process is something that they fail to do but just to check that teachers are still ensuring that they are still using the material given how do they improve the learning and teaching. So, I think there are a lot of things that they can do".
HoD B	"I think they should involve our institutions. We have good institutions like the University of Limpopo, TUT and then they've got these programmes regarding ICT, so they should involve them to train us as educators to use this ICT in our teaching".
HoD C	"I think that need to be monitored to make sure that ICT integration take place. They have to monetise it, even if it's monthly".
HoD D	"They must make sure that teachers are trained by their circuit manager or subject advisors. They must make sure that they train teachers so that they may be able to practice in classes".
HoD F	"…by just giving the educators time and allocating the specialists to empower them on how to use technology with regard to English as a subject".
HoD G	"…".
HoD H	"…because it's something that works out itself automatically. You do not even have to say we need this. We need this we need to the workshopped. No, it comes automatically".
HoD I	"I think if the district can give us the resources, the learners the laptops or the what do you call those tablets and things like that, and then give teachers training, then you can work with this. But

	if you do not have it, then how can you work with it? How can you do anything to help the learners with that?".
HoD J	"…if the circuits could provide us with facilities like maybe give us laptops or iPads or such things, then it will be easier for us to use here in school without having them to think the school would buy such things".

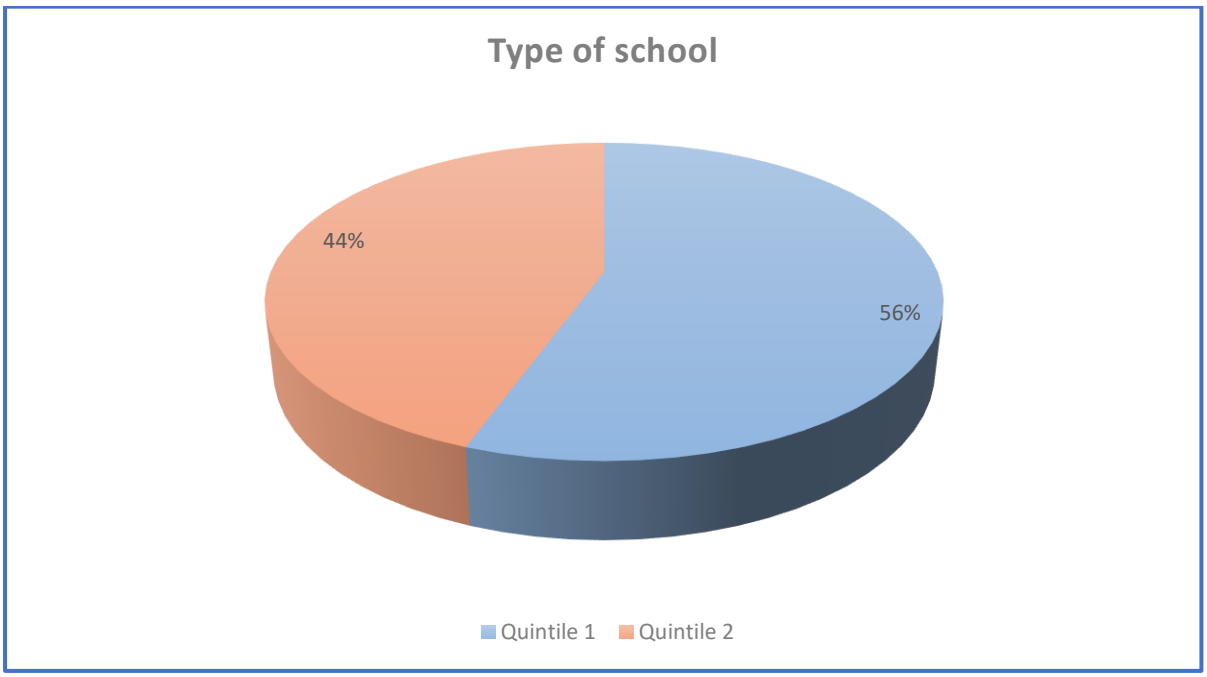
The results in Table 4.37 suggest that for the circuits to drive the process of integrating technology, they need to provide training workshops to EFAL educators, provide ICT resources to schools and collaborate with universities that offer ICT programmes to train the EFAL educators. Circuit managers and subject advisors also need to get involved in ensuring that educators are trained on technology integration. Circuits can also provide laptops or iPads to schools instead of schools buying these technological devices.

The interviews with language HoDs also indicated that some educators are still reluctant to integrate technology because of age. Additionally, a barrier to HoDs integrating technology is a dearth of technological resources in schools.

4.4 RESULTS FROM THE EQUIPMENT CHECKLIST FOR ICT RESOURCES

Schools in South Africa are classified as quintile types. Hence the researcher posed a quintile question to participant HoDs. Their responses are depicted in Figure 4.8 below.

Figure 4.8: School Quintile type



The above figure shows that from the 10 selected schools, 56% were classified as Quintile 1 schools whereas 44% were Quintile 2. The National Norms and Standards for School Funding (NNSSF) aimed to increase equity in the funding of education by classifying each school in one of five quintiles. The schools' ranking is based on the community's unemployment and literacy statistics. Quintile rankings range from 1 (poor or impoverished) to 5 (rich or prosperous), with 1 being the lowest. (Republic of South Africa, 2012: 3). The ranking of the selected schools augurs well with the aim of the current study, which is to investigate technology readiness of rural public schools.

Table 4.38: Availability of electricity in schools

School	Yes	No
School A	X	
School B	X	
School C	X	
School D	X	
School E	X	

School F	X	
School G	X	
School H	X	
School I	X	
School J	X	
Total	**10**	**0**

Table 4.38 above indicates that all the ten sampled rural schools had electricity. This is a good indication for technology integration since technological devices rely heavily on electricity.

Table 4.39: Availability of generators in schools

School	Yes	No
School A		X
School B		X
School C		X
School D		X
School E		X
School F		X
School G	X	
School H		X
School I		X
School J		X
Total	**1**	**9**

Table 4.39 indicates the availability of generators in schools. Nine in ten schools stated that they had no generators. This is not a good indication for the technological integration readiness of South African EFAL rural schools because technology runs on electrical energy. The loadshedding experience in SA renders generators essential. Generators serve as a backup to the loss of electrical energy that enables the use of electrical machines and devices. Generators are also an essential need at schools. As indicated by Educator G in the questionnaire responses, loadshedding may disturb the lesson. The lack of generators in schools suggests that EFAL educators are not ready to integrate technology, otherwise it will just be a futile activity.

Table 4.40: Desktops

School	Yes	No
School A		X
School B		X
School C	X	
School D	X	
School E		X
School F		X
School G		X
School H		X
School I		X
School J	X	
Total	**3**	**7**

Table 4.40 indicates that the majority of schools did not have desktops; only 30% of the schools had desktops. Since the sampled schools did not have desktops, it would be better if they had sufficient laptops to fill the gap. This further suggests that South African rural schools do not have technological equipment to integrate technology in EFAL classrooms.

Table 4.41: Laptops

School	Yes	No	Total No. of Laptops
School A	X		2
School B	X		1
School C	X		6
School D	X		2
School E	X		2
School F	X		4
School G	X		2
School H	X		2
School I	X		2
School J	X		2

All the schools (100%) said that they had laptops, which they shared amongst the educators, with five of them indicating the number they had in their possession. Schools C and F indicated that they had six and four laptops, respectively, with school B having only one laptop. Having technological equipment indicates good grounds for its integration.

Table 4.42: Availability of computer laboratories

School	Yes	No
School A		X
School B		X
School C		X
School D		X
School E		X
School F		X
School G	X	
School H	X	
School I		X
School J	X	
Total	**3**	**7**

Table 4.42 presents the availability of computer laboratories in schools. Most schools (70%) indicated that they did not have a computer laboratory. Schools G, H and J indicated that they had computer laboratories, but school H's laboratory was not functional as the computers were not working. This is not a good indicator for the readiness of the schools to integrate technology in EFAL.

Table 4.43: Functional computers

School	Yes	No
School A		X
School B		X
School C	X	

School D	X	
School E		X
School F		X
School G		X
School H		X
School I		X
School J	X	
Total	**3**	**7**

Table 4.43 shows that the majority of the schools (7) indicated that their computers were not functional. This corroborates the significance of deploying computer technicians in rural schools in SA.

Table 4.44: HoD's monitor

School	Yes	No
School A		X
School B		X
School C	X	
School D	X	
School E		X
School F		X
School G		X
School H		X
School I		X
School J	X	
Total		**7**

Table 4.44 above shows that only three HODs had monitors, while others indicated that they use personal laptops to perform their duties. Table 4.45 indicates whether the learners have smart devices or not.

Table 4.45: Learners' Smart Handheld Devices

School	Yes	No	Total No. of devices
School A		X	
School B		X	
School C	X		64
School D	X		95
School E	X		40
School F	X		40
School G	X		
School H	X		
School I		X	
School J		X	
Total	**6**	**4**	

According to Table 4.45, six schools said that their learners had smart handheld devices, with schools C and D having a total of 64 and 95 devices, respectively. Additionally, these devices were mostly used by the learners in Grade 12. This further indicated that learners in rural public schools had no access to technological resources at their secondary schools. This may also have a negative impact on tertiary education as Institutions of Higher Learning (IHL) rely on technology to get their work done.

Table 4.46: Availability of Computer Technicians

School	Yes	No
School A		X
School B		X
School C		X
School D		X
School E		X
School F		X
School G		X
School H	X	

School I		X
School J	X	
Total	**2**	**8**

Almost all eight sampled schools indicated that they did not have computer technicians at their schools. The unavailability of technicians may explain the dysfunctionality of computers at some of the rural schools. Whilst 70% in Table 4.46 indicated that they did not have desktops, the results in Table 4.47 suggests otherwise.

Table 4.47: Availability of LCD Projectors

School	Yes	No	Total No. of LCD Projectors
School A	X		1
School B		X	
School C		X	
School D		X	
School E	X		1
School F	X		1
School G	X		
School H	X		1
School I		X	
School J	X		2
Total	6	4	

Table 4.47 above shows that six in ten schools have LCD projectors, with school J having more than one LCD projector. The results further revealed that the projectors were used mainly in presentations rather than EFAL learners' content.

Table 4.48: Availability of printers

School	Yes	No	Total No. of Printers
School A	X		3
School B	X		2

School C	X		3
School D	X		1
School E	X		1
School F	X		3
School G	X		10
School H	X		12
School I		X	
School J	X		4
Total	9	1	

Table 4.48 shows that nine in ten schools had printers, and majority of them owned more than one printer, with schools G and H owning 10 and 12 printers, respectively.

Table 4.49: Availability of Wi-Fi Connectivity

School	Yes	No
School A	X	
School B		X
School C	X	
School D	X	
School E		X
School F	X	
School G	X	
School H	X	
School I		X
School J	X	
Total	**7**	**3**

The above Table 4.49 shows that seven in ten schools had Wi-Fi connection available at their premises. The availability of Wi-Fi connection together with computers in schools augurs well for the integration of technology in EFAL.

4.5 CONCLUSION

From the three instruments used to collect data of the study, the findings indicated that all the participants hold a teaching qualification. This means that educators have PCK, which is, knowledge regarding how to teach subject content so as to enhance learning, and in relation to a unique context such as the technology integration in EFAL. All the educators indicated that they were able to operate a computer although they were average users. This further proves that, with proper training in technology integration, they will be able to integrate technology in EFAL. All educators were enthusiastic about integrating technology in EFAL classrooms, as it will help learners to concentrate more in class, as learners are unfamiliar with technological approaches. Further, it will help educators a lot as quintile 1 schools are not well resourced, for example. There are not enough textbooks in schools for all learners and with technological resources like smartboard, there would be no need for textbooks as all the material can be downloaded online. Moreover, the integration of technology will be beneficial to EFAL educators as they will be able to assess and give feedback to learners in the same lesson. From the ten sampled schools, only School G and School H were more advanced regarding technological devices. Interestingly, the two schools are located in the same province.

CHAPTER 5

A MODEL FOR INTEGRATING TECHNOLOGY INTO ENGLISH LANGUAGE

5.1 INTRODUCTION

The aim in this chapter is to present a model for integrating technology into EFAL for educators in rural public schools in SA.

Technology readiness of EFAL educators relies on the educators' use of computer-based communication that is integrated into the regular learning process in the classroom. Educators are viewed as the major players in integrating technology into their everyday classroom activities in order to prepare learners for the contemporary digital era. This is because technology can offer a dynamic and proactive teaching-learning environment. The goal of technology integration is to enhance and raise the quality, accessibility, and cost-efficiency of EFAL educators and learners. It also refers to the advantages of networking learning communities to meet the problems of present globalization.

It is a prerogative for every EFAL learner in the country to acquire quality education. This can be attained by ensuring that rural school EFAL educators are trained, motivated and provided with adequate infrastructure to equip them with skills to integrate technology in their EFAL classrooms. The results from the study indicated that some schools had computers that were non-functional. Some schools also have computer laboratories that had computers that were not operational. All stakeholders need to be involved to ensure that rural public schools are prioritised and maintained in a similar way as their counterparts in the urban area. The researcher developed the model below with the aspiration that if taken into consideration may inform some of the rural schools as well as rural EFAL educators to integrate technology in their EFAL classrooms.

5.2 THE MODEL FOR INTEGRATING TECHNOLOGY INTO EFAL

Figure 5.1: English language rural educators' technology integration model

The researcher postulates that technology could mainly be integrated into EFAL through determining technology readiness of the educators, the infrastructure, providing training, motivation, interaction as well as review

Technology Readiness

The first step to determine whether the educators in rural public schools can integrate technology in their EFAL content is to check their technology readiness level. This could involve the following:

Determining whether the schools have necessary tools or equipment such as computers, laptops and mobile devices. If the schools possess all these technology devices then, the next step would be to check whether the devices are functional and whether the educators are able to operate them.

It is also significant to determine whether the devices are enough to accommodate all the educators. If not enough, what other measures could be taken to ensure that everyone is able to be allocated technological devices. Assessing the technological knowledge of the educators can also help in determining the kind of assistance and support needed by different schools.

Infrastructure

Another major challenge faced by rural public schools is poor/lack of infrastructure which include the following:

- Poorly maintained roads which renders the shools inaccessible.
- Dilapidated buildings and broken furniture in some of the rural public schools.

It is imperative that the safety of technology devices be taken into consideration and prioritised before the devices could be stored in dilapidated schools buildings.

Since the issue of electricity is a hindrance to productivity in the whole of South Africa, it is much of a problem to schools in rural areas. Many schools do not have back up in case of power cuts. This in itself is a crisis if the schools are to rely on electricity to use technology devices. Educational facilities require effective backup power supply. In many industries, including education, power outages are relatively frequent. Power outages cause loss of both valuable lesson time and the potential loss of essential data. The COVID-19 pandemic has brought to light just how much technology is used for communication and learning in educational institutions at all levels. A growing reliance on computers and other technological gadgets is the effect of this. As a result, the education sector has a significantly bigger demand for backup power supplies.

Since many rural public schools lack resources such as computer laboratories because some circuits/regions cannot afford to maintain them, EFAL educators in public schools can be provided with mobile devices. The mobile devices can be used with mobile projectors that can be stored safely after use. Thus, educators will store EFAL content in their mobile devices and use the projectors to share information with

learners. The 21st Century generation of learners is technologically inclined. Therefore, integrating technology into their EFAL content will be more interesting and motivating for them than the traditional way of writing content on the board and reading from textbooks.

One of the focus on technology in many schools is to guarantee that educators and learners have the best resources necessary to pursue contemporary learning in a setting that can tackle the difficulties of the 21st century. Updating computer hardware is a great place to start. Upgrading the schools' technology open doors for a variety of benefits, including connectivity and protection. In keeping current with technology, schools must make sure their technology can survive any potential cybersecurity threats. Upgrading the school's online infrastructure also means protecting the data that technology stores, such as file storage for homework and tests. Ensuring that connection is secured is a crucial step for 21st Century learning, as it means online accessibility.

Training

The EFAL educators in rural public schools would need support in the form of ICT training to upskill them before moving to the integration of ICT in their EFAL classrooms.

The EFAL educators' training should involve, among other things, downloading educational software, integrating technology into EFAL content, and uploading content for learners and assessing learners using technology devices.

The reluctance of educators to integrate technology in their EFAL content because they do not know how to use technology devices. The Department of Education can collaborate with Higher Learning Institutions (HEI) and Non-Govermental Organisations (NGOs) to train educators on the basic use of technology devices. More advanced training where the educators could be assessed and awarded certificates or diplomas could also be arranged to help EFAL educators in rural public schools to adapt to the 21st Century technological advances/demands.

Motivation

Not only educators have to be able to use technology devices. The motivation for integrating technology into EFAL should ideally come from the school management. If everyone could be involved, the motivation for every staff member will be high; no one would want to be left behind. The school principal as the head of the hierarchy may want to set an example to the whole school.

The envisaged training on the use of technology devices can start from the school principals, followed by the HoDs and then the educators and what they will acquire can then be transferred to the EFAL learners.

The education districts and ELSAs can ask for sponsorship or donations from private companies for technology gadgets such as computers, laptops and mobile devices such as Ipads and smartphones. Many companies could be interested in investing in the country's technological future through providing sponsorships to deserving impoverished schools.

Interaction

In order to maintain that there is proper technology in rural schools, there must be interaction among EFAL educators, HoDs and the learners in using technology tools to deliver content. Teamwork amongst the stakeholders in attempting to provide adequate ICT infrastructure is vital in ensuring the effectiveness of integrating technology. The stakeholders should also collaborate to ensure that everyone is familiar with new technological developments and build each other's confidence in integrating technology. The knowledge that the effectiveness of technology integration will determine how much of an influence technology will have on schools is the driving force behind interaction. This will provide a fertile ground for review of integrating technology.

Review

It is vital to review the technology integration processes at the schools. This will help to track the effectiveness of technology integration in rural public schools. Schools can conduct internal annual reviews and school districts can perform external reviews

every 5 years. These reviews are necessary for educators to reflect on their practice and to identify areas for improvement. Further, the reviews will inform the districts with planning for future improvement.

5.3 CONCLUSION

The country is in the 4IR, with the dawn of 5IR on us. The technological gap between urban public schools and rural public schools have to be closed by ensuring that rural public schools also enjoy the benefits of being part of this country's technological populace. Although technology integration is not something that can happen overnight, if the six aspects/steps of the model presented above and proper planning by the different stakeholders can be followed, it can be feasible to integrate technology into EFAL rural public schools.

The power is in the hands of different stakeholders to determine whether they want to be part of transforming the underprivileged learners or not.

CHAPTER 6

SUMMARY, RECOMMENDATIONS AND CONCLUSION

6.1 INTRODUCTION

This chapter's primary goal is to summarise the key findings. The chapter will also provide conclusions regarding the readiness of EFAL educators in rural public schools in SA and detail the study's recommendations.

6.2 OBJECTIVES OF THE STUDY

The objectives of the study were intended to determine technology integration readiness of EFAL educators in South African rural public schools**.** To gain deeper insights into the readiness of educators as well as that of the schools, the study set out four central objectives that were used as a guide for the study:

- to determine technology integration readiness levels of South African rural English First Additional Language educators.
- to examine the technological equipment available in South African rural English First Additional Language classrooms.
- to establish gaps in stakeholders' technological support given to South African rural English First Additional Language educators.
- to suggest how South African rural educators can integrate technology in English First Additional Language

6.3 SUMMARY OF THE FINDINGS

The study aimed to determine technology integration readiness of EFAL educators in rural public schools in SA. As instruments for data collection, questionnaires, interviews, and equipment checklists were employed in this triangulation study. The findings of this research revealed that EFAL educators still need more training and to be acquainted with different technology integration approaches before being declared

ready to integrate technology. The information gathered was in line with the 6.2. objectives. The findings' executive summary is provided below.

A questionnaire was employed in line with the first objective. Ten Grade 11 EFAL educators from five provinces in SA had to fill in the questionnaire, which was intended to determine the technology readiness of the EFAL educators. Although a majority of the EFAL educators indicated that they are able to operate PCs, they were not extensively trained in ICT use, but only had the basic technology knowledge. For example, some of the educators were trained for less than 24 hours on how to operate PCs. Some of these trainings were not assessed and accredited. This is a further indication that such educators cannot be declared ready to integrate technology in their EFAL classrooms. Further, the educators indicated that they were technology average users. The study by Sun, Strobel & Newby (2017) confirms that, to influence educators' adoption and use of technology favourably, training, development workshops, and school policy should be revised.

The second objective was to examine the technological equipment available in SA rural EFAL classrooms. An equipment checklist was employed to gather the information. Among the themes from the checklist, inadequate ICT infrastructure was one. The findings of this research indicated that from the ten sampled rural public schools from the five provinces in the RSA, only two schools had adequate technological equipment. Interestingly, the two schools were from the same province. The equipment checklist used to gather information on the technological equipment further corroborated the interview data collected (cf. Appendix B). It was also found that most of the rural public school classrooms did not have technological equipment such as desktops, projectors, Wi-Fi connectivity and mobile devices. According to Jamieson-Procter et al., (2013) technical issues are a major issue and a cause of frustration in the majority of schools. These technical issues may disturb the learning process. If there is no technical help available or the computer needs repair, educators will temporarily be unable to utilise it. Due to the lack of support with the problem, they will be deterred from using computers due to a fear of equipment breakdown.

The third objective was to establish gaps in the stakeholders' technological support given to SA rural EFAL educators. Interviews were conducted with language HoDs to establish whether the educators were given the much-needed support to integrate technology in their EFAL content. Data collected from the participants indicated that stakeholders did not provide the much-needed support to EFAL educators (cf. Appendix B). Some EFAL educators said that HoDs did not arrange training on how to use ICT even though the HoDs themselves maintained that ICT integration must be given higher priority. Some HoDs also pointed out that ELSAs had never invited educators to ICT integration training. This suggests that stakeholders are not fully supportive. If EFAL educators are not provided effective support, they will not be able to take full advantage of these technologies.

The fourth objective was to suggest how SA rural educators can integrate technology in EFAL. Despite the many challenges faced by the EFAL educators, SA rural educators should not let the lack of technology and poor infrastructure be an obstacle in integrating technology. Rural educators who are technology-literate and have access or own laptops or technological gadgets can use them in their EFAL classrooms. Implicitly, they can integrate technology in EFAL content by using multimedia in their EFAL classrooms. Learner interest is sparked by the educator's disposition, resourcefulness with materials, ability to respond to inquiries from learners, and use of instructional methods. Although traditional approaches cannot be completely abandoned in the classroom, incorporating some innovative and cutting-edge teaching techniques will assist learners stay engaged on the learning process. To enable learners to strengthen their problem-solving - and lateral thinking skills, educators might use assignments like those in the Sandblot, newspaper, and advertisement activities. A failure to do so could prevent facilitators from assessing their uniqueness and ability for learning (cf. Rani, Hapawat & Devi, 2019: 1947).

Moreover, the fact that some EFAL educators and schools have computers and laptops but are not using them for their EFAL classes but for administration purposes is something that many schools need to be motivated about. For example, EFAL learners have prescribed grammar books which are also available online. These books can be accessed from the internet. Educators can use these e-books in EFAL lessons.

There is a lot of content on the internet on essay writing, parts of speech and other grammatical concepts. Further, studies illustrate that learners are less reliant on educators for information about subject learning content in countries where access to the internet and computer devices is not a problem. Due to this evolution, the role of the educator is shifting from that of a knowledge provider to that of a facilitator of knowledge growth and understanding (Garba et al., 2015: 73).

Some educators also indicated that they have projectors in their schools which are used for school meetings. These projectors could be used in EFAL classrooms to enhance learning. The educators must take the initiative of improving the lives of learners in rural schools by using the little available resources to the advantage of the learners. ICT integration in EFAL classrooms does not need state of the art computer laboratories, but the dedication of educators who are prepared to utilise and share the little they have with learners as a stepping-stone towards acquisition and greater utilisation of technology.

6.4 CONCLUSION

Findings showed that rural public schools lack adequate resources to integrate technology. Therefore, the technology readiness of EFAL educators is stalled by, among other things, the lack of essential technological equipment. Most of the rural schools did not even have enough computers for use by educators, which makes it even harder to integrate technology in the EFAL content. The fact that schools had non-functional computers was a further indication that the school management such as HoDs do not take the technology implementation seriously, irrespective of the SA government's policy on ITC integration at schools. This further implies that although the government is in possession of these policies, it does not seem to give attention to whether this policy is implemented or not.

Furthermore, the study revealed that the infrastructure in the sampled rural public schools lack the 4IR essentials. It was found that the schools are still in the 2IR (see. 2.4.1.2) as they still lack the infrastructure associated with 3IR, which are micro-electronics and the Internet. Implicitly, most of the schools do not have the necessary infrastructure for technology integration in EFAL.

Moreover, South Africa still faces the challenge of EFAL educators themselves being completely unfamiliar with technology, and resisting its implementation in the classroom. This resistance is not due to them being anti-technology, but emanates from them being unsure of it and not feeling comfortable using it. It is this attitude that first needs to be changed, so that educators can embrace the technology that they have to integrate. It also emerged that the most fundamental thing to establish when training educators in the use of technology is its relevance to educators' context. Much of the resistance to technology adoption comes from a lack of appreciation of its relevance to subjects such as EFAL.

6. 5 RECOMMENDATIONS OF THE STUDY

This study revealed that although many educators are still open to using ICT in their EFAL classes, there are significant issues that need to be handled before they can embrace and adopt the practice. All relevant stakeholders must work together for effective interventions to improve the ICT environment in rural public schools.

The Department of Basic Education (DBE) has to bridge the gap between rural and urban schools in SA by providing adequate support to rural public schools.

DBE should consider equipping rural public schools with computers to overcome the technology challenges experienced by the said schools. It should also develop and provide continuous professional development opportunities for rural EFAL educators such as training them how to use technology resources and applications such as YouTube, whiteboards and tablets. This would be in line with specialised training recommended to address the growing concern of providing technology-literate EFAL educators who could provide the best possible education to the 21st century learners in rural public schools.

As an alternative, rural schools in SA can install solar panels to serve as backup in case of loss of power or load shedding. Many advanced approaches to assist in technology integration in EFAL classrooms are available. For example, there are Internet boosters for perfect internet connection, solar panels and generators to replace electricity.

In order for school technology infrastructure to be well maintained, rural public schools should be allocated technicians. This is to ensure that the school networks are looked after. Further, the technicians will be responsible for updating current programmes and adding new software. Additionally, they will be servicing hardware devices such external drives, printers, and scanners. Finally, they will offer technical support to educators and learners. The department of education may not be able to place a technician in every school but technicians can initially be deployed at circuit offices to service the surrounding schools with the aim of securing school technicians in the future.

A review of the integration process both internal and external is recommended. It is vital to review the technology integration processes at the schools. Schools can conduct internal annual reviews and school districts can perform external reviews every 5 years. These reviews are necessary for educators to reflect on their practice and to identify areas for improvement. The reviews will also inform the districts with planning for future improvement.

For security reasons, laptops may be a better option for rural schools than desktops as the latter tend to be expensive to maintain and can easily be stolen or vandalised.

6.6 SUGGESTIONS FOR FURTHER RESEARCH

This study was solely concerned with EFAL educators' readiness to integrate technology into the EFAL rural public schools in five provinces in SA. By identifying problems that may result from the ICT integration readiness throughout the nine provinces in the South African context, a thorough investigation of ICT integration readiness is required. More extensive samples from different rural public schools in SA should be included in future ICT readiness research. A comparative study of English language educators' technology integration readiness in rural public schools and those in urban public schools could be conducted. Future research projects that examine these issues will maximize the use of ICT by all educators across all subject areas, resulting in the development of learners who are proficient ICT users and the realisation of a knowledge society, which is one of the national goals for the adoption of ICTs in schools.

BIBLIOGRAPHY

Abukhattala, I. 2016. The use of technology in language classrooms in Libya. *International Journal of Social Science and Humanity*, 6(4): 262-267.

Adams, J., Hillier-Brown, F.C. & Moore, H.J. 2016. Searching and synthesising 'grey literature' and 'grey information' in public health: critical reflections on three case studies. *Systematic Review,* 5: 164.

Adukaite, A., Van Zyl, I., Er. & Cantoni, L. 2017. Teacher perceptions on the use of digital gamified learning in tourism education: The case of South African secondary schools. *Computers and Education,* 111(August): 172-190.

Agarwal, H. & Agarwal, R. 2017. First industrial revolution and second industrial revolution: technological differences and the differences in banking and financing of the firms. *Saudi Journal of Humanities and Social Sciences*, 2, (11A): 1062-1066.

Ahmadi, M.R. 2018. The use of technology in English language learning: a literature review. *International Journal of Research in English Education, 3 (2): 115-125.*

Akhtar, S. 2016. Role of ICT in the enhancement of English language skills among the learners. *Journal of Technology for ELT*, 6(2).

Alvi, M. 2016. *A manual for selecting sampling techniques in research*. MPRA paper no. 70218. Available from https://mpra.ub.uni-muenchen.de/70218/1/MPRA_paper_70218.pdf (accessed 18 May 2020)

Ampofo, S. Y., Bizimana, B., Mbuthi, J., Ndayambaje, I., Ogeta, N., & Orodho, J. A. 2014. Information communication technology penetration and its impact on education: Lessons of experience from selected African countries of Ghana, Kenya and Rwanda. *Journal of Information Engineering and Applications,* 4(11), 84-95.

Ananiadou, K. & Claro, M. 2009. 21st century skills and competences for new millennium learners in OECD countries. *OECD Education Working Papers, (*41): 33.

Apau, S.K 2017. Technological Pedagogical Content Knowledge preparedness of student-teachers of the Department of Arts and Social Sciences Education of the University of Cape Coast. *Journal of Education and Practice,* 8(10): 167-181.

Aremu, A. & Adediran, E.M. 2011. Teacher readiness to integrate information technology into teaching and learning processes in Nigerian secondary schools: A case study. *An International Multidisciplinary Journal*, 5(4): 178-190.

Arifah, A. 2014. *Study on the use of technology in ELT classroom: Educators' perspective.* M.A. Thesis, Department of English and Humanities, BRAC University, Dhaka, Bangladesh

Ary, D., Jacobs, L. C. & Sorenzen., C. 2010. *Introduction to research in education* (8th Ed.). Wadsworth: Cengage Learning.

Azmi, N. 2017. The benefits of using ICT in the EFL classroom: from perceived utility to potential challenges. *Journal of Education and Social Research*. 7 (1): 111-118.

Babbie, E. & Mouton, J. 2009. *The practice of social research.* Cape Town: Oxford University Press.

Badri, M., Al Rashedi, A. & Mohaidat, J. 2013. School educators' technology readiness: An empirical study applying readiness factors and teacher type categorization. In *Proceedings of the 2013 International Conference on Information, Business and Education Technology (ICIBET 2013).* Atlantis Press.

Bamgbade, B.J., Akintola, B.A, Agbenu, D.O., Ayeni, C.O,. Fagbami, O. & Abubakar, H.O. 2015. Comparative analysis and benefits of digital library over traditional library. *World Scientific News* 24 1-7.

Barreto, A.M. 2018. Motivating English language use by using the benefits of technology. *Gist Education and Learning Research Journal*, 16: 117-140.

Bawden, D. & Rowlands, I. 1999. Digital libraries: assumptions and concepts. *Libri*, 49(4): 181–191.

Baytak, A., Tarman, B. & Ayas, C. 2011. Experiencing technology integration in education: children's perceptions. *International Electronic Journal of Elementary Education, 3(2):* 139-151.

Bell, E. & Bryman, A. 2007. The ethics of management research: An exploratory content. *British Journal of Management*, 18: 63-77.

Bester, S.J. 2016. Challenges in the integration of multimedia by History teachers in the North West Province of South Africa. *Africa Education Review,* 13 (3-4): 32-48

Bhatti, R., Ahmad, M.N,. & Khan, S.A. 2014. Trends towards Internet use among College Educators of Lodham District South Punjab, Pakistan. *Library Philosophy and Practice*, 3: 1-16.

Blut, M. & Wang, C. 2020. Technology readiness: a meta-analysis of conceptualisation of the construct and its impact on technology use. *Journal of Academy of Marketing Science*, 48: 649-669.

Botha, A., Herselman, M., Rametse, S. & Maremi, K. 2017. Barriers in rural technology integration: A case study from the trenches. In P. Cunningham. & M. Cunningham (Eds.), *IST-Africa 2017 Conference Proceedings,*1-10.

Brown, D.L & Swanson, L.E. (eds.) 2003. *Challenges for rural America in the twenty-first century.* University Park, PA: The Pennsylvania State University Press.

Buckland, M. 1992. *Redesigning library services: a manifesto. Chicago,* IL: American Library Association. Retrieved from http://eric.ed.gov/?id=ED367317

Bulut, O. & Delen, E. 2011. The relationship between students' exposure to technology and their achievement in science and math. *The Turkish Online Journal of Educational Technology,* 10(3): 311-317.

Cascio, W.F. & Montealegre, R. 2016. How technology is changing work and organisations. *The Annual Review of Organisational Psychology and Organisational Behaviour*, 3, 349-375.

Chapelle, C. 2011. *Computer applications in second language acquisition: Foundations for teaching, testing and research*. Cambridge: Cambridge University Press.

Chartier, R. 1993. Libraries without walls. *Representations*, (42): 38–52. http://doi.org/10.2307/2928617.

Coffey, G. 2012. Literacy and technology: integrating technology with small group, peer-led discussions of literature. *International Electronic Journal of Elementary Education,* 4(2): 395-405.

Costley, K. C. 2014. *The positive effects of technology on teaching and student learning*. Arkansas Tech University.

Creswell, J.W & Plano Clark, V.L. 2011. *Designing and conducting mixed methods research (2nd ed.)*. Thousand Oaks, CA: SAGE.

Creswell, J.W. 2012. *Educational research: Planning, conducting, and evaluating quantitative and qualitative research (4th edition).* Boston: Pearson

Creswell, J.W. 2013. *Qualitative inquiry & research design: Choosing among five approaches* (3rd ed.). Thousand Oaks, CA: SAGE.

Dalvit, L., Kromberg, S. & Miya, M. 2014. The data divide in a South African rural community: A survey of mobile phone use in Keiskammahoek. *Proceedings of the e-Skills for Knowledge Production and Innovation Conference*, 87–100.

Department of Education. 2004. *September 2. White Paper 7 on e-Education.* (Government Gazzette, No. 26762) Retrieved from http//www.education.gov.za/Resources/Legislation.

Department of Basic Education. 2011. *Curriculum and assessment policy statement* (CAPS). Pretoria, South Africa: Department of Basic Education.

Department of Education. 2010. *August 2. Action Plan to 2014 Towards the realisation of Schooling 2025.* (Government Gazette, No.33434). Retrieved from http://www.education.gov.za/Portals/0/Documents/Publications/Popular%20Version.pdf?

Department of Communications (DoC). 2013. *South Africa connect: creating opportunities, ensuring inclusion: South Africa's broadband policy.* Retrieved from https://www.gov.za/documents/electronic-communications-act-south-africa-connect-creating-opportunity-ensuring-inclusion

De Vos, A. S., Strydom, H., Fouché and Delport, C. S. L. 2011. *Research at grass roots for the social sciences and human service professions.* Pretoria: Van Schaik.

Dichaba, M. & Ndandani, M. 2013. African researchers and the rural school issues in South Africa: A predatory culture. *Mediterranean Journal of Social Sciences*, 4(14): 397–404.

Doucet, A., Evers, J, Guerra, E., Lopez, N., Soskil, M. & Timmers, K. 2018. *Teaching in the Fourth Industrial Revolution: Standing at the precipice*. London: Routledge Taylor & Francis Group.

Dudeney, G. 2010. *The Internet and the language classroom*. Cambridge: Cambridge University Press.

Du Plessis, P. 2014. Problems and complexities in rural schools: Challenges of Education and social development. *Mediterranean Journal of Social Sciences*, 5 (20).

Dzakpasu, P.E. & Adom, D. 2017. Impact assessment of information and communication technologies on lesson delivery and students' performance in selected tertiary institutions in Ghana. *Journal of Computer Sciences and Applications*, 5(1); 29-41.

Dzansi, D. Y. & Amedzo, K. 2014. Integrating ICT into rural South African schools: Possible solutions for challenges. *International Journal of Education and Science,* 6(2): 341–348.

Elo, S., Kääriäinen, M., Kanste, O., Pölkki, T., Utriainen, K. & Kyngäs, H. 2014. Qualitative content analysis: a focus on trustworthiness. *SAGE Open*, 4, 1-10.

Ertmer, P. A. & Ottenbreit-Leftwich, A. T. 2010. Teacher technology change: How knowledge, confidence, beliefs, and culture intersect. *Journal of Research on Technology in Education*, 42(3): 255-284.

Falloon, G. 2013. Young students using iPads: App design and content influences on their learning pathways. *Computers & Education, 68*(October), 505-521.

Frezzo, D. 2017. *The role of technology in the education of the future*. Available from: https://www.weforum.org/agenda/2017/05/science-oflearning/ (accessed 23 May 2020).

Frydrochov Klimova, B. & Poulova, P. 2014. *ICT as a motivational tool in the learning of foreign languages. Retrieved from* http://www.europment.org/library/2014/ interlaken/bypaper/EDU/EDU-06.pdf.

Fuchs, C. & Horak, E. 2008. Africa and the digital divide. *Telematics and Informatics*, 25(2): 99–116.

Ganon, A. 2019. *What is the role for educators in the fourth industrial revolution?* Retrieved from https://www.ort.org/news/role-educators-fourth-industrial-revolution/

Gilakjani, A.P. 2017. A review of the literature on the integration of technology into the learning and teaching of English language skills. *International Journal of English Language Linguistics*, 7(5): 95-106.

Gopo, C.F. 2022. The role of technology in the 21st century education of learners. *The Official Journal of Tagum City Division,* 47-58.

Guba, E. G. 1981. Criteria for assessing the trustworthiness of naturalistic inquiries. *ECTJ*, 29(2): 75–91.

George, A.S. & George, A S.H. 2020. Industrial revolution 5.0: the transformation of the modern manufacturing process to enable man and machine to work hand in hand. *Journal of Seybold Report*: 214-234.

Ghavifekr, S., Afshari, M. & Amla S. 2012. Management strategies for E-Learning system as the core component of systemic change: A qualitative analysis. *Life Science Journal,* 9(3): 2190-2196.

Ghavifekr, S. & Ibrahim, M.S. 2015. Effectiveness of ICT integration in Malaysian schools: A Quantitative Analysis. *International Research Journal of Quality in Education*, 2 (8): 1-12.

Ghavifekr, S. & Rosdy, WAW. 2015. Teaching and learning with technology: Effectiveness of ICT integration in schools. International Journal of Research in Education and Science, 1(2): 175-191.

Gizaw, M. & Tessema, G.W. 2020. Role of information and communication technology in educational systems: a systematic review. *International Journal of Scientific Reports*, 6(7): 277-282.

Hashemnezhad, H. 2015. Qualitative content analysis research: a review article. *Journal of ELT and Applied Linguistics,* 3 (1)*:* 54-62.

Hennessy, S. 2005. *Emerging teacher strategies for supporting*. Cambridge, UK: University of Cambridge.

Herron, J. 2010. Implementation of technology in an elementary mathematics lesson: The experiences of pre-service educators at one university. *SRATE Journal*, 19(1): 22-29.

Holcomb, L.B. & Beal, CM. 2010. Capitalising on Web 2.0 in the Social Studies Context. *Tech Trends,* 54: 28-33.

Howie, S.J. & Blignaut A.S. 2009. South Africa's readiness to integrate ICT into mathematics and science pedagogy in secondary schools. *Education and Information Technologies*, 14: 345-363.

Ifenthaler, D. & Schweinbenz, V. 2013. The acceptance of tablet-PCs in classroom instruction: The teachers' perspectives. *Computers in Human Behavior,* 29(3): 525-534.

International Society for Technology in Education (ISTE). 2007. *National educational technology standards – students (NETS-S).* Retrieved November 7, 2019, from http://www.iste.org/Libraries/PDFs/NETS- S_Standards.sflb.ashx.

Jamieson-Proctor, R., Albion, P., Finger, G., Cavanagh, R., Fitzgerald, R., Bond, T. & Grimbeek, P. 2013. Development of the TTF TPACK Survey Instrument. *Australian Educational Computing*, 27(3): 26-35

Johnson, B. & Christensen, L. 2012. *Educational research, qualitative, quantitative and mixed approach*. (4th ed). California: SAGE Publication.

Joynes, C., Rossignoli, S.D. & Fenyiwa, E. 2019. *21ST Century skills: Evidence of issues in definition, demand and delivery for development contexts* (K4D Helpdesk Report). Brighton, UK: Institute of Development Studies.

Jules, T. D. 2017. *Public policy and governance*. The global educational policy environment in the fourth industrial revolution: gate, regulated and governed. United Kingdom: Emerald Group Publishing Limited.

Kathirveloo, P., Puteh, M. & Matemaik, F.S. 2014. Effective teaching: Pedagogical Content Knowledge. *Paper presented at the proceeding of International Joint Seminar held at Garut, Indonesia. Retrieved from https://www.researchgate.net/publication/303940850.*

Keser, H., Uzunboylu, H. & Ozdamli, F. 2012. The trends in technology supported collaborative learning studies in 21st century. *World Journal on Educational Technology,* 3(2): 103-119.

Koehler, M. J. & Mishra, P. 2009. What is technological pedagogical content knowledge? *Contemporary Issues in Technology and Teacher Education,* 9 (1): 60-70.

Koehler, M.J, Mishra, P. & Cain, W. 2013. What is technological pedagogical content knowledge (TPACK). *The Journal of Education*, 193(3): 13–19.

Koehler, M.J., Mishra, P., Kereluik, K., Shin, T.S. & Graham, C.R. 2014. The technological pedagogical content knowledge framework. In *Handbook of Research on Educational Communications and Technology: Fourth Edition* 101-111. Springer New York.

Kopcha, T. J. 2012. Teachers' perceptions of the barriers to technology integration and practices with technology under situated professional development. *Computers & Education,* 59(4): 1109-1121.

Korstjens, I. & Moser, A. 2017: Series: Practical guidance to qualitative research. Part 4: Trustworthiness and publishing, *European Journal of General Practice*: 119-124.

Kreutz, J. & Rhodin, N. 2016. *The influence of ICT on learners' motivation towards learning English*. Degree Project in English Learning.

Larson, L. & Miller, T. 2011. 21st century skills: Prepare students for the future. *Kappa Delta Pi Record,* 47(3): 121-123.

Lawrence, H. & Miller, M. 2014. A historical perspective of the evolution of technology education. *International Journal on Integrating Technology in Education* (IJITE), 3(2): 1-7.

Lediga, M.S. & Ngoepe, L.J. 2020. Exploring the effective use of mobile devices by previously disadvantaged English language student educators the constructivist way. *Per Linguam*, 36(2): 104-125.

Lediga, M.S. 2018. *The use of handheld mobile devices: an exploratory study of English language student educators*. Masters Dissertation. University of Limpopo.

Ledward, B. C. & Hirata, D. 2011. An overview of 21 st century skills. *Pacific Policy Research Center,* 2–5. Retrieved from http://www.ksbe.edu/spi/PDFS/21st%20Century%20Skills%20Brief.pdf.

Leedy, P.D. & Ormrod, J.E. 2013. *What is research? In Practical research: Planning and design* (10th ed.). Upper Saddle River, NJ: Merrill.

Loveland, T. 2012. Professional development plans for technology education: Accountability-based application at the secondary and post-secondary level. *Technology and Engineering Teacher,* 71(1): 26–32.

Mahajan, R.L., Mueller, R., Williams, C.B., Reed, J., Campbell, T.A. & Ramakrishnan N. 2012. Cultivating emerging and black swan technologies. ASME. *ASME International Mechanical Engineering Congress and Exposition*, *Volume 6: Energy, Parts A and B*: 549-557.

Mahood, Q., van Eerd D., Irvin, E. 2014. Searching for grey literature for systematic reviews: challenges and benefits. *Res Synth Methods*: 2 221–234.

Mafojane, M.A.J. 2021. *Changing perceptions regarding the use of ICT through subject-specific professional development: Insight from a South African case study.* PhD Thesis. University of Free State.

Marilyn, B., Erstad, O., Herman, J., Raizen, S., Ripley, M., Miller-Ricci, M. & Rumble, M. 2012. Defining twenty-first century skills*. In Assessment and Teaching of 21st century skills*, 1: 17–66.

McMillan, J. H. & Schumacher, S. 2010. *Research in Education: Evidence-based Inquiry.* 7th edition, Pearson: New Jersey.

Mestry, R. & Ndhlovu, R. 2014. The implications of the national norms and standards for school funding policy on equity in South African public schools. *South African Journal of Education, 34(3):* 1-11.

Mishra, P. & Koehler, M.J. 2006. Technological pedagogical content knowledge: A new framework for teacher knowledge. *Teachers College Record,* 108(6): 1017-1054.

Mittal, R. 2014. Emerging trends in English language teaching. *International Journal of Research* 1, (7): 596-600.

Mndzebele, N. 2013. Educators' readiness in using ICT in the classroom: The case of a developing country. *International Journal of Information and Education Technology*, 3(4): 409-412.

Mofokeng, P.L.S., & Mji, A. 2010. Teaching Mathematics and Science using computers: how prepared are South African teachers to do this? *Procedia Journal of Behavioral Sciences 2*,: 1610-1614.

Mohajan, H. K. 2019. The First Industrial Revolution: Creation of a new global human era. *Journal of Social Sciences and Humanities,* 5(4): 377-387.

Mohajan, H. K. 2020. The Second Industrial Revolution has brought modern social and economic developments. *Journal of Social Sciences and Humanities*, 6, (1): 1-14.

Montgomery, C. H. & D. W. King. 2002. *Comparing Library and User Related Costs of Print and Electronic Journal Collections*. A First Step Towards a Comprehensive Analysis. *D-Lib Magazine,* 8(10).

Mortari, L. 2015. Reflectivity in research practice: an overview of different perspectives. *International Journal of Qualitative Methods*, 1-9.

Msila, V. 2015. Teacher readiness and information and communications technology (ICT) use in classrooms: A South African case study. *Creative Education*, 6(18): 1973-1981.

Munje, P. & Jita, T. 2020. The impact of the lack of ICT resources in selected South African primary schools. *International Journal of Learning, Teaching and Educational Research,* 19(7): 263-279.

Muttappallymyalil, J., Mendis, S, John, L.J., Shanthakumari, N., Sreedharan, J. & Shaikh R. B: 2016. Evolution of technology in teaching: Blackboard and beyond in Medical Education. *Nepal Journal of Epidemiol*. 6(3): 588–592.

Mwapwele, S., Marais, M., Dlamini, S. & Van Biljon, J. V. 2019. ICT support environment in developing countries: The multiple cases of school teachers in rural South Africa. In P. Cunningham. & M. Cunningham (Eds.), *IST-Africa 2019 Conference Proceedings,* 1-12.

Ndibalema, P. 2020. Unlocking the potential of ICT for transformative learning among youth: A path of 21st Century competencies. *Journal of Educational Technology and Online Learning,* 3(3): 245-271.

Newbill, P. & Baum, L. 2013. Learning and leading with technology. *International Society for Technology in Education.* 40(4): 16-19.

O'Brien, P. 2006. Provincializing the First Industrial Revolution. *Working Papers of the Global Economic History Network (GEHN), No. 17/06*.

Ouma, G. O., Awuor, F. M. & Kyambo, B. 2013. E-learning readiness in public secondary schools in Kenya. *European Journal of Open, Distance and E-learning*, 16(2): 97- 110.

Padayachee, K. 2017. A snapshot survey of ICT Integration in South African schools. *South African Computer Journal* 29(2): 36–65.

Padmavathi, M. 2016. A study of student-teachers' readiness to use computers in teaching: an empirical study. *I-Manager's Journal on School Educational Technology*, 11 (3): 29-39.

Partin, C. M., & Lauderdale, S. 2013. Bringing it all together: Interdisciplinary perspectives on incorporating mobile technologies in higher education. In L. Wankel & P. Blessinger (Eds.), *Increasing student engagement and retention using mobile applications: Smartphones, Skype and texting technologies* (pp. 83-114). Bingley, UK: Emerald.

Ornstein, A. & Eng, N. 2015. 21st century excellence in education: Introduction. *Society*, *52*(2): 121.

P21.org. 2016. *P21 mission and vision.* Retrieved December 19, 2018, from

http://www.p21.org/about-us/our-mission.

Parasuraman, A. 2000. Technology Readiness Index (TRI) a multiple-item scale to measure readiness to embrace new technologies. *Journal of Service Research*, *2*(4): 307–320.

Partnership for 21st Century Skills. 2015. Retrieved October 24, 2020 from http://www.p21.org/.

Passey, D., Rogers, C., Machell, J. & McHugh, G. 2004. *The motivational effects of ICT on pupils.* Research Report. Department of Educational Research. Lancaster University.

Patel, C. 2013. Use of multimedia technology in teaching and learning communication skill: An analysis. *International Journal of Advancements in Research & Technology*, 2(7): 116-123.

Polit, D.F. & Beck, C.T. 2004. *Nursing research: principles and methods.* 7th Edition, Lippincott Williams & Wilkins, Philadelphia.

Prisecaru, P. 2016. Challenges of the Fourth Industrial Revolution*. Knowledge Horizons. Economics,* 8(1): 57-62.

Ramorola, M.Z. 2022.Challenge of effective technology integration into teaching and learning. *Africa Education Review*, 10(4): 654-670.

Rani, N., Hapawat, A., Indira, Devi V. 2019. Applying innovative teaching methods in teaching English as a Second Language. *International Journal of Scientific Research and Review*, 07(03).

Republic of South Africa. 2012. *Amended national norms and standards for school funding*. Government Gazette, 566(35617), August 27.

Richards, D.A., Bower, P., Weaver, A. & Vasilakis, C. 2012. Delivering stepped care: An analysis of implementation in routine practice. *Implementation Science*, 308-325.
Rifkin, J. 2012. The industrial revolution: how the internet, green electricity, and 3-d printing are ushering in a sustainable era of distributed capitalism. *The World Financial Review.*

Rosnaini, M. & Mohd Arif, I. 2010. Impact of training and experience in using ICT on in-service Educators' Basic ICT Literacy. *Malaysian Journal of Educational Technology*, 10(2): 5-10.

Rusdin, N. M. 2018. Teachers' readiness in implementing 21st century learning. *International Journal of Academic Research in Business and Social Sciences*, 8(4): 1271–1284.

Saavedra, A. R. & Opfer, V. D. 2012. Learning 21st-century skills requires 21st Century teaching. *Phi Delta Kappan*, 94(2): 8–13.

Schwab, K. 2015. *The Fourth Industrial Revolution: What it means and how to respond.* Retrieved from https://www.foreignaffairs.com/articles/2015-12-12/fourth-industrial-revolution.

Sekaran, U. & Bougie, R. 2013. *Research methods for business: A skill building approach*. 6th ed. Chichester: John Wiley and Sons.

Sivathaasan, N. & Velnampy, T. 2013. Use of electronic information resources and academic performance of university educators: A case study. *European Journal of Business and Management,* 14(5): 46–52.

Skolverket. 2011. *Läroplan för grundskolan, förskolekassen oh fritidshemmet 2011*. Stockholm.

Stols, G., Ferreira, R., Pelser, A., O livier, W.A., Van der Merwe, A., De Villiers, C., & Venter, S. 2015. Perceptions and needs of South African Mathematics teachers concerning their use of technology for instruction. *South African Journal of Education*, 35 (4): 1-13.

Suganya, G. 2017. A study on challenges before higher education in the emerging Fourth Industrial Revolution. *International Journal of Engineering Technology Science and Research, 4 (10):* 1-3.

Summak, M. S., Baglibel, M. & Samancioglu, M. 2010. Technology readiness of primary school teachers: A case study in Turkey. *Procedia - Social and Behavioral Sciences,* 2(2): 2671-2675.

Sun, Y., Strobel, J. & Newby, T.J. 2017. The impact of student teaching experience on pre-service teachers' readiness for technology integration: A mixed methods study

with growth curve modeling. *Educational Technology Research and Development*, 65: 597-629.

Taalbi, J. 2017. *Origins and pathways of innovation in the Third Industrial Revolution Sweden, 1950-2013.* (Lund Papers in Economic History; No. 159). Lund: Department of Economic History, Lund University.

Tenopir, C. 2003. Information metrics and user studies. *Aslib Proceedings,* 55(1/2):13-17.

Tschichold, C. 2016. Meeting the technology standards for language teachers. In S. Papadima-Sophocleous, L. Bradley & S. Thouësny (Eds), *CALL communities and culture- short papers from EUROCALL 2016,* 445-449.

Tuli, F. 2010. The basic distinction between qualitative and quantitative research in social sciences: Reflection on Ontological, epistemological and methodological Perspectives. *Ethiopian Journal of Educational Science,* 6 (1): 97-108.

Umugiraneza, O., Bansilal, S., & North, D. 2018. Exploring teachers' use of technology in teaching and learning Mathematics in Kwazulu-Natal schools. *Journal of the Association for Mathematics Education of South Africa,* 39: 1-13

Voogt, J., Erstad, O., Dede, C. & Mishra, P. 2013. Challenges to learning and schooling in the digital networked world of the 21st century. *Journal of Computer Assisted Learning,* 29(5)*:* 403–413.

Waller, P.P. & Maxwell, K.L.H. 2017. Mathematics teachers' perceptions of resources and curriculum availability in post-apartheid schooling. *International Journal of Science and Mathematics Education,* 15(4): 741-757.

Warner, C.K., Bell, C.V. & Odom, A.L. 2018. Defining technology for learning: cognitive and physical tools of inquiry. *Technology for Learning in the Middle Grades*, 4(1): 1-9.

Winzenried, A., Dalgarno, B. & Tinkler, J. 2010. The interactive whiteboard: A transitional technology supporting diverse teaching practices. *Australasian Journal of Educational Technology*, *26*(4).

Wood, E., Mizra, A. & Shaw, L. 2018. Using technology to promote classroom instruction: assessing incidences of on-task and off-task multitasking and learning. *Journal of Computing in Higher Education*, 30(4): 553-571.

Wyse, D., Jones, R., Bradford, H. Wolpert, M.A. 2013. *Teaching English, language and literacy*. USA: Routledge.

Xing, B., 2015. "Massive online open course assisted mechatronics learning_a hybrid approach"*. Furthering Higher Education Possibilities through Massive Open Online Courses*, 245-268.

Yang, K. T. & Wang, T. H. 2012. Interactive white board: effective interactive teaching strategy designs for biology teaching. *Tech, E-Learning-Engineering, On-Job Training and Interactive Teaching, 139-154.*

Yeung, A. S., Taylor, P. G., Hui, C., Lam-Chiang, A. C. & Low, E. -L. 2012b. Mandatory use of technology in teaching: Who cares and so what? *British Journal of Educational Technology, 43*(6): 859–870.

Zhang, X. 2022. The influence of mobile learning on the optimization of teaching mode in higher education. *Wireless Communications and Mobile Computing*, 2022, 1-9.

APPENDIX A: QUESTIONNAIRE FOR EDUCATORS

Kindly underline appropriate responses and/or provide relevant information which best describes each aspect in the questionnaire.

1. Biographical data

1.1 Gender

A. Male B. Female

1.2 Age

A. 20-25 B. 26-30 C. 31-35

D. 36-40 E. 41-45 D. Above 45

1.3 Teaching qualification

A. Diploma B. B.Ed. C. BA/BSc/BCom with PGCE

1.4 Highest qualification

_____

1.5 Other Qualification(s) e.g. Diploma in ICT

_____

1.6 Teaching experience

A. Less than 5 years B. 6-10 years C. 11-15 years

D. 16-20 years E. 20 – 25 years F. Over 25 years

1.7 Average class size

A. Less than 30 learners B. 31-35 learners C. 36-40 learners

D. 41-45 learners E. 45-50 learners D. More than 50 learners

1.8 Current grade(s) responsible for?

_____

1.9 Grades Taught before?

_____

1.10 Province

_____

2 Technology readiness

2.1 Justification

2.1.1 Do you own a Personal Computer (PC)?

A. Yes B. No

2.1.2 Is there a computer available at school?

A. Yes B. No

2.1.3 Is it a desktop or a laptop?

_____

2.1.4 Do you have internet connectivity at your school?

A. Yes B. No

2.1.5 Does your school have a computer laboratory?

A. Yes B. No

2.1.6 Do learners own handheld smart phones?

A. Yes B. No

2.1.7 Is there an ICT technician at your school?

A. Yes B. No

2.2 Use/Usage

2.2.1 Are you able to operate a PC?

A. Yes B. No

2.2.2 Have you been trained on the use of Information and Communication Technology (ICT)?

A. Yes B. No

If yes, when was it?

_____

2.2.3 What was the training about?

_____
_____
_____
_____

2.2.4 How long did it last?

_____
_____
_____-
_____

2.2.5 Did you pay for the training?

A. Yes B. No

2.2.6 Was the training assessed?

A. Yes B. No

2.2.7 Was the training accredited?

A. Yes B. No

2.3 Teaching and learning

2.3.1 Do you sometimes use the PC/laptop to teach your learners?

A. Yes B. No

2.3.2 Are you competent in using presentation software such as PowerPoint?

A. Yes B. No

2.3.3 Are you proficient in using Apps for English language in a classroom?

A. Yes B. No

2.3.4 Are you able to download educational videos?

A. Yes B. No

2.3.5 In a scale of 1-4, how would you rate your level of ICT competency?

A. 1-Poor B. 2-Average C. 3-Good D. 4- Excellent

2.3.6 What would you like to be trained for regarding technology usage?

_____
_____

_____-

_____

2.4 Integrating technology into the curriculum

2.4.1 Are you familiar with ways of integrating technology into the curriculum?

A. Yes B. No

2.4.2 How often do you integrate technology in your teaching activities?

A. Not at all B. Rarely C. Occasionally

D. Frequently E. Almost always F. All the time

2.4.3 Do you prepare notes for your learners from the internet?

A. Yes B. No

2.4.4 Do you sometimes create teaching aids using the computer?

A. Yes B. No

2.4.5 Are you adept at a multimodal teaching approach?

A. Yes B. No

2.5 Attitudes towards technology integration

2.5.1 Do you feel comfortable using ICT as a teaching tool?

_____

_____

_____

_____

_____

2.5.2 Do you think computers are valuable tools for educators? Please expatiate on this.

_____

_____

_____
_____
_____

2.5.3 What is your opinion about ICT integration in English language learning?

_____
_____
_____
_____
_____

2.5.4 Would you prefer using the traditional method of teaching to ICT integration?

_____
_____
_____
_____
_____

2.5.6 Do you think integrating technology in the English language curriculum may have a positive effect on learners' performance?

_____
_____
_____
_____
_____

2.5.7 Do you believe that using digital technology can be effective in enhancing the implementation of the curriculum? Please explain your answer.

_____
_____
_____
_____
_____

2.5.8 Are you for innovative teaching methods?

_____
_____
_____
_____
_____
_____

2.5.9 In your view, what would be the benefits of ICT in English language teaching?

_____
_____
_____
_____
_____

2.5.10 In your opinion, what should be done in order to improve educators' readiness to integrate ICT?

_____
_____
_____
_____
_____

2.5.11 How can the ICT infrastructure be improved?

_____
_____

_____
_____
_____

2.5.12 Do English language Subject Advisors (ELSAs) ever discuss issues pertaining to ICT integration?

_____
_____
_____
_____
_____

2.5.13 Are you familiar with the term Digital Citizenship (DS)? Please explain the term in one or two sentences.

_____
_____
_____
_____
_____

Thank you.

APPENDIX B: INTERVIEWS WITH ENGLISH LANGUAGE HoDs

1. Educators' readiness

1.1 Are Heads of Departments (HoDs) computer literate?

1.2 Which subjects do you oversee as HoD?

1.3 Do you think educators are ready to implement the digital curriculum?

1.4 How many English language educators are computer literate? Please explain.

2. School readiness regarding ICT

2.1 Does the school motivate educators to use technology when teaching? Please explain your answer.

2.2 Does the school have a vision of integrating ICT in their teaching?

2.3 Is there a computer laboratory in this school?

2.4 Do you budget for ICT resources? Please expatiate on this.

2.5 Does the school encourage educators to adopt technology in their teaching?

2.6 How can the English language ICT situation in your school be improved?

3. General views on the use of ICT in the English subject

3.1 Do you have ICT resources that can enhance the teaching and learning of English?

3.2 Are English language educators interested in using technology when teaching?

3.3 Would you concur that both educators and learners will benefit from the integration of technology into English language teaching and learning? Please explain your answer.

3.4 Do you occasionally arrange for English language educators to be trained on how to use technology?

3.5 In your opinion, should ICT integration in English language teaching be given high priority?

4. School management involvement in ICT incorporation

4.1 Are circuits ready to incorporate ICT in English language teaching?

4.2 Were educators ever invited to ICT integration training by English Language Subject Advisors (ELSAs)?

4.3 How do you think circuits should drive the process of integrating ICT in the English language?

Thank you.

APPENDIX C: CHECKLIST FOR ICT RESOURCES

1. Name of School: _____
2. Grade: _____
3. Number of learners in Class: _____
4. Classroom/Venue Capacity: _____
5. Type of School (select from examples given below): _____

   (E.g. Quintile 1, Quintile 2 or Quintile 3)

6. ICT Environment

	Yes	No/None	Total/Capacity	Comment
6.1 Is electricity available?				
6.2 Are Generators available				
6.3 Computers/Desktops?				
6.4 Date acquired				
6.5 Laptops				
6.6 Date acquired				
6.7 Computer laboratory				
6.8 Functional computers				
6.9 Educator's Monitor				
6.10 Learners' Smart Handheld Devices				
6.11 Availability of Computer Technician				
6.12 LCD Projectors				
6.13 Printer				

6.14 Wi-Fi Connectivity				
6.15 Any other relevant device noticed?				

APPENDIX D: SAMPLE PERMISSION LETTER TO CONDUCT RESEARCH

791 UNIT E

MANKWENG

O727

The District Director

Dear Sir/Madam

PERMISSION TO CONDUCT RESEARCH IN YOUR CIRCUIT

I Mamaroba Sylvia Lediga (Student No 9817293) hereby request permission to conduct research. I am a registered PhD student at the University of Limpopo under the supervision of Dr. L.J Ngoepe (Tel. 015 268 3056 or Email:lucia.ngoepe@ul.ac.za). The title of my research is 'Investigating technology integration readiness of English First Additional Language educators: A case of South African rural public schools'.

A mixed method design will be used and data collection methods will be in the form of questionnaires, interviews and a checklist for ICT resources. Participants in the study will be English First Additional Language educators and Language HoDs. The principle of confidentiality, anonymity and privacy will be adhered to.

Thanking you in advance.

Yours faithfully

Ms M S Lediga

(060 814 0575/ 073 311 0976 / ledigms@unisa.ac.za)

APPENDIX E: PERMISSION LETTER TO COLLECT RESEARCH DATA

791 UNIT E

MANKWENG

0727

The School Principal

PERMISSION TO COLLECT RESEARCH DATA

I Mamaroba Sylvia Lediga (Student No 9817293) hereby request permission to collect research data. I am a registered PhD student at the University of Limpopo under the supervision of Dr. L.J Ngoepe (Tel. 015 268 3056 or Email:lucia.ngoepe@ul.ac.za). The title of my research is 'Investigating technology integration readiness of English First Additional Language educators: A case of South African rural public schools'.

A mixed method design will be used and data collection methods will be in the form of questionnaires, interviews and a checklist for ICT resources. Participants in the study will be English First Additional Language educators and Language HoDs. The principle of confidentiality, anonymity and privacy will be adhered to.

Thanking you in advance.

Yours faithfully

Ms M S Lediga

(060 814 0575/ 073 311 0976 / ledigms@unisa.ac.za)

APPENDIX F: PARTICIPANTS' CONSENT LETTER

This is serves to request your participation in a research study. The researcher is a registered PhD (English Studies) student at the University of Limpopo, under the supervision of DR. L. J. Ngoepe (Tel no 015 268 2928 Email: lucia.ngoepe@ul.ac.za/082 200 6042). In this study, I am trying to investigate the technology integration readiness of English First Additional Language educators in South African rural public schools'.

Data will be collected by means of interviews, questionnaires and ICT resources checklist. The interview will not be more than an hour and it will be recorded and later transcribed. Data will be kept safely under lock and key for five years, after which it will be destroyed.

Should you consent to participate in the research, you will be assured of complete confidentiality, privacy, and anonymity. Your details are known to the researcher only. The principles of human dignity, protection against harm, freedom of choice and expression, and your access to information on the research, will be assured. Participants are assured of the right to withdraw from the study without harm at any time and they will not be expected to act contrary to their principles. Participants will not incur any costs and they will be informed of the progress of the research. Participant will be given feedback in writing once the research has been completed. All the information and data generated through this study will be made available to the participants.

You can ask any questions whenever you wish. My contact numbers are 060 814 0575/ 073 311 0976 and my email address is ledigms@unisa.ac.za

Completion of the attached consent form will give indication that you agree to take part in the study.

I _____ hereby give consent to participate in the research study conducted by Ms M.S Lediga titled:

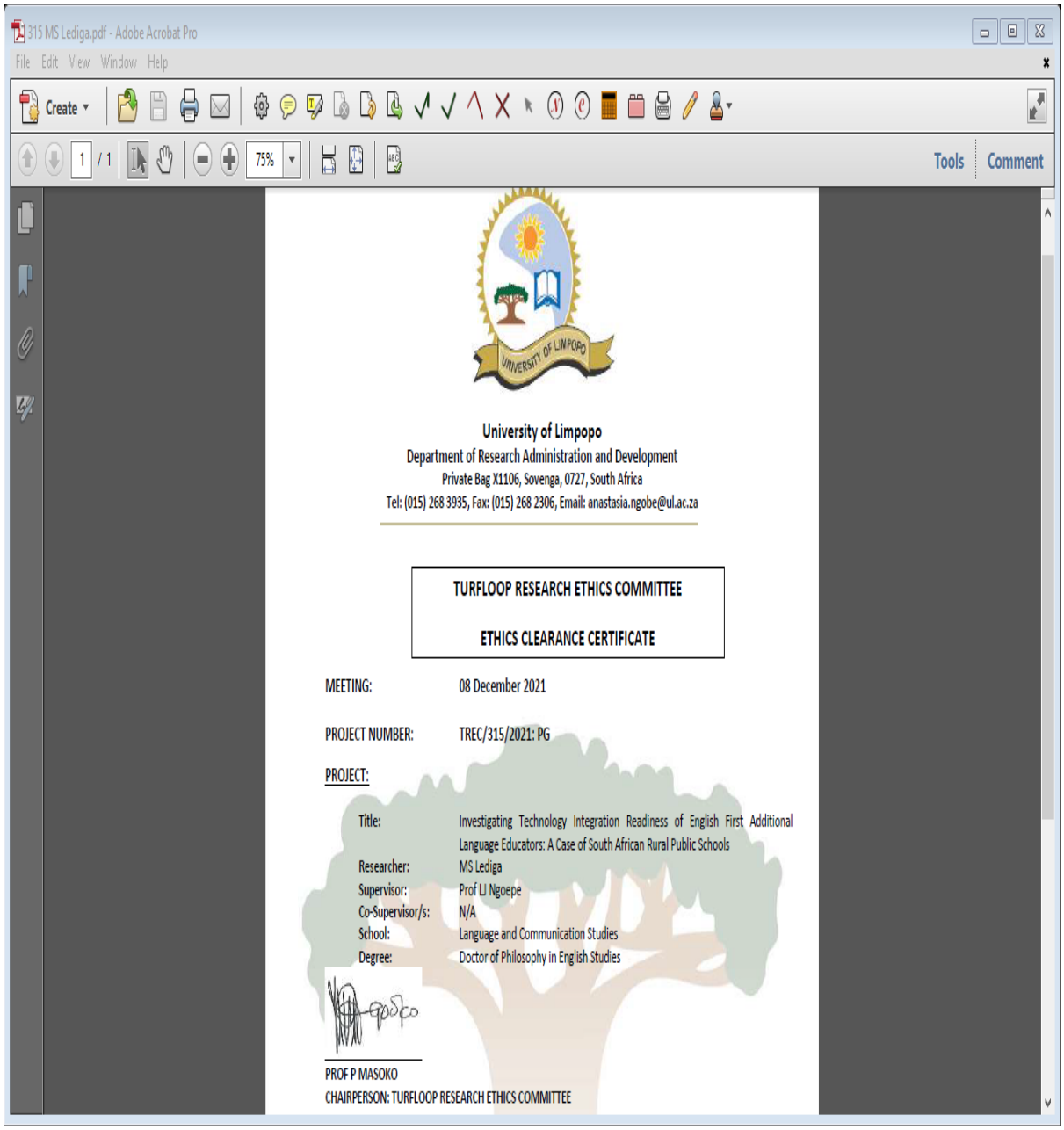
‘Investigating technology integration readiness of English First Additional Language educators: A case of South African rural public schools’.

I voluntarily agree to participate in the study.

Sign_____

Date_____

APPENDIX G: ETHICS CLEARANCE CERTIFICATE



University of Limpopo
Department of Research Administration and Development
Private Bag X1106, Sovenga, 0727, South Africa
Tel: (015) 268 3935, Fax: (015) 268 2306, Email: anastasia.ngobe@ul.ac.za

TURFLOOP RESEARCH ETHICS COMMITTEE

ETHICS CLEARANCE CERTIFICATE

MEETING: 08 December 2021

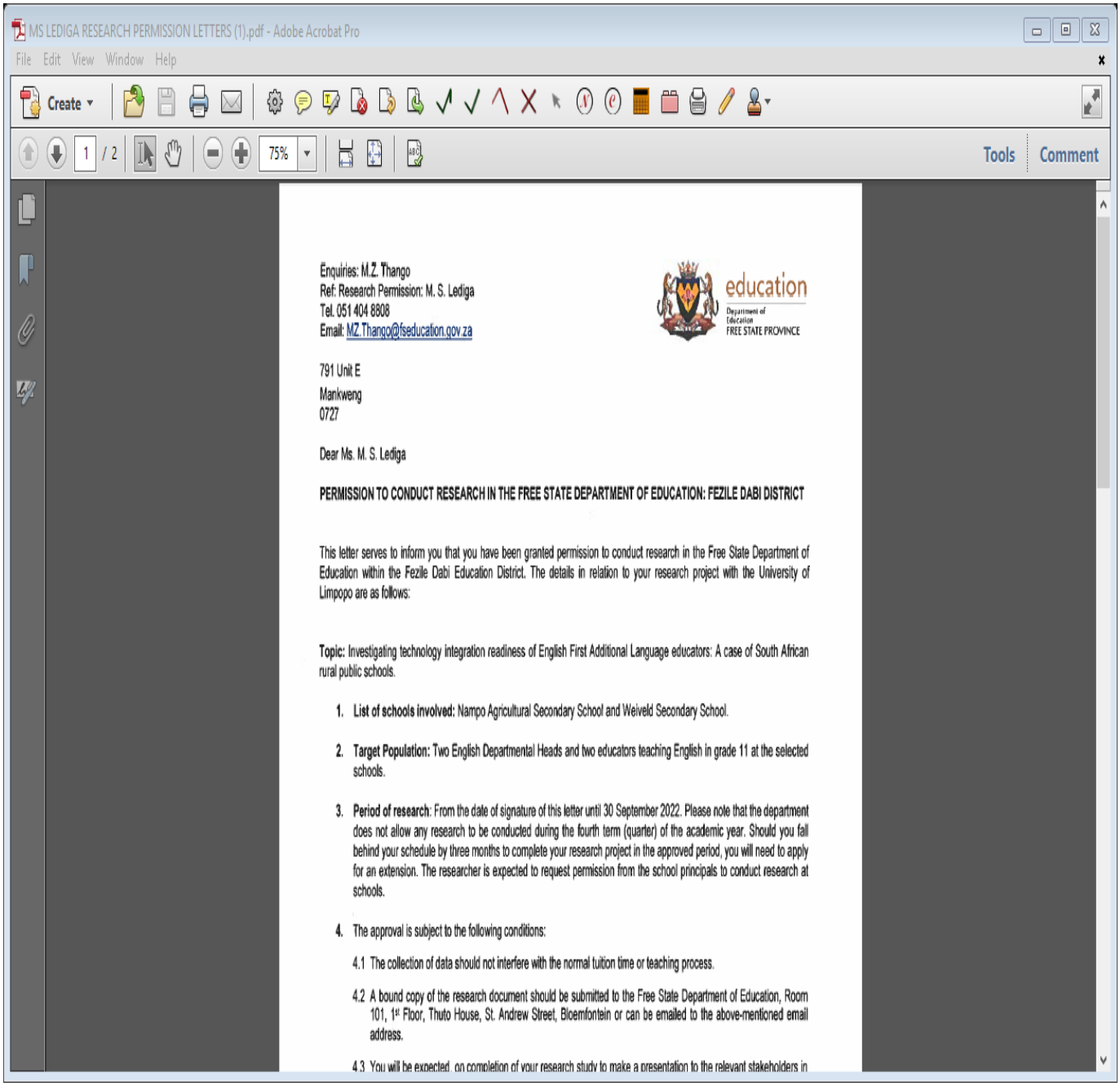
PROJECT NUMBER: TREC/315/2021: PG

PROJECT:

Title:	Investigating Technology Integration Readiness of English First Additional Language Educators: A Case of South African Rural Public Schools
Researcher:	MS Lediga
Supervisor:	Prof LJ Ngoepe
Co-Supervisor/s:	N/A
School:	Language and Communication Studies
Degree:	Doctor of Philosophy in English Studies

PROF P MASOKO
CHAIRPERSON: TURFLOOP RESEARCH ETHICS COMMITTEE

APPENDIX H: PERMISSION LETTER FREE STATE PROVINCE



MS LEDIGA RESEARCH PERMISSION LETTERS (1).pdf - Adobe Acrobat Pro

File Edit View Window Help

Create

1 / 2

75%

Tools Comment

Enquiries: M.Z. Thango
Ref: Research Permission: M. S. Lediga
Tel. 051 404 8808
Email: MZ.Thango@fseducation.gov.za

education
Department of Education
FREE STATE PROVINCE

791 Unit E
Mankweng
0727

Dear Ms. M. S. Lediga

PERMISSION TO CONDUCT RESEARCH IN THE FREE STATE DEPARTMENT OF EDUCATION: FEZILE DABI DISTRICT

This letter serves to inform you that you have been granted permission to conduct research in the Free State Department of Education within the Fezile Dabi Education District. The details in relation to your research project with the University of Limpopo are as follows:

Topic: Investigating technology integration readiness of English First Additional Language educators: A case of South African rural public schools.

1. **List of schools involved:** Nampo Agricultural Secondary School and Weiveld Secondary School.
2. **Target Population:** Two English Departmental Heads and two educators teaching English in grade 11 at the selected schools.
3. **Period of research:** From the date of signature of this letter until 30 September 2022. Please note that the department does not allow any research to be conducted during the fourth term (quarter) of the academic year. Should you fall behind your schedule by three months to complete your research project in the approved period, you will need to apply for an extension. The researcher is expected to request permission from the school principals to conduct research at schools.
4. The approval is subject to the following conditions:

   4.1 The collection of data should not interfere with the normal tuition time or teaching process.

   4.2 A bound copy of the research document should be submitted to the Free State Department of Education, Room 101, 1st Floor, Thuto House, St. Andrew Street, Bloemfontein or can be emailed to the above-mentioned email address.

   4.3 You will be expected, on completion of your research study to make a presentation to the relevant stakeholders in

APPENDIX I: PERMISSION LETTER LIMPOPO PROVINCE

LIMPOPO
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA
DEPARTMENT OF
EDUCATION

CAPRICORN SOUTH

MAMABOLO CIRCUIT

ENQUIRY: MASEGELA M.R CONTACT NO: 082 776 3085
Email:malehumas@gmail.com

TO: NKOSHILO SMTs AND EDUCATORS

MAKOME SMTs AND EDUCATORS

FROM: MAMABOLO CIRCUIT MANAGER

MASEGELA MR

RE: PERMISSION TO CONDUCT RESEARCH ON "INVESTIGATING TECHNOLOGY INTERGRATION READINESS OF ENGLISH FIRST ADDITIONAL LANGUAGE EDUCATORS IN RURAL PUBLIC SCHOOLS." BY LEDIGA MS.

1. The above matter bears reference.

2. The permission is hereby granted to **LEDIGA MS, STUDENT NO: 9817293** a student at University of Limpopo to conduct research on the above mentioned topic.

3. The office of the circuit manager supports the idea of conducting research in the two identified schools and hope for positive cooperation of SMTs and educators with the researcher until the completion of the project.

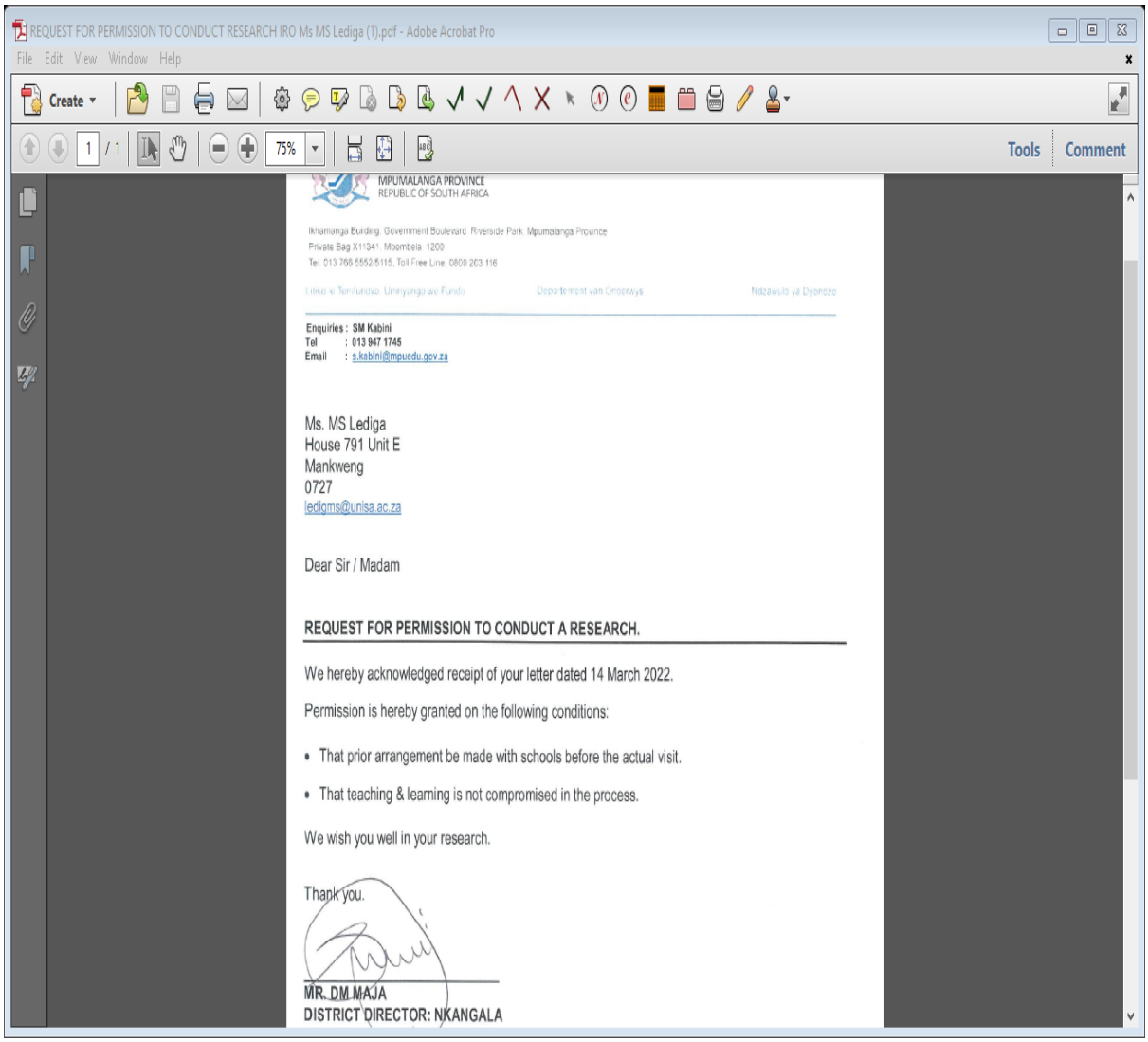
4. The researcher should not temper with contact teaching time of educators and where possible the interview should be done during study time.
5. Wishes you a blessed and successful interaction with the affected schools

6. Yours in Education

DULY SIGNED BY ***10.04.2022***

MASEGELA MR **DATE**

APPENDIX J: PERMISSION LETTER MPUMALANGA



REQUEST FOR PERMISSION TO CONDUCT RESEARCH IRO Ms MS Lediga (1).pdf - Adobe Acrobat Pro

File Edit View Window Help

Create

1 / 1 75% Tools Comment

MPUMALANGA PROVINCE
REPUBLIC OF SOUTH AFRICA

Ikhamanga Building, Government Boulevard, Riverside Park, Mpumalanga Province
Private Bag X11341, Mbombela, 1200
Tel: 013 766 5552/5115, Toll Free Line: 0800 203 116

Enquiries : SM Kabini
Tel : 013 947 1745
Email : s.kabini@mpuedu.gov.za

Ms. MS Lediga
House 791 Unit E
Mankweng
0727
lediams@unisa.ac.za

Dear Sir / Madam

REQUEST FOR PERMISSION TO CONDUCT A RESEARCH.

We hereby acknowledged receipt of your letter dated 14 March 2022.

Permission is hereby granted on the following conditions:

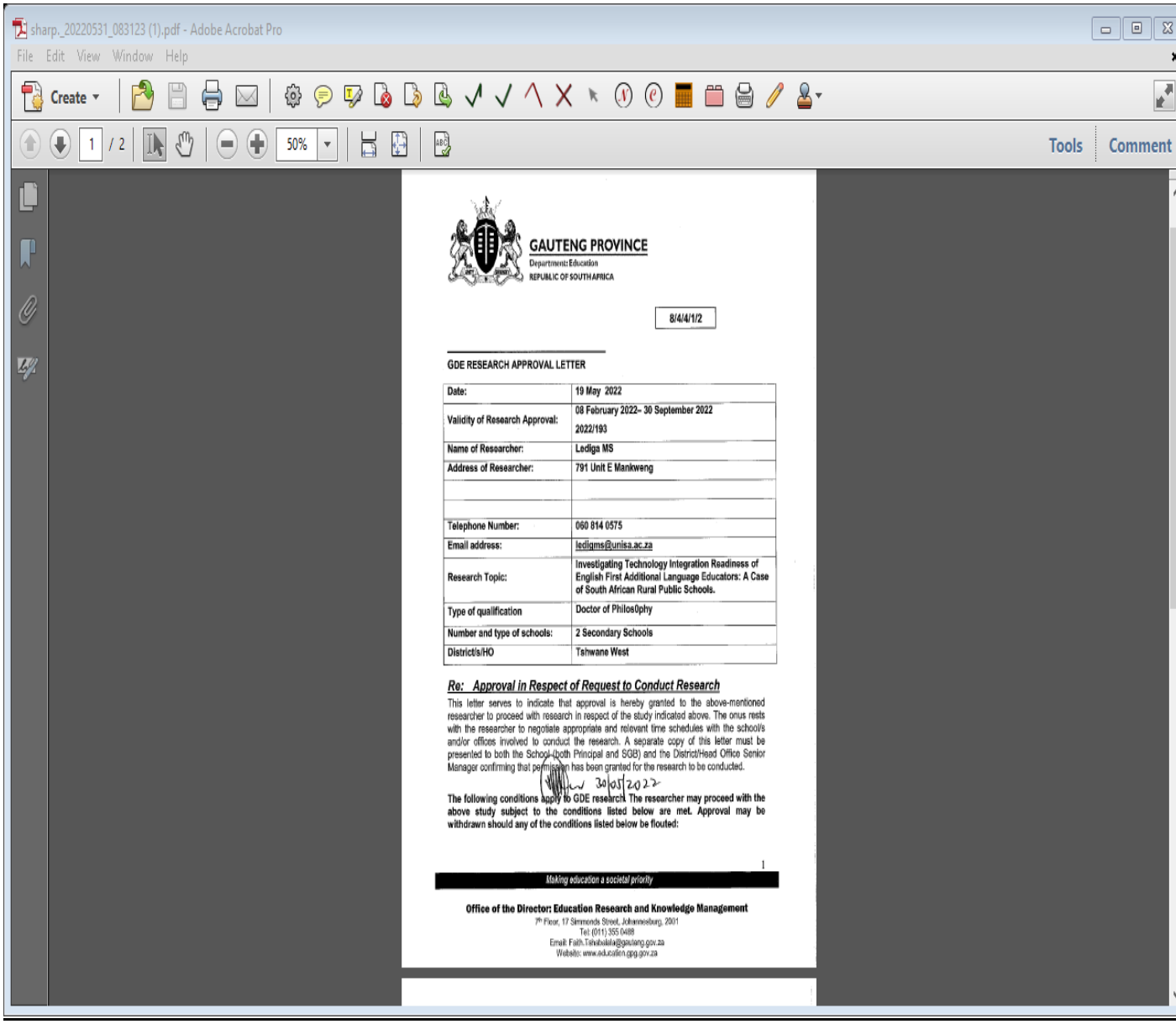
- That prior arrangement be made with schools before the actual visit.
- That teaching & learning is not compromised in the process.

We wish you well in your research.

Thank you.

MR. DM MAJA
DISTRICT DIRECTOR: NKANGALA

APPENDIX J: PERMISSION LETTER GAUTENG PROVINCE



sharp_20220531_083123 (1).pdf - Adobe Acrobat Pro

File Edit View Window Help

Create

1 / 2 50%

Tools Comment

GAUTENG PROVINCE
Department: Education
REPUBLIC OF SOUTH AFRICA

8/4/4/1/2

GDE RESEARCH APPROVAL LETTER

Date:	19 May 2022
Validity of Research Approval:	08 February 2022– 30 September 2022 2022/193
Name of Researcher:	Lediga MS
Address of Researcher:	791 Unit E Mankweng
Telephone Number:	060 814 0575
Email address:	lediqms@unisa.ac.za
Research Topic:	Investigating Technology Integration Readinsss of English First Additional Language Educators: A Case of South African Rural Public Schools.
Type of qualification	Doctor of Philos0phy
Number and type of schools:	2 Secondary Schools
District/s/HO	Tshwane West

Re: Approval in Respect of Request to Conduct Research

This letter serves to indicate that approval is hereby granted to the above-mentioned researcher to proceed with research in respect of the study indicated above. The onus rests with the researcher to negotiate appropriate and relevant time schedules with the school/s and/or offices involved to conduct the research. A separate copy of this letter must be presented to both the School (both Principal and SGB) and the District/Head Office Senior Manager confirming that permission has been granted for the research to be conducted.

30/05/2022

The following conditions apply to GDE research. The researcher may proceed with the above study subject to the conditions listed below are met. Approval may be withdrawn should any of the conditions listed below be flouted:

1

Making education a societal priority

Office of the Director: Education Research and Knowledge Management
7th Floor, 17 Simmonds Street, Johannesburg, 2001
Tel: (011) 355 0488
Email: Faith.Tshabalala@gauteng.gov.za
Website: www.education.gpg.gov.za