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Investigation of the Adoption and Implementation of the e-Education Policy in the Gauteng Provincial Government

By

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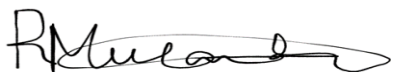
This research project is presented in partial fulfillment of the requirements for the degree of Master of Management by Coursework and Research Report in the WITS Graduate School of Governance at the University of Witwatersrand.

Supervisor: Prof. Geci Karuri-Sebina

Date: December 2023

DECLARATION

I, Rofhiwa Mulaudzi, do hereby declare that this dissertation is the result of my investigation and research and that this has not been submitted in part or full for any degree or any other degree to any other University.



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December 2023

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ABSTRACT

Several studies have shown that school leadership plays an important role in the implementation and adoption of ICT policies in schools by creating and aligning the school vision with the policy objectives and leading change in the school. In South Africa, and Gauteng in particular, it has been found that ICT plays an important role in improving learner performance and enhancing changes in the methods of teaching and learning. It has also been evident that school leaders face different challenges during the implementation and adoption of ICT policies, such as lack of resources, bureaucracy, and resistance from the staff. The purpose of this study is therefore to investigate the adoption and implementation of the White Paper on e-Education policy in the context of teaching and learning.

A qualitative approach, and in particular, the phenomenology qualitative research design, was used in this study in order to investigate the experiences of school leaders in relation to the adoption and implementation of the White Paper on e-Education within secondary schools in Gauteng province. Twenty-one school leaders were selected through convenience and purposeful non-probability sampling and requested to participate in the study. Data was collected using semi-structured interviews and analysed using the qualitative content analysis method. The following themes emerged from the study: a) participants' knowledge and understanding of the e-Education policy and application of the framework in achieving the policy goals; b) roles of participants in implementing and adopting the policy; c) school leaders' attitude towards the policy; d) challenges faced by school leaders.

The findings revealed that leaders are responsible for creating and aligning the vision of the school with policy objectives and also leading change in schools. The findings further suggested that school leaders have a common understanding of the policy and their roles in implementing and adopting it; however, they are poorly equipped for the task of implementing and adopting national policies. The study concluded by making recommendations including consideration being given to including school leadership in policy formulation processes and other stages of policy formulation and implementation in order to improve their knowledge and understanding.

LIST OF ACRONYMS

4IR	Fourth Industrial Revolution
ANC	African National Congress
DBE	Department of Basic Education
GDE	Gauteng Department of Education
GOL	Gauteng-On-Line
ICT	Information and Communication Technologies
NPDF	National Policy Development Framework
PDFDL	Professional Development Framework for Digital Learning
SA	South Africa
SGB	School Governing Body
SMT	School Management Team
TTPD	Teacher Training and Professional Development

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CHAPTER 1: BACKGROUND

1.1. INTRODUCTION

The last few decades have seen a greater impact on society due to the rapid advancements in the use of Information and Communication Technologies (ICT). ICT is allocated a portion of education budgets in many countries worldwide (Lee et al., 2018, p. 212). ICTs have made it simple for society to communicate and access information globally. Industrialised nations have installed adequate ICT infrastructure, while developing nations are still working to install adequate infrastructure (Karanja, 2018, p. 31). The focus of the division between the digital and physical worlds is now the Fourth Industrial Revolution (4IR). Thanks to 4IR, the world has come together around the Internet of Things (IoT), and many industries are automating their processes. Because of this, society should put more effort into providing ICT resources for use in educational and professional settings (Kalitanyi & Goldman, 2021).

As stated in the African National Congress (ANC) election manifesto from 1994, democracy in South Africa (SA) guaranteed the possibility of a better life and freedom for everyone. South Africa is still having difficulty building institutions to promote justice in the field of education, even after 27 years of democracy (Ramukosi, 2018, p. 53). In order to improve the quality of education in the nation, the Department of Basic Education (DBE), formerly the National Department of Education (DoE) is dedicated to providing modern, functional schools through the implementation of various policies. The department wanted to make it possible for schools to deliver excellent instruction. Promoting and defending each learner's fundamental right to a fair, pertinent, and superior education is the aim (DBE, 2004).

In South Africa, policy adoption, implementation, and service delivery across a range of economic sectors have recently garnered a great deal of critical attention (Plagerson et al., 2019). Equal Education (EE) published an analysis of the DBE annual report for 2015-2016 in 2016. Based on the analysis, DBE has created and implemented a number of laws, policies, and initiatives that affect the provision of high-quality education since the post-democratic administration was established. The report finds that while South Africa

has some great initiatives and policies, there are problems with their execution and public participation. Adoption and execution of policies are "essential in the provision of goods and services," according to Motala (2020, p. 14). Marketing policy objectives and identifying and disclosing inadequacies are included in policy implementation, according to Motala (2020).

The South African White Paper on e-Education policy was introduced with the primary goal of reforming the educational system through the use of ICT resources in pedagogy, according to DBE (2004). The policy is established on the idea that implementing ICT will improve learning, pedagogical practices will change, and school functionality will improve. The author also notes that current practices in many South African schools, especially in Gauteng, reveal a disconnect between policy goals, end-user practices, and policymakers' aspirations.

The broader "policy environment" plays a major role in the adoption and implementation of public policies (Goyal, 2021). In this setting, policy implementers serve as the central point "where policy meets practice." Guidelines for the implementation of various educational initiatives are provided to national agencies and provincial governments by the South African constitution and a number of frameworks (Madisha, 2021). The realities in schools at the provincial level of government, however, differ significantly from the expectations of the national level of government regarding e-Education policy. According to the authors, the objective was to bring about a major transformation in the educational setting. Dlamini and Van der Vyver (2018) found that teachers and school administration are not connected to provincial authorities and are not well-versed in the policy.

Moreover, policy and practice inconsistencies were discovered by Bayeni and Bhengu (2018) in the South African framework. In addition, the e-Education policy's implementation has not been up to par and has not moved quickly to achieve its goals. According to Mnisi (2015), the majority of Gauteng's public ordinary schools lack ICT resources like computers, internet access, and tablets, which is consistent with the findings of Bayeni and Bhengu (2018). The policy's goal of ensuring "that every teacher and learner is ICT proficient by 2013" has not, according to Mnisi, been fully attained.

Studies on policy implementers' perspectives on policy adoption and implementation in Gauteng schools are insufficient to be definitive. The research conducted by Mwapwele et al. (2019), Gunzo et al. (2020), and Chisango et al. (2019) is a typical for the Gauteng province. Rather than adopting and implementing policies, the few studies conducted in the province of Gauteng concentrate on the integration of ICT in teaching and learning.

When seeking to comprehend a phenomenon, a clear proposition is essential as the starting point for the research. As a result, this research focuses on four emerging themes that are critical to understanding the implementation of educational policies: Participants' knowledge and understanding of the policy, roles of participants in implementing and adopting the policy, school leaders' attitude towards the policy, and challenges faced by school leadership in policy adoption and implementation. Each of these themes plays a vital role in shaping the effectiveness of policy adoption and will be examined in detail throughout the study.

Participants' Knowledge and Understanding of the Policy: This theme underscores the necessity for all stakeholders within the educational system to be thoroughly informed about the policy's objectives, content, and potential impacts. Comprehensive knowledge ensures that participants can effectively interpret and apply the policy in their respective roles. This understanding involves familiarity with the policy documents and an appreciation of how the policy aligns with broader educational goals and mandates. Research indicates that when participants possess a deep understanding of the policy, they are better equipped to drive successful implementation and achieve desired outcomes. Effective dissemination strategies, such as targeted training programmes, detailed workshops, and accessible resources, are essential to bridge gaps in understanding and empower educators and administrators to apply the policy effectively.

Roles of Participants in Implementing and Adopting the Policy: The roles of participants in implementing and adopting the policy are critical to its success and vary according to their positions within the educational hierarchy. Teachers, being on the front lines, play a pivotal role in translating policy into practice within the classroom, requiring them to adjust their teaching methodologies and curriculum plans. Administrators, on the other hand,

are tasked with overseeing the implementation process, ensuring compliance, and providing the necessary support and resources. The effective adoption of the policy depends on the coordinated efforts of all participants, with clearly defined responsibilities and a collaborative approach. Each participant's role is interconnected, necessitating a cohesive strategy where all stakeholders work together to achieve the policy's objectives and ensure its smooth integration into the educational environment.

School Leaders' Attitude Towards the Policy: The attitude of school leaders towards the policy plays a significant role in shaping its implementation and acceptance within the educational institution. School leaders act as primary influencers and role models, and their support or opposition can significantly affect the overall institutional culture and morale. Positive attitudes among school leaders are often linked to proactive policy endorsement, fostering an environment conducive to change and innovation. Conversely, resistance or indifference can create substantial barriers to policy adoption, demotivating staff and hindering progress. Research highlights the importance of school leaders demonstrating a clear commitment to the policy, including vocal support and tangible actions such as resource allocation, facilitation of training, and recognition of successful implementation efforts. Their attitude sets the tone for the entire institution, influencing how other stakeholders perceive and engage with the policy.

Challenges Faced by School Leadership: School leadership faces numerous challenges during the policy implementation process. These challenges can be systemic, such as limited funding, insufficient training, and resistance from staff or the broader community. Additionally, logistical issues like time constraints and the complexity of coordinating policy adoption across different levels of the institution pose significant hurdles. Effective leadership requires the development of strategic plans to address these obstacles, fostering open communication channels to understand and mitigate concerns, and continuously evaluating the implementation process to make necessary adjustments. Addressing these challenges is crucial for maintaining momentum and ensuring the policy's benefits are fully realised within the educational environment. By acknowledging and proactively tackling these difficulties, school leaders can facilitate a smoother transition and promote a more effective policy adoption.

1.2. PROBLEM STATEMENT

Like other African nations, South Africa has put policies and programmes in place to boost ICT use in classrooms. In order to expedite the attainment of national education goals, teachers and learners must use ICT, according to the South African White Paper on e-Education Policy. By 2013, all teachers and learners had to adapt to the use of technology in the classroom (DBE, 2004). The stance on policy supports increasing internet access and utilising computers, tablets, and smart boards in teaching to help learners become more proficient with technology and gain access to educational resources.

The purpose of ICT in education is to provide learners with access to digital skills solutions, learning resources, and the internet (Koh, Tan, Camire, Paculdar & Chua, 2022). Mwapwele et al. (2019) states that using social media and online study resources can help South African learners advance their technical skills. According to Baghdady and Zaki (2019), pertinent Sub-Saharan African institutions ought to have a conversation regarding the difficulties that learners encounter when utilising technology for instruction and learning. Liebenberg et al. (2018), state that there is a dearth of empirical support, especially from the standpoint of policy implementers, for the adoption and application of ICT policies in teaching and learning.

Mashile (2017) and Lekgothoane and Thaba-Nkadimene (2019), claim that most South African schools still lack ICT-savvy leaders and resources. Dasruth (2020) concurs with Liebenberg et al.'s (2018) assertion that a lack of training, user attitude towards ICT use, leadership accountability, and sustainability are the main reasons why many ICT interventions fall short of expectations. Therefore, in order to close the ICT sustainability gap, the perspectives of policy implementers and end users need to be examined. As previously mentioned, an investigation into the White Paper's adoption and implementation of e-Education policy in Gauteng schools is necessary. A thorough investigation is required to close this gap.

1.3. PURPOSE AND RATIONALE OF THE STUDY

The purpose of this study is to address a research gap by investigating the adoption and implementation of the White Paper on e-Education policy in the context of teaching and learning. The goal of this study is to investigate the experiences of school leaders in relation to the adoption and implementation of the White Paper in their respective local schools. The study offers an in-depth analysis of the degree to which the policy has been embraced and executed across the province with regards to educational practices. The study additionally ascertains significant challenges encountered by schools during the implementation and adoption of the policy.

1.4. SIGNIFICANCE OF THE STUDY

The study holds importance as it aims to provide valuable insights to the Gauteng provincial government, particularly the Gauteng Department of Education (GDE), in the development of new perspectives on e-Education policy. This study additionally investigates the extent and challenges encountered by educational leaders in the implementation and adoption of the policy. The dissertation also provides policymakers and implementers with the means to identify and articulate deficiencies in the aforementioned policy, serving as a crucial instrument for enhancing the quality of teaching and learning. The findings of this research will have a significant influence on the adoption and implementation of diverse educational policies within the context of schools.

1.5. AIM AND OBJECTIVES OF THE STUDY

The aim of this study is to investigate the experiences of school leaders in the Gauteng Department of Education regarding the implementation and adoption of the White Paper on e-Education within their individual schools. The main objectives of this study are to:

i. Investigate how school leaders understand and apply the guidelines of the White Paper on e-Education policy in achieving the policy goal.

ii. Investigate the competencies, resources, and structures that the school leaders rely on in the adoption and implementation of the White Paper on e-Education policy.

iii. Explore the successes of the school leaders in the task of implementing and adopting the White Paper on e-Education policy in their schools.

1.6. RESEARCH QUESTIONS

In order to effectively address the research problem outlined in the preceding section, the forthcoming study was guided by the following research questions:

1.6.1. Main Research Question

What has been the experience of Gauteng Department of Education leaders in implementing and adopting the White Paper on e-Education policy in Gauteng schools?

1.6.2. Sub-Research Questions

i. How do school leaders understand and apply the guidelines of the White Paper on e-Education policy to achieve the policy goal?

ii. What competencies, resources, and structures do the school leaders rely on in the adoption and implementation of the White Paper on e-Education policy?

iii. What are the successes of the school leaders in the task of implementing and adopting the White Paper on e-Education policy in their schools?

1.7. RESEARCH METHODOLOGY

The investigation utilised a qualitative research approach. Hennink, Hutter, and Bailey (2020) assert that the utilisation of a qualitative research technique enables researchers to explore individuals' experiences through the application of a distinct array of research instruments. One of the methods employed is face-to-face interviewing. The aforementioned methodology additionally enables researchers to ascertain challenges as perceived by participants and gain an understanding of the significance and interpretations they attribute to behaviour, occurrences, or entities (Hennink et al., 2020). The primary objective of this study is to analyse and provide a contextual understanding of the principal's viewpoint and first-hand experiences regarding the adoption and implementation of the e-Education policy. The researchers' interactions with the school leaders resulted in an enhancement of their knowledge, interpretation, and commitment to the importance of the findings. The researchers employed a semi-structured instrument to gather data, which was subsequently subjected to qualitative content analysis.

1.8. LIMITATIONS OF THE STUDY

In this study, Chapter 3 undertakes an analysis and discussion of the limitations inherent in the research.

1.9. DELIMITATIONS OF THE STUDY

According to Crowe, Cresswell, Robertson, Huby, Avery, and Sheikh (2011, p. 2), the process of defining the study often involves determining the relevant characteristics of the problem, selecting the research setting, participants, and the necessary data to be collected, as well as recognising the significance of conducting analysis. Moreover, Johnson, Adkins, and Chauvin (2020, p. 145) provide support for the identified limitations and emphasise that the factors that restrict the study encompass the researcher's research goals and inquiries. Consequently, the scope of the study is limited to investigating the research inquiries, the leaders' understanding of their responsibilities and competencies in policy adoption and implementation, the accessibility of resources, and the challenges faced by stakeholders throughout the process.

This study relies on conducting comprehensive interviews with a limited and deliberately selected group of participants who serve as representatives for the twenty-one school leaders who were actively involved in the implementation and adoption of the e-Education policy. The sample for this study consisted of twenty-one school leaders selected from the Gauteng Province's Ekurhuleni North (EN), Ekurhuleni South (ES), and Johannesburg South (JS) districts. In addition, Alase (2017) posits that the outcomes derived from phenomenological qualitative research have the potential to be relevant and transferable to comparable settings that share common foundations. Consequently, the researcher posits that the findings of this study hold utility in additional districts within the Gauteng province.

1.10. CLARIFICATION OF KEY CONCEPTS USED IN THE STUDY

The following are key concepts in this study:

1.10.1. Policy

According to Popoola (2016, p. 47), policy can be defined as a deliberate course of action, a stated perspective, or a determination made by individuals or groups involved in decision-making processes. Moreover, the author asserted that the actors shows a general desire to engage with the government regarding matters or challenges that pertain to the public's welfare. The written source provides explicit aims, goals, and clear objectives for the organisation's operations, as well as for its adherence to legislation, regulations, and governing documents. According to the Republic of South Africa National Policy Development Framework (NPDF) (2020), policy is closely linked to political manifestos and action plans. According to Dames (2017), policies reflect and reinforce societal beliefs, norms, and practices.

1.10.2. The concept of public policy

According to Zida, Lavis, Sewankambo, Kouyate, Moat, and Shearer (2017, p. 2), the concept of public policy refers to a deliberate course of action that is selected by government officials with the aim of addressing societal issues. According to the National Policy Development Framework of the Republic of South Africa (2020, p. 5), the definition of public policy aligns with the definition provided by Zida et al. (2017, p. 2). Public policy

is understood as a declaration of political authority and an expression of intent. According to the guideline, it is stipulated that the declaration of intention must incorporate a well-defined vision statement. The framework posits that political representatives make a strong declaration to address societal issues and social circumstances. Moreover, Zida et al. (2017) asserted that public policy encompasses a set of guidelines that must be adhered to, along with the necessary steps to be taken in order to attain specific objectives. Additionally, the author asserts that established policy development processes facilitate the approval and mandate of designated policymakers and senior officials, which is necessary for the implementation of public policies.

1.10.3. The implementation of policies

Policy implementation is a complex and significant process of societal transformation that involves the practical execution of a particular policy (Viennet and Pont, 2017, p. 3). Additionally, implementation can be defined as the process of executing a predetermined course of action or making a specific choice. Tezera (2019) posits that the process of policy implementation involves modifying the existing system in accordance with the objectives outlined in the policy. This process is subject to potential adjustments by actors who hold different perspectives on how the system should operate.

1.10.4. The concept of leadership

Daniels, Hondeghem, and Dochy (2019) posit that leadership can be defined as a role of influence whereby an individual intentionally applies their influence on others to establish relationships and facilitate activities within an organisational context. According to Daniels et al. (2019, p. 111), the concept of school leadership was defined by Bush and Glover (2003, p. 31) as a role of influence grounded in principles and beliefs that ultimately shape a school's vision. This role holds significant importance within the educational setting, as it encompasses the intensified responsibilities of the principal and the establishment of a culture focused on accountability within the school. Moreover, De Lange (2018, p. 23) asserts that leadership encompasses the act of engaging in collaborative efforts with individuals, cultivating a practical vision, and making projections about the future with the aim of achieving the objectives of an organisation. Tshelane (2015) posits that leadership

encompasses effectively communicating the purpose, vision, risk-taking, and utilisation of scarce resources and innovation.

1.10.5. White Paper

The term "White Paper" denotes the ultimate and all-encompassing governmental stance on a specific subject matter. The procedural sequence commences with the endorsement of a Green Paper by the legislative entity, subsequently leading to a deliberation and ballot in the national assembly. The jurisdiction of the White Paper is limited as it primarily represents the policy perspective of a government regarding a matter of public interest (NPDF, 2020, p. 9).

1.10.6. The concept of the school principal

The role of a school principal encompasses maintaining a position of authority within the educational setting while assuming administrative, managerial, and technical responsibilities. The primary duty of the principal is to establish a conducive school environment that enables learners to achieve the legitimate objectives outlined in the curriculum. Tshelane (2015, p. 39) posits that the role of a school principal encompasses that of a curriculum leader, educator, and financial administrator, with the primary responsibility of prioritising and facilitating the teaching and learning processes within the school.

1.10.7. Information and Communication Technology

The DBE White Paper on e-Education identifies ICT as a means of fostering collaboration, facilitating communication, promoting engagement, and integrating software and hardware components. According to the DBE (2004:15), these technologies facilitate the management, sharing, and processing of information and knowledge within society. Bhattacharjee and Deb (2016, p. 428) assert that ICT encompasses a diverse array of technologies and electronic tools that are employed for the purposes of data collection, information storage, sharing, and transmission. Moreover, the authors argue that ICT encompasses a range of tools beyond mere computers or the internet. ICT encompasses various tools and technologies that can be utilised by individuals, including learners,

instructors, parents, and school leaders, within an educational environment to facilitate and enhance the process of teaching and learning over an extended period of time.

1.11. CONCLUSION

The details of the study, which comprised the background, the problem statement, and the research objectives and questions, were discussed. A summary of the research methodology and method of data collection was also discussed. The following chapter, Chapter 2, is divided into two sections. The first section presents the conceptual framework adopted by the study and the basis for choosing it. The second section discusses different findings from the literature on policy adoption and implementation and the role and importance of leadership.

CHAPTER 2: LITERATURE REVIEW

2.1. INTRODUCTION

The purpose of this section is to provide an overview of the topic at hand. The evaluation of different literature works focusing on the educational landscape of South Africa spanning from the post-apartheid period to the present. This chapter analyses the objectives, advantages, and challenges associated with the national White Paper on e-Education policy. The chapter also encompasses the provincial mandates pertaining to the implementation framework of national policy. The chapter also examines the role and significance of leadership in the process of policy adoption and implementation.

2.2. THE SOUTH AFRICAN E-EDUCATION POLICY IN CONTEXT

Since 1995, the integration of Information and Communication Technology (ICT) in educational settings has emerged as a subject of policy discourse in South Africa (SA). The beneficial impact of ICT in education was highlighted in the briefing notes for the South African School Act 84 of 1996 (SASA). According to the Department of Basic Education (DBE, 2004), the implementation of Gauteng-On-Line (GOL) programmes was given priority as a means to enhance economic growth within the province. The programme underwent expansion to incorporate educational institutions, thus establishing its position as one of the pioneering educational initiatives. The concept of the GOL was implemented in the form of a structured programme rather than being pursued as a strategic policy initiative. The national ICT policy was formulated by the South African government in 2001. The Department of Basic Education (DBE) introduced the White Paper on e-Education Policy as a means to enhance educational practices by incorporating ICT within school environments (DBE, 2004, p. 3).

The DBE subsequently developed a thorough framework to address the competencies needed by teachers, school leaders, and administrators at both the provincial and national level. Computer literacy, the ability to effectively utilise and navigate computer systems, as well as the capacity to implement and adopt new technologies, are all integral components of this phenomenon. Additionally, the inventive utilisation of ICT further contributes to its multifaceted nature. Consequently, the respective provincial education

departments and school administrators were tasked with the responsibility of formulating a framework for school support. This entails the provision of both technical and professional support. In addition, it is imperative for educational institutions to contemplate the seamless integration of teacher development within the proposed strategy. According to DBE (2004), schools were mandated to take the lead in promoting the integration of ICT within the classroom setting.

Meyer and Gent (2016) argue that there is a lack of sufficient empirical data to comprehensively analyse the practicalities, challenges, and potential benefits of the e-Education policy since its inception. According to Vandeyar (2015), educational institutions that possess a higher quantity of physical resources, such as ICT resources, are more inclined to incorporate ICT into their instructional practices. According to Vandeyar (2015), the school possesses ample physical resources; however, the utilisation and implementation of these resources are hindered by the absence of knowledge among school leaders. The centrality of school leaders' expertise has been found to be instrumental in the success of the e-Education policy.

In contrast, it has been observed that effective leadership significantly influences the adoption and implementation of ICT policies within educational institutions. According to Chisango (2019), managers who hold the belief in the efficacy of ICT within the educational setting are instrumental in facilitating the effective integration and execution of such technology. According to Mukhari (2016), a significant majority of individuals occupying positions of educational leadership in SA exhibit a divergent pattern. A significant number of managers exhibit a deficiency in the motivation, skills, knowledge, and resources required for the implementation and adoption of ICT plans and policies. According to Mukhari (2016), the utilisation of ICT by school leaders primarily centres on administrative tasks rather than instructional purposes. Moreover, according to Mukhari (2016), the majority of teachers continue to adhere to the conventional approach to teaching and learning.

Esch (2018) and Madondo (2021) assert that the provincial departments, which constitute the senior management, do not assume a significant role in policy mediation. Based on

the research findings, it is evident that school leaders and teachers play a pivotal role as policy mediators and primary "agents of change". Chua and Soo (2018) provided support for the argument by asserting that provincial departments have limited influence on educational transformation. The researcher additionally suggested that emphasis should be placed on leaders and teachers. Nevertheless, Chisango (2019) argues that the utilisation of leaders and teachers as policy mediators proved ineffective due to the lack of implementation of the prescribed actions outlined in the policy.

Moreover, Lawrence and Tar (2018) posit that the influence of school culture plays a significant role in the process of policy adoption and implementation. According to the authors, it has been suggested that while teachers may possess the necessary knowledge and skills to effectively incorporate ICT into their pedagogical practices, the success of its adoption and implementation is contingent upon the school's approach and culture. If the school continues to rely predominantly on traditional instructional techniques, the integration of ICT may not be effectively realised. It has been observed that educational institutions prioritise adherence to regulations and conformity over fostering innovation and creativity in their instructional approaches.

2.3. A COMPREHENSIVE FRAMEWORK FOR PROFESSIONAL DEVELOPMENT IN THE FIELD OF DIGITAL LEARNING

South Africa played a pioneering role in the development of education policies pertaining to ICT in the field of education, as exemplified by the release of the 'White Paper on e-Education policy'. According to the Department of Basic Education (DBE, 2004), the government's stance on the incorporation of ICT in education was outlined in the White Paper. The prioritisation of integrating ICT into teaching and learning was emphasised over its application in administrative functions. The focal point was placed on the transformation of pedagogical approaches, fostering creativity, promoting collaboration, and generating new insights.

The distribution of the Teacher Training and Professional Development (TTPD) in ICT guidelines in 2007 provided support for the notion of implementing pedagogical reforms through the utilisation of ICT within the school environment. The Professional

Development Framework for Digital Learning (PDFDL) was released by the DBE in 2017. The purpose of this endeavour was to offer new strategies for educational administrators and leaders to embrace and execute the policy, thereby facilitating the professional growth of teachers and other individuals involved in utilising ICT to uphold educational excellence. The objective of the framework is to establish strategies for the professional development of teachers, with a focus on equipping leaders with the necessary skills to effectively facilitate the adoption and implementation of the e-Education policy. The target audience for the framework includes district directors, school leaders, subject specialists, e-learning specialists, and teachers (DBE, 2017).

The study utilised the framework depicted in Figure 1 and adhered to the leadership's digital learning competencies when adopting and implementing the policy. The establishment of this framework was additionally guided by the involvement of educational administrators in its implementation. The anticipated implementation of the framework for effective adoption and implementation of ICT policies involves district managers, district teacher development centres, and support staff. As per the findings of DBE (2017), it is recommended that district managers provide support for the integration of the framework. Additionally, teacher development centres should play a crucial role in raising awareness and promoting the framework and its associated resources. Furthermore, curriculum support personnel should be actively involved in assisting instructors with the integration of ICT into their pedagogical approaches.

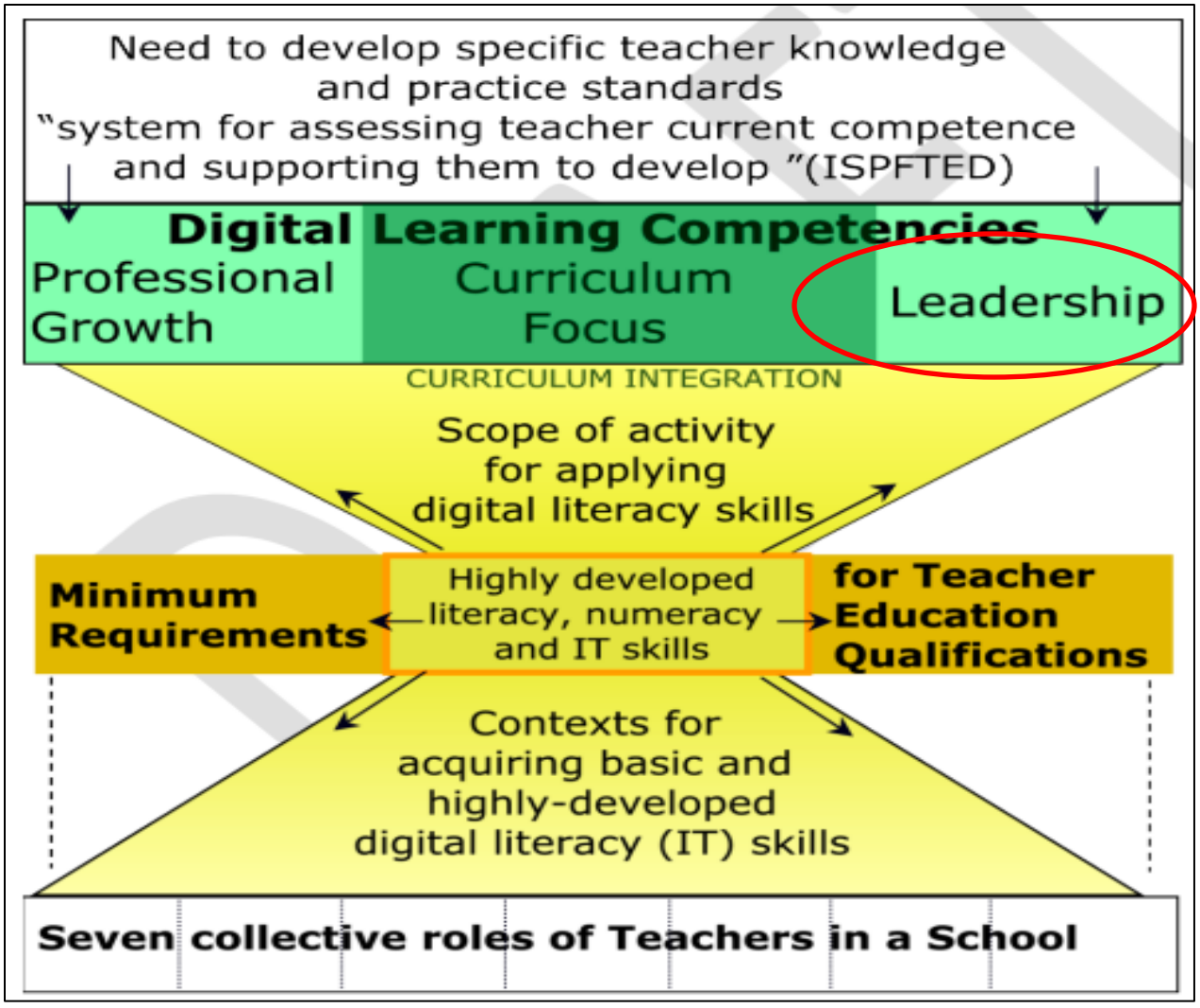

Figure 2-1: Contexts and Scope of Digital Literacy Skills (DBE, 2017)

2.4. CONCEPTUAL FRAMEWORK

According to Dames (2017), the previous two decades have seen a fundamental transition in education policy as policies perpetuate and reflect norms, beliefs, and societal practices. Schools, particularly public schools, cannot grow and function independently because numerous policy processes have an impact on them, according to Mukhari (2016). Mukhari (2016) goes on to say that policies contradict organisational practices and traditions. As a result, educational policies are considered written expectations by those in positions of authority, with the primary goal of managing the behaviour of those who work in the field of education. In addition, Kene et al. (2021) stated that school leaders must adhere to the purposes of permitted government policies.

According to Mukhari (2016) and Madisha (2021), policies establish parameters for decision-making and emphasise that management must allow for some accountability for those who adopt and implement them.

The primary responsibility of school leaders is to govern the school in accordance with national policies (Mukhari, 2016). Section 16 of the South African School Act (SASA) of 1996 argues that policymakers have positioned school leaders as being responsible and accountable in the devastating policy climate, according to Sayed, Motala, Carel, and Ahmed (2020). Similarly, Mahlo (2020) asserts that the policy environment and legislative environment continue to shift dramatically in the course of significant performance responsibility. Similarly, Keshav (2012) contends that politicians at the executive level hold school leaders accountable for overall school performance. Furthermore, DBE (2004) and Bapela (2015) affirm that the DBE's key policy initiative to improve teaching and learning is the White Paper on e-Education policy.

According to DBE (2015) and Tshelane (2015), the DBE's mandatory policy is a binding formal component of the leaders' activity, and compliance is expected. With a broader vision, school leaders are accountable for adopting, implementing, and fulfilling the stated results of each policy. Thus, the activity of school leaders indicates that school leadership is connected with the adoption and implementation of government policies at the school level. Despite the leaders' grasp of the policy, competencies in implementing the policy, resource availability, and school structure, this is the case (Nkuna, 2020).

Policy leadership is defined in this study as enabling interventions that can improve the adoption and implementation of government policies so that schools can meet the policy's mandate (Lamm, Randall, Lamm, and Carter, 2019). Furthermore, Lamm et al. (2020) contend that leaders are essential for the successful adoption and implementation of the policy's dynamics and complex processes. Furthermore, Mahlo (2020) believes that the involvement of the school principal in policy adoption and implementation is crucial and contributes to the school's vision. The author further indicated that school leadership must find a method to capitalise on the opportunities provided by the policy in order to bring about change and advancement in the school.

The fundamental responsibilities of school leadership in carrying out the Professional Development Framework for Digital Learning's mandate serve as the study's anchor. Leaders are often described as the foundational members of the School Management Team (SMT), according to numerous sources. Spillane et al. (2003) provide support for the proposition by asserting that scholarly investigations into leadership substantiate the concept that the school principal holds a position of equal importance in the realm of school leadership, particularly when examining and evaluating the effectiveness of school leadership. Furthermore, the author posits that the presence of leadership can be observed in individuals. Heller and Firestone (1995) argue that conventional leadership perspectives tend to overlook alternative leadership systems present within educational settings and the broader educational context.

As a result, the study defines leadership as the identification of relevant resources, the acquisition of specific resources, their allocation to appropriate departments and management, and the harmonisation and utilisation of resources in order to create potential conditions for innovation in teaching and learning (Spillane et al., 2003). Therefore, leadership recognises the importance of important individuals in the educational environment who carry out various responsibilities to reach the specified goal. The connected responsibilities of school leadership that have been repeatedly identified as related to improved learner outcomes will be addressed in this study. These tasks will be studied in order to better understand the principal's involvement in the White Paper's adoption and implementation. Supporting, evaluating, and developing teacher quality, creating learning objectives, making strategic use of resources and leadership, and being a leader beyond the school boundary are among the main tasks.

Consequently, the research describes leadership as the process of identifying pertinent resources, procuring specific resources, distributing them to suitable departments and administration, and coordinating and utilising resources to establish favourable circumstances for innovation in the realm of education (Spillane et al., 2003). Hence, within the educational context, leadership acknowledges the significance of individuals who hold key roles and undertake diverse responsibilities in order to achieve predetermined objectives. This study will focus on the interconnected duties of school

leaders that have consistently been recognised as being associated with enhanced leaner achievement. The aforementioned tasks will be examined with the aim of enhancing comprehension regarding the extent of the principal's engagement in the adoption and execution of the White Paper. The primary responsibilities encompassed within this domain include the provision of support, assessment, and enhancement of teacher effectiveness; the establishment of learning objectives; the strategic allocation of resources and leadership; and the demonstration of leadership beyond the confines of the educational setting.

The theory underlying this study as shown in figure 2-2 below is that if school leaders understand the policy guidelines, are competent, have adequate resources and supporting structures, and engage various stakeholders, they will demonstrate commitment and interest and champion the adoption and implementation of ICT policy in schools, resulting in their task's success.

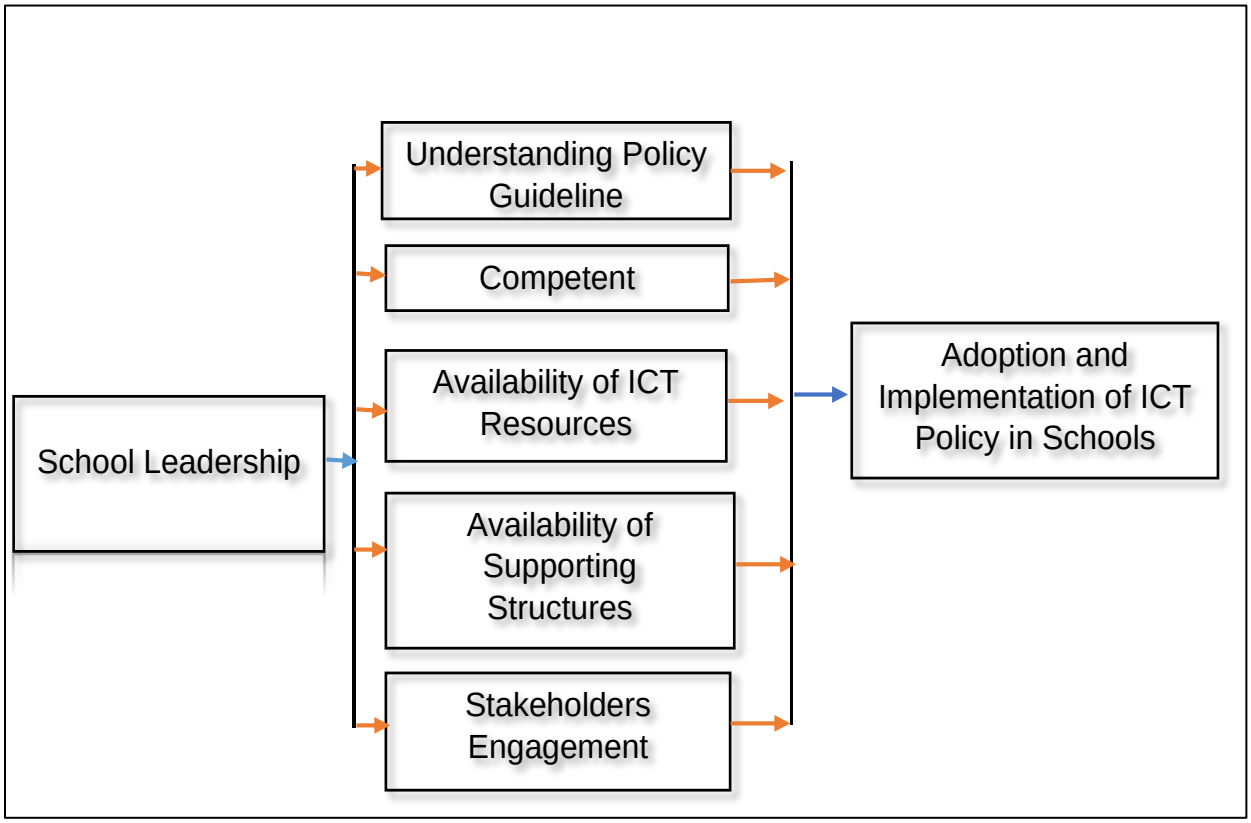

Figure 2-2: School Leadership Capabilities on the Adoption and Implementation of the e-Education Policy (Conceptualised by Researcher, 2023)

2.5. REVIEW OF RELATED LITERATURE

Section 2.5 examines the related literature to find out what other authors and academics have done regarding the issue this study identified. A common feature of the literature is the principal's crucial role in the adoption and implementation of ICT around the world, as well as the leaders' capacities and the accessibility of ICT resources in schools.

Over the last three decades, educational institutions and regimes all over the world have recognised ICT as a critical tool for improving teaching and learning. The same regime also positioned the school principal at the centre of the success or failure of various pieces of legislation's adoption and implementation (Mahlo, 2020, p. 50). This necessitates an in-depth study of existing scholarly works in order to gain a deeper comprehension of the responsibilities of school leaders, their competencies, resources, and structures on which they rely, and the strategies that leaders employ to ensure the success of ICT adoption and implementation. The key research question will be answered once this section meets these objectives.

According to studies, the adoption and implementation of ICT policies in education in various nations have made a significant difference in schools and learner outcomes, as well as the achievement of national goals (Gibson, Broadley, Downie, & Wallet, 2018). Furthermore, Gibson et al. (2018) stated that in various parts of the world, it is recognised that the education system requires pieces of law that would provide the greatest education for its learners. Policies must support the educational system's mission and develop new definitions of diversity and technological advancement. Furthermore, competent leadership at the various levels of governance, such as school, district, provincial, and national, is essential to enable the effective adoption and execution of such policies (Mwapwele et al., 2019). The purpose of this study is to look into the experiences of school leaders in the Gauteng Department of Education regarding the implementation and adoption of the White Paper on e-Education within their respective schools. It has been stated that South Africa has good pieces of law to solve some of the country's problems but fails to apply them. As a result, the purpose of this work is to contribute to this highly contested discussion.

2.5.1. The Importance of Leadership in Schools

The importance of leadership in schools—in this case, the roles and responsibilities of school leaders—can be used as an investigative tool to determine what leaders do on the ground in terms of policy adoption and implementation. School leadership, according to Tshelane (2015), should ensure that obligatory regulations are enforced in order to create a conducive school environment that fosters constructive teaching and learning while also catering to the needs of the school. Furthermore, Mukhari (2016, p. 73) asserted that policies are referred to as procedural or regulatory and that every school is required to follow them. Furthermore, Mukhari (2016) contends that the mediation of school policies is the principal's responsibility for effective implementation.

According to Leithwood, Harris, and Hopkins (2020) and Nkuna (2020), successful school leadership is widely acknowledged. According to Nkuna (2020), the nature and presence of leadership influence the school's success in helping learners. Opeke and Oyerinde (2019) discovered a strong association between institutional effectiveness and good leadership in their study on leadership style and institutional effectiveness in Nigeria. Furthermore, the analysis argues that leadership is crucial to a large-scale, workable transformation and represents a comprehensive and complicated idea for the twenty-first century. According to Nkuna (2020), schools require leaders who are comfortable dealing with complicated and chaotic environments.

According to Harris and Jones (2020), the most critical difficulty that school leaders face today is managing change. According to the authors, leadership is constantly dealing with the challenges of change and is essential to stress the relevance of the basic change before expanding on the school's long-term goals. Sayed et al. (2020, p. 10) added that it would be impossible to argue that most of the transformations occurring in modern society are tied to technological advancements. According to Holmner (2008, p. 1), these societal shifts are inherent in the information revolution that has built the foundation for our so-called knowledge society.

Leithwood et al. (2020); Nkuna (2020); and Opeke and Oyerinde (2019) stated that experts concur that the failure or success of technology adoption and implementation is

closely related to the leader's understanding and competencies. According to Mukhari (2016), school leaders will be required to take on new tasks as the use of ICT in teaching, learning, and administration grows in schools. According to Nkuna (2020), school leaders have a significant impact on how changes are introduced, adopted, and executed. According to Msila (2015, p.1977), the promise of ICT in education may not be realised without the principal's cooperation. In addition, it is imperative for the principal to assume responsibility for the development and execution of school enhancements utilising ICT, despite the limited attention given to this crucial matter in existing ICT literature.

According to Mingaine (2013), leadership style can aid in policy adoption and implementation, although the task is difficult. The author also mentioned various problems, such as the department's lack of training, ICT resources, and competency. School leaders play an important role in providing technical leadership, but, according to Bapela (2015), they lack the expertise and resources to fulfil their tasks, so they use ICT solely for administrative purposes. Mingaine (2013) found that the function of the principal as an initiator is considered an essential part of the process of ICT adoption, despite the fact that they confront difficulties.

McGarr and Kearney (2009) and Hadjithoma-Garstka (2011) investigated the role of leaders in the implementation of ICT policies and discovered that leaders are frustrated and upset because they appear incapable of managing the changes brought about by technology in their schools. They contended that school leaders are more inclined to provide leadership in unfamiliar territory. According to the studies, the majority of school leaders are capable of serving as technology leaders. As a result, they have insignificantly failed to assemble the necessary resources to meet the ICT requirements in their schools. It is vital to emphasise that school leaders are responsible for managing policy implementation and the adjustments that accompany it.

2.5.2. Perspectives on the Adoption and Implementation of the Education Policies

The notion that policy adoption and implementation imply carrying out a policy mandate provides for a specific understanding of the policymaking process. This is where the executives at the legislature design and formulate policy, which is then implemented across entities under the same jurisdiction. The idea that policy adoption and implementation are part of a more indirect process has challenged this perspective. The several points of view, however, will create a provision for an inclusive investigation of educational policy adoption and implementation.

2.5.2.1. The Policy implementation cycle

One of the most important methodologies used by policy analysts and researchers is the policy cycle. According to the method, the policy process is divided into stages, including implementation. Several questions have been raised about the process, including one about the role of policy implementation in the policy cycle process. Dames (2017) and Viennet and Pont (2017) emphasise the relationship between policy and implementation. However, the relationship between the two is discovered to be dependent on one's perspective on the policy process. According to the classical policy approach, policy selection must come before policy implementation.

Policies, according to Febriani, Bramasta, and Noorizqa (2020), generally indicate a vision to achieve objectives and may explain in detail how to achieve the given objectives. As a result, top-down implementation refers to the process of carrying out what the policy dictates in order to achieve the stated goals in the manner described in the policy measures. This is accomplished, according to the authors, by carrying out a decision that defines the problem and outlines the objectives and structure for implementation. The procedure is usually divided into stages. This begins with the fundamental regulation, followed by policy judgements made by implementing agencies, audience agreement, real intended and unforeseen consequences, and finally, significant revisions to the basic regulations (Onyango, 2019). The policy cycle approach is still in use, as seen in Figure 2–3 below; however, certain modifications may be made. According to Knill and Tosun

(2020), the policy cycle technique is the most basic strategy for presenting research and suggestions to policymakers and making meaningful decisions (Cairney and Oliver, 2017).

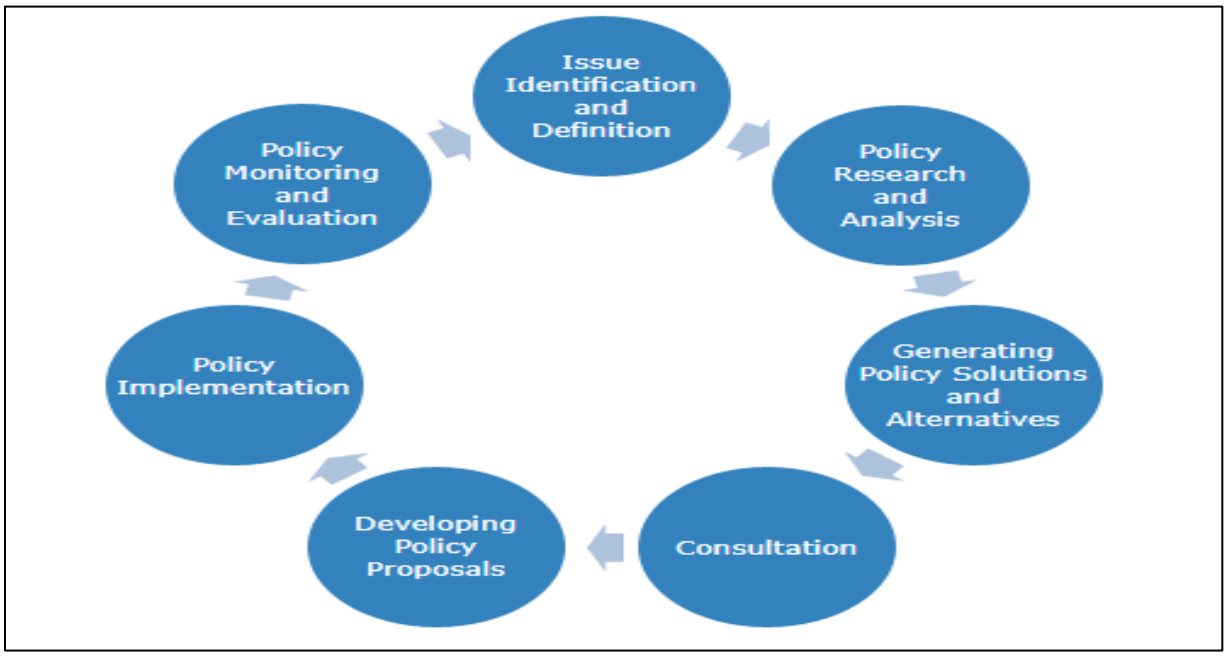

Figure 2-3: The Policy Cycle Theory: Adapted from Fischer, Miller, and Sidney (2007)

2.5.2.2. Bottom-up theories

According to Knill and Tosun (2020, p. 129), the bottom-up approach views policy implementation as a process of negotiation and collaboration that occurs over time between those looking to put policy into effect and those on whom the actions rely. Furthermore, Knill and Tosun (2020) stated that the regulated perspective is the primary influence of the bottom-up method on public policy implementation. The authors' point of view is primarily concerned with the reaction of society on the ground. The authors also stated that the key concern in policy implementation is how to help policy implementers on the ground so that they do not succumb to work pressure and degrade the quality of their service. Furthermore, the role of politics in policy implementation is important in the bottom-up strategy. According to Sager and Gofen (2022), the on-going debate between diverse political formations that occurs during policy formulation and implementation is akin to the political economy of reform.

2.5.2.3. Policy complexity

Educational policy implementation has resorted to two types of policies, which include effective and implementable policies. Successful policies are intended to indicate progress in learners' performance. Because educational policies affect a wide range of social welfare, the education sector has become a big-budget policy subject, so what works and what gets implemented becomes the primary emphasis (Viennet & Pont, 2017). As a result, the adoption of such policies must be done with caution. According to the literature, it is critical to reconsider what is known about what is implemented and what will work. As a result, the implementation of educational policies has become more complicated. The complexities of these policy dynamics place policymakers in a difficult position. The policy dynamics' predicament may appear largely unpleasant in the highly accountable setting of the education sector. Furthermore, the increasing complexities of governance in education necessitate a precise definition in order to ratify policy in the current policy environment (Bullock & Lavis, 2019).

2.5.3. Key Determinants of Policy Adoption and Implementation

Policy design is comprehended in a slight sense in the concept of policy adoption and implementation. It is believed that a policy is intended to address concerns on the agenda. According to Bell and Stevenson (2015), the manner in which policy is defined and the answers it intends to provide articulate the influence of policy presentation. Matters that are not raised throughout the formulation phase are discovered to carry over during adoption and implementation (Fullan, 2015). Several elements are examined in determining and influencing policy acceptance and implementation, some of which are listed below.

2.5.3.1. Design of the policy

Policies are primarily intended to respond to societal needs or to raise awareness of societal needs, which must be clearly defined in order to progress policy creation, legitimacy, and implementation. Many complexities exist in the education domain, forcing stakeholders to prioritise the circumstances in which policy demands that appear to be more urgent or more justified may be adopted. Preferably, the study of policy possibilities

must be based on an understanding and affirmation of the educational sector. However, a policy may be introduced as a result of elections, the strength of coalitions, or other factors other than the assessment of requirements. Furthermore, in order to bring different parties on board to help policy reform, it is critical that the reasons behind the policy, the characteristics of issues to be addressed, and how policymakers analyse issues be defined. Furthermore, clear ideas on the expected outcomes of policy implementation must be offered for stakeholders to go forward.

2.5.3.2. Stakeholders

The traits and interactions of people are critical to the implementation of educational policies. It is generally understood that diverse parties must demonstrate agency in policy implementation. This has been found to influence the procedures and outcomes of the implementation process. Stakeholders that are not directly affected by the policy may be able to influence its implementation through their political alignment. Matshikwe (2004) distinguishes policymakers, implementers, mediators, lobby organisations, policy beneficiaries, and policy evaluators. Policy stakeholders in a school setting include the school governing body, school management team, parents, unions, and other organisations.

2.5.3.3. Context

Context refers to the institutional contexts, events, and existing policies that influence policy implementation. The environment is made up of recognised and unrecognised public restrictions that govern the policy implementation process in the particular educational system (Jenkins-Smith et al. 2014). According to Pont, Moorman, and Nusche (2008), the breadth and speed with which policy is implemented are determined by the country's constitution, laws, and rules. These guidelines guide policymakers' activity at the district and school levels, as well as leaders' management methods. According to Dinsdale (2017), the primary leadership style and collaborative culture are two of the most crucial characteristics of successful policy implementation. The institutional environment of decision-making, as well as varying levels of policy

implementation beyond the school level, have a considerable impact on how educational policies are implemented.

2.5.3.4. Implementation Strategy

The policy implementation strategy can be adapted to the "theory of change" of the policy. This comprises policy implementation and operational planning, which details how the policy outcome will be realised. According to several authors, the policy and its implementation strategy should be combined since they demonstrate the strategic elements of the implementation process. The manner in which policy is planned to be implemented, according to Hudson, Hunter, and Peckham (2019), requires some clarity in the form of a strategy. The duties and tasks of each stakeholder must be outlined as the institution's structure is determined. As a result, Hudson et al. (2019) stated that the policy implementation approach must identify the important stakeholders in order to be effective. Furthermore, Signe (2017) stated that the strategy allows for support from various stakeholders, which reduces barriers during the policy implementation process.

2.5.4. The role of the school principal in the adoption and implementation of ICT policies

This section provides details on the principal contribution to the school's adoption and implementation of the ICT policies.

2.5.4.1. Create a positive learning environment

According to Sithole (2017), it is the school principal's responsibility to promote a pleasant and safe school environment. Furthermore, such a school environment encourages teachers and learners to actively participate in and succeed in the teaching and learning process. According to Mohammadi, Sarvestani, and Nouroozi (2020), the usage of computers, interactive boards, television screens, and other electronic gadgets can create a positive school atmosphere by meeting the demands of various teachers and learners. Furthermore, Mwawasi (2014) stated that school leaders must be familiar with ICT devices and be aware of any technical changes. Furthermore, the knowledge can be applied to advanced teaching and learning approaches as well as enhancements to educational digital content.

2.5.4.2. Curriculum and learning programme knowledge

Mestry (2017) asserts that the establishment of purposeful teaching and learning practices using activities is one way for school leaders to demonstrate that they have the necessary curriculum knowledge. According to Ghavifekr and Rosdy (2015), ICT in schools promotes innovative pedagogical methods, and school leaders' use of the internet can improve their curriculum and content understanding. Furthermore, leaders are responsible for implementing ICT policies in their schools, yet the author revealed that the majority of leaders lack the necessary skills. According to the literature, school leaders are supposed to provide leadership in the implementation of ICT policies; similarly, Mukhari (2016) found that most leaders are frustrated because they lack expertise on how to apply the rules. Furthermore, Mukhari (2016) found that the majority of leaders in Botswana, South Africa, and Nigeria had never used a digital device.

2.5.5. Strategies school leaders can use to support teachers in the adoption and implementation of ICT policies in schools

This section discusses the various strategies that school leaders can utilise to support their schools in the adoption and implementation of ICT policies. The four performance standards, which are personnel management, decision-making and accountability, communication, and strategic and financial planning. The performance standards are discussed in line with the Digital Learning Competency of Leadership from the Professional Development Framework for Digital Learning (PDFDL).

2.5.5.1. Personnel management

Mokgadi (2015), Tshelane (2015), and Ojo and Adu (2018) all agree that ICT provides learners with access to a variety of knowledge sources, promotes collaborative learning, boosts learner motivation, and gives teachers more time for classroom facilitation. It is incorrect to say that ICT will automatically advance teaching and learning approaches. Thus, it is the role of school leadership to ensure that teaching and learning take place in the school using the available ICT tools. According to Ojo and Adu (2018, p. 2), if ICT is used effectively, it can lead to increased school performance. According to the authors, the principal is the most important person in every school. The authors additionally

asserted that leaders bear the responsibility of ensuring the welfare of teachers, non-teaching staff, learners, and every member of the school community.

School leaders are commonly regarded as proficient curriculum leaders who possess the capacity to support teachers in the successful integration of novel pedagogical approaches and strategies that leverage digital resources. It is the principal's responsibility to share their knowledge and experiences with digital tools and resources with their peers. According to research, teachers need institutional support that is leader-driven, has a shared common goal, and is project-oriented [Mokgadi (2015) and Tshelane (2015)]. According to research, leaders must possess many forms of leadership, such as technology leadership, curriculum leadership, and administrative leadership, in order to impact and contribute to the adoption and implementation of ICT policies.

Critical leadership is also accountable for guiding and pushing teachers to believe in team spirit, hope, social justice, equity, and respect. Niemi, Denicol, and Holopainen (2013) found that the leadership of school leaders was important in all of the schools studied. The research found that school leaders encouraged teachers to use ICT by offering additional tools in the classroom. Due to the widespread challenge of insufficient ICT resources, the school principal must take the initiative to build a common vision through stakeholder engagement in order to produce a common understanding of issues that must be addressed.

According to DBE (2012), the vision helps the school principal reflect on the actions needed to realise the goal, including what to do and what not to do. According to the DBE 2012 action plan, access to ICT resources in South African schools improved by 2009, when 23% of schools had a computer lab. However, the action plan stated that the majority of teachers in the country did not receive mentorship due to leaders' insufficient capacity.

2.5.5.2. Decision-making and accountability

School leaders must understand what digital learning is and their role and responsibilities in achieving the institution's vision. This will allow the principal to develop strategies that will allow for and promote accountability in the school. According to Mokgadi (2015, p. 23), ICT opens up several chances for collaboration and outreach to new stakeholders. Furthermore, leadership decisions that promote and utilise ICT growth, infrastructure provision, and resources must be treated with caution. Mokgadi (2015) also stated that the school principal must work in close partnership with educational stakeholders. The principal is confronted with complicated administrative responsibilities like decision-making, organising, planning, influencing, communicating, coordinating, and evaluating. These are policy areas for schools as well as curriculum development areas.

Furthermore, Tshelane (2015, p. 80) regards the principal's responsibilities as difficult, time-consuming, and manageable if the principal is capable of adapting and applying new technological advancements to school management. Tshelane (2015) goes on to say that many countries' education systems have not prepared leaders for roles as technology leaders. According to the author, school leaders in a country like Botswana struggle to improve the technical and human resources needed to achieve ICT results in their schools. E-education is viewed as a tool to improve teaching and learning, administration, and decision-making in South Africa.

2.5.5.3. Leadership and communication

According to PDFDL Digital Learning Competency 11, leaders must demonstrate commitment to the vision for digital learning in their schools (DBE, 2018). The principal must spend time consulting with both internal and external stakeholders in order to keep up with technical changes. One of the difficulties that leaders face is communication, which, if not done appropriately, can lead to misunderstandings among staff and the SGB (Basson and Mestry, 2019).

Since the publication of the White Paper on e-Education, ICT has become an integral aspect of the South African education system. The improvement is uneven since teamwork and communication remain difficult. According to Ojo and Adu (2018) and Van

Wyk, Van der Westhuizen, and Van Vuuren (2014), country school leaders recognise the issues associated with staff resistance at schools as a result of poor communication and change management. The authors stated that the staff's widespread belief is that they will be unable to cope with new technologies, rendering them ineffectual. Moreover, it has been empirically demonstrated that language serves as a significant impediment to effective communication within developing nations, as exemplified by SA, where English functions as the predominant second language among the majority of its citizens. According to Raman and Yamat (2014), the language barrier might prohibit both teachers and learners from accessing other ICT tools and websites, as English is used in 80% of online content.

2.5.5.4. Financial and strategic planning

The school principal is expected to demonstrate development and planning competencies in the context of South Africa and the world at large. The planning should be centred on the overall improvement of the institution. This suggests that leaders have an essential role in the school community, which has a greater impact on society's future (Mestry, 2017). All stakeholders at the school level must understand the strategic and complicated nature of ICT adoption and implementation. To fulfil the commitment, Mingaine (2013, p. 41) stated that competent and quality leadership is essential.

According to Mingaine (2013), strategic planning originated in the public sector. It was created to assist the sector in advancing the right fit between the organisation and the environment. It emphasises the leaders' ideals as well as the organisation's social responsibility. At the school level, leaders are responsible for assisting teachers and support personnel in acquiring technological capabilities and establishing pedagogical knowledge and skills that allow learners to use technology in learning and communication. The leader's responsibility is to prepare to generate technology-capable employees.

According to the study conducted by Maisamari, Adikwu, Ogwuche, and Ikwoche (2018), which references the work of Adomi and Kpangban (2010), it is asserted that the utilisation of ICT is essential for fostering creativity and enhancing productivity among individuals. As stated by the authors, the acquisition of ICT skills has become imperative

due to the increasing demand for them in the labour market. Based on the findings of the study, it is evident that a significant proportion of school leaders in Nigeria lack awareness regarding the adoption and implementation of ICT policies within the country. This knowledge gap persists despite the existing body of literature highlighting the positive impact of ICT on the Nigerian education system, which ultimately leads to improved educational outcomes for learners. According to the findings of Maisamari et al. (2018, p. 33), the implementation of ICT policy in Nigeria has not made significant advancements. This can be attributed to the fact that a considerable number of teachers lack the necessary skills to effectively utilise computers for instructional purposes. The insufficient uptake and execution of ICT policies in educational institutions can be attributed, in part, to a dearth of capability among school administrators in procuring resources and providing assistance to teachers.

Botswana, according to Tshelane (2015), is confronting nearly the same issues as Nigeria. Poor financial management, lack of strategic vision and a shortage of human resources with ICT capabilities are among the issues that Botswana faces. The author also contends that the country's underlying difficulty is a lack of vision among school leaders. Mokgadi (2015) identified a major barrier as the leaders' lack of capacity to make strategic plans and choices on ICT adoption and implementation. According to the authors, there is evidence that numerous attempts to deploy ICT solutions in schools have failed.

South Africa is found to be experiencing the same issues as Botswana and Nigeria. Inadequate infrastructure, computers, and tablets in schools; criminality; a lack of internet connectivity; and poorly qualified teachers are some of the obstacles to ICT adoption and implementation in schools (Lekgothoane and Thaba-Nkadimene, 2019; and Mdlongwa, 2012, p. 4). According to Mathevula and Uwizeyimana (2014) and Mokgadi (2015), South Africa's difficulties necessitate deliberate planning for ICT adoption and implementation initiated by leaders. School leaders must be dedicated and have the qualities and competencies to lead for the policy to be adopted and implemented successfully. According to the authors, these abilities include ICT compliance, skill development, adoption, and stakeholder involvement.

2.5.6. The advantages of using ICT in the School environment

The benefits associated with the implementation and adoption of ICT policies in educational settings are intricately connected to various elements of the Professional Development Framework for Digital Learning. They will be discussed below in line with the role and responsibilities of the school leaders and the strategies they can use in implementing and adopting ICT in schools.

2.5.6.1. Improvement in teaching

Adoption and implementation of ICT policies necessitate innovative school leaders and teachers adapting to new ways of teaching, as ICT improves school management and classroom learning (Mokgadi, 2015, p. 27). According to Ghavifekr and Rosdy (2015, p. 183) and Oates (2019, p. 4), ICT promotes teacher independence and has the potential to provide high-quality instruction. Furthermore, Ndlovu (2016, p. 63) stated that the usage of ICT allows for real-time communication and the use of overhead projectors, which fosters teachers' creativity. According to Mokgadi (2015), instructors who utilise ICT in the classroom see it as valuable for both teaching and personal work and are willing to keep using it.

2.5.6.2. Improvement in learning

Researchers agree that implementing and adopting ICT policies enhances, fosters learning, and transforms the education system in general. As a result, Mikre (2011) contends that effective implementation of ICT policies improves learners' capacities to work in groups or independently. Virtual learning, distance learning, and the use of the internet and other online learning platforms are also supported. According to Ghavifekr et al. (2016, p. 178), this closes learning gaps because all learners would have equal opportunities to study and achieve. As a result, successful ICT policy implementation allows learners to learn at their own pace with effective communication among peers.

The adoption of the ICT policy should be viewed as a tool for achieving the school's vision. The same tool should be utilised to improve skill development, communication, problem-solving, and information searching, which are the most significant components in the development of learners for a "knowledge society," according to Chisango (2019, p. 79).

(Mokgadi, 2015, p. 28) and Mikre (2011) also stated that learners get motivated to learn using digital media, which improves performance and lowers learner dropout rates, which are common in many nations.

2.5.6.3. Planning and management

According to Johnson, Jacovina, Russell, and Soto (2016), school leaders should be proficient in general school planning and management. The authors also stated that leaders should be able to use computers, save information on various programme documents, and retrieve or save such papers for future reference. According to Johnson et al. (2016), while teachers in classroom practice provide learners with ICT opportunities, it is equally important for teachers to be exposed to creative possibilities in order for teachers to keep current in ICT advancement. As a result, the concept of shared leadership as a more productive paradigm is offered.

2.5.6.4. The assessment of the learner's performance

According to Mukhari (2016), the use of ICT is employed to assist teachers in demonstrating their proficiency by maintaining comprehensive records of all assessments conducted on learners. This enables the retrieval of data at a later stage to monitor the progress and accomplishments of the learners. According to Mngadi (2021), there exists a correlation between the leadership behaviour of school leaders and their ability to champion positions, particularly when these leaders possess a certain level of ICT competency that enables them to serve as technology leaders. As per the author's assertion, possessing ICT proficiency would empower the school principal to assume a sustained leadership role in the implementation of ICT. Ghavifekr (2016) posits that additional domains of ICT utilisation encompass the assessment of educational achievements and the management of classroom operations. ICT resources can be effectively employed to facilitate the creation of lesson plans, generate learner reports, manage data storage, and gather and analyse learner outcomes.

The incorporation of ICT in the past twenty years has prompted a re-evaluation of the operational dynamics of educational institutions, encompassing pedagogy, learning methodologies, as well as administrative and managerial aspects (Mukhari, 2016). In

order to enhance the sustainability of organisational operations, it is imperative for the principal to possess a comprehensive understanding of ICT. One of the processes involved is the recruitment of personnel responsible for overseeing and managing the ICT infrastructure. It is imperative for the principal to acknowledge the significance of ICT as a crucial element in fostering student engagement in the learning process. According to Ghavifekr et al. (2016), the realisation of sustainable pedagogy is contingent upon the utilisation of ICT by teachers.

2.5.7. Difficulties Encountered with the Implementation and Adoption of ICT Policies in Schools

The previous section outlined the benefits of implementing ICT policies in schools; however, there are various problems associated with doing so.

2.5.7.1. Leadership barrier

As leaders, school leaders have a considerable influence on the effective adoption and implementation of ICT policies in schools. Almalki and Williams (2012, p. 44) assert that the efficacy and conduct of school leaders are pivotal factors in ascertaining the outcome of ICT policy implementation. According to Abdul-Razzak (2015), the majority of school leaders do not understand how to apply rules linked to technology in the classroom and the associated problems and opportunities. The authors also stated that leadership deficiencies limit the use of ICT tools by both teachers and learners, hence affecting learner performance.

2.5.7.2. Lack of appropriate planning

The availability of ICT policies alone is inadequate to successfully promote ICT use in schools. According to Almalki and Williams (2012, p. 45), leadership must design a good plan since the complexities of reform in the education system necessitate a comprehensive strategy. According to Mingaine (2013), competent, comprehensive planning is critical to overcoming some of the challenges involved with policy implementation.

2.5.7.3. Insufficient funds

According to Almalki and Williams (2012, p. 45) and Mokgadi (2015, p. 31), school leaders' ability to effectively adopt and implement ICT policies in their schools is heavily reliant on substantial funding. Infrastructure, tools, software, and hardware for ICT initiatives necessitate increased funding. According to the authors, one of the reasons impeding ICT adoption and implementation in schools is a lack of funding. Furthermore, successful technology use is dependent on the accessibility of ICT infrastructure as well as access to resources by school staff and learners.

2.5.7.4. Ineffective training

There are minimal ICT training options accessible for teachers and school administrators in the use of ICT in schools, according to Singhavi and Basargekar (2019, p. 64). According to Nyakito, Amimo, and Allida (2021, p. 167), one of the challenges facing the use of ICT in schools is the lack of good training that promotes the adoption and implementation of ICT in schools. According to Ghavifekr et al. (2016, p. 43), a lack of qualified teachers with technological capabilities hinders the adoption and implementation of ICT in schools. Furthermore, Singhavi and Basargekar (2019) stated that irrelevant training requirements that do not focus on ICT educational methods and other ICT settings are not supporting school leaders in embracing ICT in their specific schools.

2.5.7.5. Insufficient technical support

According to Munje and Jita (2020, p. 266) as well as Almalki and Williams (2012, p. 44), it is argued that teachers should not be required to manage technological challenges that hinder their utilisation of ICT tools. One of the factors that hinders the successful adoption and implementation of ICT in most schools is the discovery of insufficient technical support (Ghavifekr et al., 2016, p. 41). According to Gunzo (2020, p. 46), the utilisation of ICT technical support contracts provided by external vendors in schools enables teachers to allocate their attention primarily towards teaching, as these contracts effectively address both hardware and software issues. According to Gunzo (2020), educational institutions are encountering challenges in fostering instructor motivation in the absence of technical support.

2.5.7.6. Lack of resources and infrastructure

Munje and Jita (2020, p. 266) assert that the insufficiency of resources and inadequate support from the department are significant barriers hindering the integration and execution of ICT initiatives within South African educational institutions. Additionally, Munje and Jita (2020) argued that while ICT implementation in schools is often viewed positively, it is important to acknowledge the significance of providing the necessary resources for integrating ICT into teaching practices. According to Ghavifekr, et al. (2016, p. 41), one of the issues related to infrastructure pertains to the insufficient availability of schools in rural regions. Similar to this, Dzansi and Amedzo (2014, p. 344) agree that a number of issues, such as a lack of telecommunications infrastructure, inadequate storage facilities, and a lack of electricity, make it difficult to successfully integrate ICT in both urban and rural schools.

2.6. CONCLUSION

The chapter examined the notions of leadership, school leadership, and the role of leaders in the adoption and implementation of educational policies and ICT in schools. The conceptual framework was addressed using TTPD in ICT (2007) and the PDFDL (2017). This was accomplished through a discussion of the context's background and aims for the South African e-Education policy, as well as the two frameworks and approaches for educational leadership.

A literature review was done on the importance of leadership in schools, perspectives and determinants of the adoption and implementation of educational policies, understanding of the roles of the leaders, their competencies, and strategies that can be used to support teachers in adapting to changes in technology. The next chapter details the specifics of the applied research methodology and methods and their suitability for the study. A literature review was conducted on the relevance of leadership in schools, views and factors of educational policy adoption and execution, and awareness of principal duties, skills, and techniques that may be utilised to support teachers in adapting to changes in technology. The following chapter goes into the specifics of the applied research methodology and methods, as well as their applicability to the subject.

CHAPTER 3: RESEARCH METHODOLOGY AND DESIGN

3.1. CHAPTER REVIEW

This section acknowledges and outlines the research methodology, instruments, and protocols employed in the collection, manipulation, and examination of data. Saunders and Lewis (2021) posit that research methodology defines the procedures employed for data collection in order to address research inquiries. This section aims to ascertain and provide the research approach, methods, sample, data processing, and ethical considerations employed in the study. The chapter concludes by providing an analysis of the reliability and validity of the data that was gathered.

3.2. RESEARCH APPROACH

The research methodology, according to Bairagi and Munot (2019), is the process used to find answers to research questions and problems. According to Creswell (2009) and Creswell and Creswell (2018), there are three types of research methodologies: quantitative, qualitative, and mixed research methods. The study's research approach included a straightforward, uncomplicated technique for answering the research questions. Furthermore, the present study employed a qualitative research methodology to investigate the experiences of GDE (Gauteng Department of Education) school leaders in relation to the adoption and implementation of the White Paper on e-Education policy within secondary schools in Gauteng.

The approach was selected based on its adaptability, as it facilitates a comprehensive investigation of the participants' experiences, attitudes, and objectives. The utilisation of qualitative methodology allows for the exploration of a wide array of perspectives and ideas that participants hold regarding the subject matter (Bairagi and Munot, 2019). According to Leavy (2017), the qualitative technique is considered the most suitable option for inductive approaches in terms of research questions and aims. This approach is known for generating conceptions that offer greater research possibilities compared to other models.

3.3. RESEARCH METHODS

The research methodology serves as a spectacle in which the researcher employs approaches that will be effective in answering the research questions (Creswell and Creswell, 2018). Design, sample technique, data collection instrument, and data analysis procedure are all included (Panke, 2018). As stated in Section 3.2 above, the researchers used a qualitative research approach to investigate the principal's experiences with the implementation and adoption of the White paper on e-Education policy. The chapter is based on study method interpretations by Creswell and Creswell (2018) and Panke (2018).

3.3.1. Research Design

The qualitative research study utilises a range of designs, such as phenomenology, ethnography, and case study. According to Chilisa (2019), ethnography can be defined as the scholarly investigation of a society's cohesive social or natural group. A case study involves the examination of a singular entity or individual through the analysis of a substantial volume of data. Phenomenology places significant emphasis on the subjective experiences of research participants.

The study used a phenomenology-qualitative research design. A phenomenological research design, as defined by Giorgi (2009) and Moustakas (1994), is a type of inquiry that allows the researcher to relate the participants' lived experiences. This is based on the phenomenon as described by the study participants. According to Patton (2014), the phenomenological design captures and defines how individuals experience, feel, judge, perceive, make sense of, and recall the phenomenon as opposed to second-hand experience. The design is based on the experiences of various people who are knowledgeable about the phenomenon and entails conducting face-to-face interviews. In line with Creswell and Creswell (2018), the present study employed a research design to examine and ascertain phenomena by exploring the experiences and interpretations of individuals, as reported by the study participants. This research is grounded in the first-hand experiences of educational administrators who hold the position of school leaders and are responsible for the adoption and implementation of policies.

3.3.2. Sampling

One of the most important characteristics of a research setting is the availability of study participants. The researcher seeks for the study's findings to be representative of the intended population. As a result, a sample of study participants can be drawn from the study's intended population (Leavy, 2017). Sampling is a statistical technique employed to investigate a subset of a population in order to gather insights about the entire population (Bairagi & Munot, 2019). Bairagi and Munot (2019) assert that sampling is a method employed to ensure unbiased estimations by selecting a subset of the population that adequately represents the whole population. According to Creswell (1998), as cited by Vasileiou, Barnett, Thorpe, and Young (2018, p. 10), a range of twenty to thirty face-to-face interviews is deemed adequate for qualitative research. In addition, Patton (2014) asserts that the selection of participants for qualitative research is contingent upon factors such as the study's objectives, the establishment of credibility, temporal constraints, and available resources.

Qualitative research primarily utilises non-probability sampling methods. The selection of participants in non-probability sampling is characterised by uncertainty due to the researcher's lack of knowledge regarding the population size (Bairagi & Munot, 2019). According to the authors, the use of this approach may potentially result in unequal opportunities for participation among the participants. Leavy (2017) posits that non-probability sampling encompasses purposive and convenience sampling techniques. Additionally, Leavy (2017) posited that convenience sampling involves the selection of participants who are readily available to the researcher, while Cresswell and Poth (2016) defined purposive sampling as a method in which participants are deliberately chosen based on their understanding of the subject under investigation.

In this study, the researchers employed convenience and purposeful non-probability sampling techniques. In this particular context, the researchers employed the convenience sampling technique to choose three districts within Gauteng, specifically Ekurhuleni North (EN), Ekurhuleni South (ES), and Johannesburg South (JS). According to McMillan and Schumacher (2006), this particular sampling method offers advantages in terms of time efficiency, cost-effectiveness, and convenience. Purposive sampling is

employed in order to enhance the credibility, applicability, and dependability of the study's findings. As stated by Born and Preston (2016), the use of a sampling technique enables the researcher to deliberately select study participants who possess a heightened likelihood of furnishing the requisite information required to address the research inquiries.

In order to gain a comprehensive understanding of the qualitative research approach, the study specifically targeted a sample size of twenty-one school leaders who possess extensive knowledge regarding the adoption and implementation of the policy. This sample consisted of seven secondary school leaders per district. This study is grounded in the experiences of leaders within the educational context, enabling the researcher to gain insight into the perspectives and observable behaviours of these leaders. The utilisation of purposive sampling ensured that the execution of the study was facilitated by the convenient proximity of the researcher to the school leaders, thereby eliminating any potential challenges associated with travel.

3.3.3. Data Collection Techniques

The study utilised a semi-structured data collection instrument. Kallio et al. (2016) utilised the technique due to its multifunctionality and adaptability. Newcomer, Hatry, and Wholey (2015) posit that the utilisation of a semi-structured instrument facilitates the examination of open-ended inquiries and the assessment of participants' individual comprehension. Consequently, the semi-structured interviews were modified and aligned with the research inquiries and the objective of the investigation. The in-person interview facilitated the establishment of rapport between the researcher and the participants. This facilitated a conducive environment for both the participants and the researcher to openly and comfortably express their experiences pertaining to the subject matter being examined (Mohajan, 2018, p. 18).

The questions were pre-established and unalterable as a consequence. All participants in the study were provided with equal opportunities to provide their responses to identical sets of questions. This facilitated the researcher in conducting a comparative analysis of the participants' responses. The varying perspectives among school leaders regarding

the adoption and implementation of the policy in Gauteng schools prompted the initiation of a qualitative investigation. The data collected and used for this study is consequently an illustration of the experiences of the participants. The school environment was key in providing answers to the leader's key challenges and successes. The ability of the qualitative inquiry to use face-to-face interviews with the participants becomes the strength of the chosen method. The attitude, emotions, and facial expressions of the participants were observed during the interviews (Panke, 2018). Lastly, the researcher embraced the setting in which the participants exist.

3.3.4. Data Analysis and Interpretation

According to Mayring (2014) and Roller (2019), data analysis is a systematic process that involves organising and structuring data to derive meaningful insights from the collected information. The aforementioned procedure is designed to facilitate the process of interpreting and theorising information. The utilisation of qualitative research methods yielded outcomes, and the subsequent application of qualitative content analysis facilitated the conversion of gathered information into discernible findings. The procedure entails comprehending the gathered textual data, engaging in reflective analysis of the information, and subsequently interpreting and constructing memos (Mayring, 2014).

In order to conduct a rigorous qualitative content analysis, the data collected was systematically organised and carefully prepared through the processes of transcription and error correction. Consequently, the researcher proceeded to analyse the gathered data and formulate coding schemes. Consequently, the process involved the categorisation of analytical elements, the identification of thematic patterns, and subsequent data interpretation. The responses provided by the participants pertaining to their experiences were examined, with particular attention given to identifying the central issue. Furthermore, the analysis also encompassed the participants' perceptions, taking into account significant factors. The perceptions and experiences of the participants were thus interconnected in order to ascertain the potential impact of their experiences on the implementation and adoption of the e-Education policy.

3.4. POSITIONALITY

A qualitative study refers to an empirical inquiry that involves the examination of real-world phenomena within their natural context and in real-time. The primary responsibility of the researchers is to collect information or data directly from the participants (Johnson & Christensen, 2014). In the context described, the researcher assumes the role of the study initiator and adopts a stance of limited knowledge regarding the participants or any relevant information. This encompasses the phenomenon being studied and the context in which participants are situated (Bogdan & Biklen, 2007). The researcher is currently employed as an Assistant Director: Research at the Gauteng Department of Education since 2017. The researcher does not engage in direct interaction or collaboration with the participants. Consequently, the respondents did not experience any form of intimidation or external influence while providing their responses to the researcher's inquiries. This enabled the participants to exercise autonomy and respond to the inquiries candidly. Consequently, the researcher found it convenient to establish a rapport with the participants as a result of their shared comprehension of the setting and the subsequent establishment of a relationship.

3.5. ETHICS

Ethics refers to a collection of standards, behaviours, and moral principles that serve to distinguish between actions that are deemed morally correct and those that are considered morally incorrect (Alderson & Morrow, 2020, p. 6). Moreover, ethics can be defined as a collection of guidelines and principles that delineate actions and behaviours as morally right or wrong (Hammersley and Traianou, 2012, p. 16). The authors additionally acknowledge ethics in research as encompassing actions that are deemed unethical or morally incorrect, while also emphasising the importance of adhering to legal and moral standards in the conduct of research. Ethics plays a pivotal role at every level and stage of the research process. Alderson and Morrow (2020) have observed an increased focus on ethical considerations in research, particularly within the realm of social research, as indicated by recent attention from the research community. Ethical guidelines serve to facilitate the ethical decision-making process of researchers, particularly in situations involving human subjects and sensitive personal information.

The present study involved human participants, although no personal information was gathered. Consequently, the research safeguards the well-being of the participants and upholds the principles of confidentiality. The researchers obtained ethical clearance from the WITS Ethics Committee, specifically Protocol Number WSG-2020-34. The researcher obtained permission to conduct research with school leaders in Gauteng from the Gauteng Department of Education (refer to Annexure D) prior to commencing fieldwork. All participants were given consent forms in order to formally request their participation. The act of participating in the study was optional, and all individuals involved were asked to confirm their consent to partake in the research. The consent form granted participants the autonomy to participate in or discontinue their involvement at any point during the study. Prior to the participants' completion of the consent forms, they were furnished with an information sheet that presented the background of the research.

The researcher provided assurance to the participants that their involvement in the study would not result in any harm or adverse effects. To maintain anonymity, the identities of the participants were kept confidential, and their names were neither disclosed nor published. The computer, which is protected by password encryption, is utilised for the purpose of securely storing raw data, thereby limiting access to only authorised researchers.

3.6. VALIDITY AND TRUSTWORTHINESS

3.6.1. Validity

According to Taherdoost (2016, p. 28), validity can be defined as the degree to which the employed methods accurately assess the intended constructs. This is achieved through the process of verifying that the suitability and sufficiency of the findings are substantiated by empirical evidence. There exist various forms of validity, encompassing external and internal validity. The concept of internal validity pertains to the extent to which the research design and data allow for drawing conclusions regarding the analysis conducted in the study. Moreover, the concept of external validity pertains to the extent to which the findings and outcomes of a study can be generalised and applied to various domains beyond the specific context of the research (Taherdoost, 2016). The study thus

incorporated these two forms of validity. The data collection instrument was designed with the purpose of accurately assessing the intended variables. Furthermore, the researchers ensured that any concepts that may have been unfamiliar to the participants during the data collection process were explained in a clear and concise manner.

3.6.2. Trustworthiness

Numerous scholars have employed the concept of trustworthiness as a means to adequately address qualitative research. The concept of trustworthiness encompasses the interpretation, level of confidence in data, and methodologies employed to justify the quality of a study (Connelly, 2016, p. 435). In order to establish the credibility of the research findings, the data was promptly presented as it became available. The acquisition and refinement of quotations from participants' responses during the face-to-face interview facilitated the accomplishment of this task.

3.7. LIMITATION OF THE STUDY

The recognition of limitations in a study allows a researcher to have a deeper understanding of the limits that are present and to comprehend the specific circumstances in which claims are made (Souls, 2005, p. 11). The utilisation of qualitative and quantitative research approaches holds considerable significance in a study. The utilisation of a single research methodology may impose constraints on the outcomes and conclusions derived from a study. The utilisation of solely qualitative research methodology by the researcher in this study may have contributed to certain limitations in comprehensively addressing all facets pertaining to the primary research issue.

Bauer and Harteis (2012) argue that during the data-gathering phase, it is crucial to exhibit sensitivity by being aware of the appropriate moments to embrace quietness, probe further into the subject matter, or change the course of the interview. The researcher came to the realisation during the transcription process of the interviews that they possessed limited expertise in conducting interviews, particularly with respect to the initial interviews. Bauer and Harteis (2012) have additionally asserted that the human instrument, like any other research instrument, is inherently flawed. The limitations of the researcher as a human instrument stem from inherent human fallibility, including the

propensity for errors, the potential to overlook possibilities, and the influence of personal biases. The researcher endeavoured to maintain objectivity and neutrality throughout the process of data collection, interpretation, and presentation. However, it is possible that bias may have inadvertently influenced the qualitative research methodology. Patton (1990), as referenced by Hoepfl (1997), asserts that despite researchers' efforts to achieve neutrality and objectivity, complete attainment of this goal remains elusive. According to the author, a researcher who maintains a neutral stance endeavours to remain impartial and present the findings in a fair and unbiased manner.

The researcher encountered limitations in extending the scope of the study to encompass a larger number of schools across various districts within Gauteng province. In addition, the nature of the inquiry necessitated that the researcher employ in-person interviews as a means of collecting data from the participants. The aforementioned methodology posed challenges in securing timely participation from the individuals involved, mostly because of the negative social perception around the COVID-19 pandemic.

3.8. CONCLUSION

The chapter's purpose was to provide an outline of the research methodology adopted in this study. In addition, the research approach, detailed research methods of choice, and data collection tools were explained. The data analysis approach was also explained in detail. Data presentation, analysis, and interpretation are presented in the following chapter (Chapter 4).

CHAPTER 4: DATA PRESENTATION AND ANALYSIS

4.1. INTRODUCTION

This chapter provides an overview of the findings obtained from the study. The study investigated the implementation and adoption of the e-Education policy in Gauteng province. In order to ensure an adequate amount of data, a total of 21 participants were subjected to face-to-face interviews. The demographic information of the participants' is presented in tabular form, as seen in Table 4-1 below. The chapter then presents findings that the investigation yielded under four key emerging themes as shown in table 4-2: a) Participants' knowledge and understanding of the policy; b) Roles of participants in implementing and adopting the policy; c) School leaders' attitude towards the policy; and d) Challenges faced by school leaders. The chapter concludes with a summary of the study's findings.

4.2. DEMOGRAPHIC INFORMATION OF PARTICIPANTS

The table below presents the demographic characteristics of the participants, encompassing their gender, age, race, years of experience in the education sector, and maximum educational attainment. The participants involved in the study are school leaders from the Gauteng province who utilised English as the primary language for instructional purposes.

Table 4-1 shows that 67% of the participants are females as compared to the 33% male's counterparts. Further, majority of the participants (62%) are in the age group 41-50 years old, followed by participants who are 51 years old and more (38%). The race group is dominated by Africans at 90% and only 10% falling under Indian/ Asian race group. In addition, 90% of the participants have postgraduate degree, with only 10% having undergraduate degree. Lastly, majority of the participants (52%) have between 11-20 years of working experience, followed by participants with 21 years and more of working experience at 43% and only 1% with 1-10 years working experience.

Variables		*f*	*%*
Gender	Female	7	33
	Male	14	67
Age	21-30	-	-
	31-40	-	-
	41-50	13	62
	51 and above	8	38
Race	African	19	90
	Coloured	-	-
	Indian/ Asian	2	10
	White	-	-
Qualification	Certificate/ Diploma	-	-
	Degree	2	10
	Postgraduate Degree	19	90
Professional Experience	1-10 years	1	5
	11-20 years	11	52
	21 years and above	9	43

Table 4-1: Demographic information of participants

Number	Main Theme	Sub- Theme
1	Participants' knowledge and understanding of the e-Education policy and application of the framework in achieving the policy goals **(4.3)**	Guidelines for the Implementation and Adoption of ICT in Schools **(4.3.1)**
		Clarify the government's position **(4.3.2)**
2	Competencies, resources, and structures that school leaders rely on in the implementation and adoption of the policy **(4.4)**	Create and align the school vision to the policy objective **(4.4.1)**
		Lead change in school **(4.4.2)**
3	Successes of school leadership in implementing and adopting the e-Education policy in their schools **(4.5)**	Improve learner performance **(4.5.1)**
		Changes in the methods of teaching **(4.5.2)**
4	Challenges faced by school leaders **(4.6)**	Bureaucracy and lack of stakeholder participation **(4.6.1)**
		Resistance from school leadership **(4.6.2)**
		Lack of resources **(4.6.3)**

Table 4-2: Themes and sub-themes

4.3. PARTICIPANTS' KNOWLEDGE AND UNDERSTANDING

4.3.1. Guidelines for the implementation and adoption of e-Education policy in schools

Participants were asked about their knowledge and understanding of the e-Education policy and guidelines for the implementation and adoption of the policy. The participant's knowledge and understanding seem to vary depending on their conceptualisation of the e-Education policy and the parameters governing its implementation and adoption. The majority of participants have the understanding that the policy is a government reaction to the evolution of educational practices, wherein current technology is utilised to improve the delivery of curriculum. A total of sixteen out of twenty-one participants mentioned that the policy outlines the elements and government position on how technology will be integrated into the education sphere. The subsequent excerpts provide additional evidence to support this comprehension:

> *"The e-Education policy was formulated in South Africa in response to the shift from conventional teaching and learning methods to the integration of ICT in education."* ***[Participant 1]***

Participant 2 asserts that while the implementation and adoption of ICT in schools' is now in its early stages, the e-Education policy serves as a fundamental framework that establishes essential regulations and principles for the effective implementation of ICT in educational instruction and acquisition. Additionally, the objective of this initiative is to foster the adoption of e-learning practices and guarantee adequate resources for schools. According to Participant 4, as a manager, the policy provides a structured framework that guides the actions necessary to achieve successful adoption and implementation at the school level. The participant indicated that:

> *"It also aims to promote e-learning and ensure that the schools are well-resourced. As a manager, the policy gives a framework for what I should do to ensure effective adoption and implementation at the school level."* ***[Participant 4]***

According to participant 3, the implementation of this policy aims to align education, teaching, and learning with the Fourth Industrial Revolution, facilitating the rapid sharing of knowledge and enhancing the ease of learning by making resources readily accessible. Participants 3, 20, 15, and 14 further said that:

> *"It is a policy that is driving education, teaching, and learning towards the 4IR so that information can be shared faster and learning becomes easier as everything will be at your fingertips. The management of small things like the attendance of teachers and learners was done manually in the past, but now that data can be sent electronically".* ***[Participant 3]***
>
> *"It is a guideline meant to curve the path towards proper implementation of e-Education. It is meant to ensure uniformity across all the schools, from previous advantages to those that were already ahead in implementing technology in their education. It is there to promote equitable distribution of resources and prioritisation of the funds so that equity can be achieved".* ***[Participant 20]***
>
> *"The PDFDL, along with the e-Education policy, was created to assist schools in efficiently integrating digital technologies into teaching and learning. It clarifies how to establish a shared vision for how technology can best fulfill the needs of all learners for school leaders and teachers".* ***[Participant 15]***
>
> *"It is government awareness for equal distribution of educational opportunities to all the citizens".* ***[Participant 14]***

Based on the aforementioned excerpts, it can be posited that participants understand the e-Education policy as a foundational principle that informs the introduction and integration of ICT in schools. Participants possess a comprehension of the policy as a guideline mechanism that facilitates the seamless integration of ICT within education settings.

4.3.2. Clarify the government's position

Based on the excerpts provided below, it can be inferred that some participants understand e-Education policy as a government position aimed at addressing the disparity between urban and rural schools. Twelve participants unanimously agree that the e-Education policy clarifies the government's position in incorporating technology into education. Some of the participants indicated that:

> *"The policy aims to clarify the position of the government in explaining how technology will be incorporated into the education environment."* ***[Participant 6]***

> *"It is the government aiming to bridge the gaps in e-Education for the previously disadvantaged schools."* ***[Participant 5]***

Additionally, four participants indicated that the policy is not mainly meant to clarify the government's intentions or the implications of the policy. They understand the e-Education policy as a document that intends to only bring computers and other ICT gadgets into schools without any other intention.

Two participants indicated that:

> *"I have never seen the e-Education policy document. I just do what the head office is instructing me to do regarding the implementation and adoption of the policy."* ***[Participant 13]***

> *"The policy is just another means of the government to bring computers and other computing gadgets to our school. I don't think there is much that the policy can do with regards to improving the standard of education."* ***[Participants 17]***

Based on the aforementioned excerpts, it is evident that the participants understanding of the e-Education policy is associated with the South African government's position to transform rural schools through the use of modern technology. In this case, e-Education policy is understood in the form of government intervention.

4.4. ROLE OF PARTICIPANTS IN IMPLEMENTING AND ADOPTING THE POLICY

The majority of the participants showed a lack of differentiation between the competencies of school leaders in the implementation and adoption of the policy. The participants expressed their involvement and involvement of some stakeholders in the implementation of the policy. This is reflected in the extracts below:

> *"My role as a leader automatically allowed me to be part of the personnel that enforces the PDFDL. I participated in different seminars, summits, and trainings during the implementation of ICT in schools. Through that, I gained a lot of skills and experience that made it easy for me to assume my duty for the planning and implementation of digital learning".* ***[Participant 1]***

> *"As a principal, I participated in the development of the school ICT policy together with the SMT and the SGB member".* ***[Participant 4]***

> *"I feel happy to share that through GDE Head Office, Sci-bono, and Mathew Goniwe, different training programmes are conducted. The district officials also visit the schools to provide curriculum and ICT-related support to teachers".* ***[Participant 14]***

The extracts above by participants 1, 4 and 14 lend support to the idea of the role of school leaders in implementing and adopting the policy as the person who leads at the forefront to see to it that the government's position on ICT in schools is fully implemented. The study identified the following roles for school leaders in implementing and adopting the policy:

4.4.1. Create and align the school vision with the policy objective

Some participants have understood the role of the school principal as one that involves the creation and alignment of the school's vision with the objectives of the policy. All the participants (21) agreed to this assertion, and the following excerpts demonstrate this point of view:

“My role is to create and align the school vision with the vision of digital learning through creating teaching and learning experiences that provide the right support and resources”. ***[Participant 2]***

“Implement the school’s strategy for digital learning. Outline the vision of the strategy clearly in the strategic planning session. Encourage coaching, mentoring, and sharing sessions”. ***[Participant 6]***

“The principal role is to ensure the timeous implementation of the programme of a desired quality using the available budget”. ***[Participant 7]***

Based on the aforementioned statements, it can be inferred that the participants generally understand the role of the school leaders as being of utmost importance. They understand the principal as a key individual responsible for shaping the school’s vision regarding the integration and utilisation of ICT. Moreover, the leaders are expected to align the school vision with the objectives outlined in the national e-Education policy. To fulfil these responsibilities, the principal is further expected to provide support to teachers and learners, as well as facilitate the sharing of limited resources.

4.4.2. Lead change in school

Based on the interviews, the study identified that the school leaders play a critical role in leading change at the school. The principal’s responsibility entails overseeing the change management procedures or processes within the school. All the participants (twenty-one) are in consensus with the finding, and the extracts are presented below:

“It is my responsibility as a leader to engage all the stakeholders in the implementation, adoption, and integration of ICT in my school. The first step is to build their mind set, and align them with the changed vision. Once they have a sense of the importance of the new vision, I invite them to apply their knowledge in school and then assess their successes. It’s not a simple task, but we try.” ***[Participant 21]***

> *"My primary role is to lead the change management processes within my team. I play a crucial role in implementing the change management processes that are related to teaching and learning using technology. Together with the department, I always try to encourage the staff to attend different training programmes to build capacity".* ***[Participant 4]***

According to participant 3, in order for the principal to establish a supportive atmosphere that promotes the acceptance and engagement of teachers used to traditional teaching and learning methods, it is imperative for the principal to establish mechanisms that facilitate the provision of learning opportunities for teachers. The participant further said that:

> *"To create an enabling environment that will be conducive to the buy-in by the teachers who were used to the old style of teaching and learning. I have to ensure that I create opportunities for learning for the teachers so that the adaptation to the new style is not cumbersome. I have to motivate the staff so that they realise that e-Education is inevitable, and the best way to do it is to focus on the changes and learn fast".* ***[Participant 3]***

Based on the aforementioned excerpts, it is apparent that the role of the school principal can be more effectively explained by conceptualising them as champions of change management.

4.5. SCHOOL LEADERSHIP ATTITUDE TOWARDS THE POLICY

The recognition of the school principal's attitudes as a significant component of the successful implementation and adoption of policies in the field of education has been acknowledged. Numerous positive and negative attitudes have surfaced, which can be classified as advantages and disadvantages. The advantages indicated by the school leaders include the capacity to effectively implement the policy, leading to enhanced learner performance, and the adoption of new teaching methods. On the other hand, the negatives identified encompass bureaucratic challenges, insufficient assistance from the district offices, and resistance from school leadership and from the staff towards innovative practices as shown in figure 4-2 below.

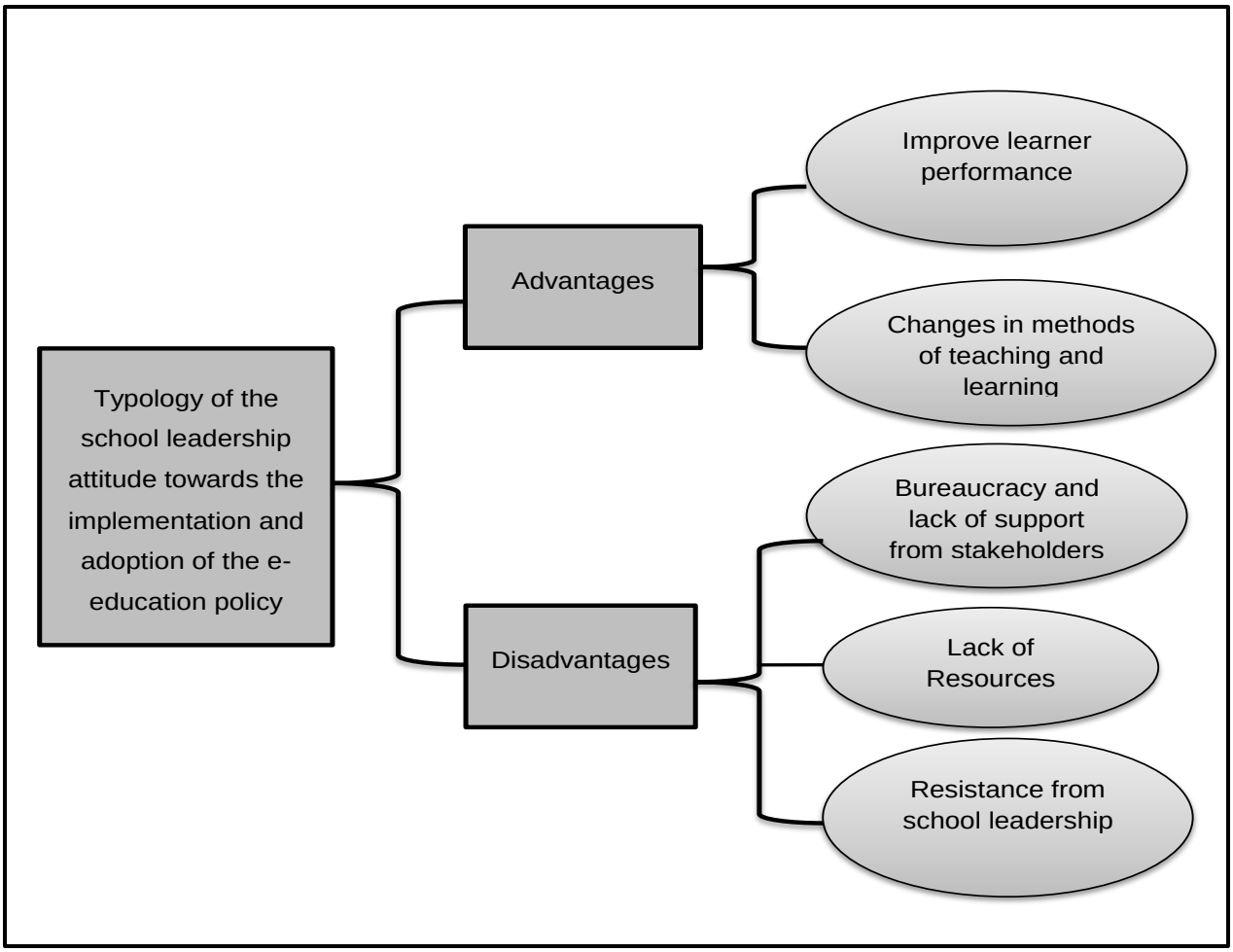

Figure 4-1: Typology of principal attitude on the implementation and adoption of the e-Education policy (Conceptualised by Researcher, 2023)

4.5.1. Improve learner performance

The extracts provided below demonstrate the acceptance of the e-Education policy as a means to enhance learner performance. Drawing a definitive conclusion regarding the positive impact of the introduction of ICT on learner performance poses a challenging task. This is evidenced by the contrasting perspectives held by the school leaders. Eleven school leaders indicated that the implementation and adoption of the e-Education policy in teaching and learning did not yield favourable outcomes in terms of learner's subject achievement. Conversely, ten school leaders have reported a positive influence of ICT on learner performance. Several extracts show that:

"Since we started integrating ICT in teaching and learning back in 2016/2017, we have not seen a significant improvement in learner performance on critical subjects such as Mathematics and Science. There is always a discrepancy in performance based on the cohort of learners. So I cannot link improved performance with the use of computers in my school". ***[Participant 1]***

"There is a lot of confusion that came with the implementation of this policy, which, as a result, failed my teachers. The department didn't train half of my teachers, and they expect them to embrace technology in teaching. So far, I haven't recorded any improvement in performance which I can directly link that the use of technology". ***[Participant 9]***

"On average, the school performance was the same before and after the department brought computers, internet, and tablets, in grade 12 in particular. Actually, performance in Mathematics and Science is declining. I don't think technology alone has the potential to improve performance". ***[Participant 18]***

"My role as a leader in continuing to motivate teachers and learners to continue using technology plays a major role. We have observed improvement in learners' performance over the period or since the implementation of the policy". ***[Participant 4]***

"It is important to remember that using various information technology tools, such as films, graphics, and animation, helps learners learn concepts and improves their capacity for understanding". ***[Participant 8]***

Based on the provided excerpts, it can be observed that a majority of participants have expressed a slight decline or no improvement in learner performance, particularly in Mathematics and Science subjects. The results align with the research conducted by Valverde-Berrocoso, Acevedo-Borrega, and Cerezo-Pizarro (2022). The research revealed a distinct disparity in the outcomes achieved in terms of learner performance and the implementation and adoption of ICT policies within the educational setting.

4.5.2. Changes in the methods of teaching

There is a general consensus among all twenty-one participants that the implementation and adoption of ICT have broadened the skills and understanding of teachers, which leads to changes in instructional approaches. This is reflected in the extracts below:

> *"I allow the self-regulation of both teachers and learners. Learners use gadgets to improve their learning and thinking instead of playing music and visiting educational sites. Teachers' efforts in enhancing teaching through the use of videos, displaying content on the smart boards, and using their laptops to research further about the content of the subject, and track learners' performance and progress."* ***[Participant 2]***

> *"ICT use has made learning more process-oriented. Teachers focus more on learners' learning processes than just what they were taught. Teachers identified themselves as coaches and facilitators rather than as actual teachers."* ***[Participant 9]***

From the above extracts, it can be inferred that the implementation and adoption of the e-Education policy at the school level is seen as the major factor in changes in the methods of teaching and learning. According to Amutha (2020), the incorporation of ICT in education has become an essential component of the education system, resulting in a significant shift from a scholarly society to a society centred on knowledge and information.

4.6. CHALLENGES FACED BY SCHOOL LEADERS

Based on the insights provided by the interviewed participants, it is evident that the implementation and adoption of the e-Education policy by school leadership are accompanied by various challenges. One notable factor contributing to the challenge is the insufficient backing from stakeholders, the reluctance of school leadership to embrace change, and the limited availability of resources necessary for the successful implementation and adoption of the policy.

4.6.1. Bureaucracy and lack of support from stakeholders

The research findings indicate that school leaders encounter a diverse range of bureaucratic obstacles when it comes to the implementation and adoption of the national e-Education policy. The participants expressed that their endeavours to implement and embrace the policy within educational settings were consistently impeded or hindered by bureaucratic processes and a dearth of backing from relevant parties. The authors also acknowledged the challenges associated with overcoming these obstacles. A consensus has been reached among a group of fourteen school leaders, and a selection of their perspectives is reflected in the following excerpts from their interviews:

> *"Let's suppose that I need equipment. I convey my request to higher authorities through the necessary correspondence. My request reaches the ultimate decision-maker through certain bureaucratic stages, but the responsible person does not give me the equipment. I ask for help from people who can influence that authority. I try to receive this equipment by having them call that authority. This is really bad. I have to have friends who can pull strings to bring the government equipment to the school where I work. The bureaucracy of the government raises difficulties for itself".* ***[Participant 18]***

> *"I would like to bring more technological devices to my school. For example, I want every classroom to have a smart board. However, the department has sent an official letter recently. It says, "Do not turn schools into a technological garbage dump; we will give the necessary support through a project". We have given up our target due to this letter. We were about to receive three smart boards and three projectors before this letter. Then we gave up. What happened? The department sent another letter and said that the equipment would be delayed somewhat. What can I do now? If we received these devices, both teachers and learners would be using up-to-date technologies now. However, it did not come true. We are waiting for nothing. We must make a move".* ***[Participant 21]***

> *"They just have a very good policy on paper but they don't really know what's happening on the ground. They do not involve us in the formulation of these*

*policies, and they expect us to implement them at the end. They do not even monitor or make follow-ups". **[Participants 19]***

The participants also highlight that bureaucracy not only adds complexity to fulfilling resource requirements but also hinders the fulfilment of educational demands pertaining to technology. As per the respondents, this particular circumstance elicits a sense of distress, particularly among teachers and administrators who aspire to progress in their respective domains. The participant's perspective on the subject matter is as follows:

*"I went to the GDE district office one day. I told them, "I need basic computer literacy training for teachers at my school. A computer teacher who works at another school will help us voluntarily with this training project. Please show us a school with a lab so that we can receive training by using the facilities there." The officers gave me the following answer: "GDE is currently doing the necessary planning. However, all demands have been rejected this year. We cannot carry out an activity that is not included in our e-learning training plan just because you need it." You see. We would like to improve ourselves and find a trainer for this purpose, but it is rejected due to bureaucracy. What can I do more?" **[Participants 16]***

Further, participants' explanation of the challenges faced by school leadership in the implementation and adoption of the policy includes a lack of stakeholder support. This is reflected in the extracts below:

*"Lack of ICT specialist teachers, a refurbished lab, stable internet connectivity, whole-school Wi-Fi connectivity. other factors: school burglaries, lack of monitoring by districts and provinces, and the fact that school patrollers are not trained to deal with armed thieves." **[Participant 6]***

*"Stakeholder apathy slows the implementation of e-Education policy. An already cramped syllabus does not get the attention it requires. The budget allocation for ICT and its security needs greater review and discussion". **[Participant 8]***

Based on the extract above, it can therefore be suggested that bureaucracy and a lack of support from stakeholders delayed and frustrated the implementation and adoption of the national e-Education policy.

4.6.2. Resistance from school leadership and staff

Some participants pointed out that the resistance to change by some school leadership and teachers is considered one of the factors that cause delays in the implementation and adoption of the policy. Thirteen school leaders are in consensus, and some of their views are reflected in the extracts below:

> *"There has been a slight improvement in learner performance since the inception of the e-Education policy. The drastic changes and enforcement of the new methods of teaching and learning cause a lot of resistance from the teachers and learners."* ***[Participant 1]***

> *"Yoh, it's a difficult one; however, some principals are against the changes that are brought about by the new teaching and learning methods. I think it's because they lack skills and the know-how of using technology."* ***[Participant 12]***

> *"ICT is pivotal to the success of the school and the department in general; however, teachers are reluctant to use it because they are not confident in their knowledge and skills."* ***[Participant 14]***

Based on the above statements, it does appear that the lack of change management systems that led to resistance by some leaders is considered a challenge. The literature analysis highlights two significant findings, as identified by Ojo and Adu (2018) and Van Wyk et al. (2014). These findings suggest that school leaders acknowledge the presence of employee opposition, which can be attributed to inadequate management methods implemented by the department. As per the authors' assertions, educators commonly hold the opinion that they lack the ability to effectively adapt to emerging technology, thereby impeding their efficacy.

4.6.3. Lack of resources

Most of the participants indicated that a lack of ICT resources can be associated with some of the challenges faced by school leadership in implementing and adopting the e-Education policy. This was presented by nineteen participants, and some of them indicated that:

> *"The main challenges are a lack of adequate resources, a lack of ICT-related training, and a lack of motivation for teachers. For efficient implementation of this policy, GDE was supposed to first get a buy-in from the teachers, provide sufficient continuous training support, and also provide motivation sessions to help teachers understand the importance of the policy".* ***[Participant 1]***

> *"The more schools are joining e-Education, the more resources from the department are starting to be scarce, the turn-around times to solve challenges have increased, and we wait longer, which destabilises the smooth implementation by teachers".* ***[Participant 3]***

> *"The main barriers are a lack of computers in the school, poor internet connectivity, a lack of motivation on both the teacher and learner sides to use ICT, a lack of proper training skills, a lack of the most recent ICT equipment, a lack of expert technical staff, and a lack of administrative support".* ***[Participant 4]***

> *"… not have computers in the classrooms and computer laboratories. It's only me as a school principal and the administrative staff".* ***[Participant 9]***

> *"Sometimes I might be busy with my daily work as a principal, and you have teachers borrowing my computer so that they can capture the marks and prepare for classes. I think teachers and learners should have their own spaces with computers".* ***[Participant 13]***

Based on the above extracts, it can be observed that a lack of resources is considered one of the challenges in the implementation and adoption of the e-Education policy. The aforementioned perspectives align with the findings of Mooketsi and Chigona (2016), as identified in the literature review. They found that schools do not have access to computers and internet outside the scheduled time. Additionally, in the literature review, it was also stated that school leaders lack resources to fulfil their tasks, and they insignificantly fail to assemble the necessary resources to meet the ICT requirements in the schools [(Bapela, 2015); (McGarr and Kearney, 2009); (Hadjithoma-Garstka, 2011).

4.7. CONCLUSION

The study comprised twenty-one participants who are school leaders from the Gauteng province. All participants were English-speaking, comprised of eleven females and ten males, nineteen Africans, and only two Indians/ Asians. The participants have between six and more than fifteen years of working experience in the education sphere, with qualifications ranging from undergraduate to postgraduate degrees.

Some participants conceptualised the e-Education policy as a guideline for the implementation and adoption of ICT in schools, while others understood it as a government position on how technology should be incorporated into the education sphere. In addition, participants understand PDFDL as a pathway to the integration of ICT in the classroom. From the findings of the study, participants also mentioned the different roles of school leaders in implementing and adopting the e-Education policy. Some participants understood the role of the leaders as the individuals responsible for creating and aligning the school vision with the policy objective, while others indicated that the leaders must lead change in school. This suggests that the school leaders serve as a driver for the implementation and adoption of the e-Education policy at the school level.

Some of the participants also mentioned improvements in learner performance and changes in teaching strategies, though some of the participants disagreed with the idea that changes in teaching strategies and learning strategies are advantageous to schools. Some participants went further by suggesting that changes in methods of teaching resulted in resistance on the part of school leadership. Although some participants

indicated that they receive support from Sci-Bono, Mathew Goniwe, and the GDE Head Office, there is still a concern from some participants who indicated that bureaucracy, lack of participation and support by some relevant stakeholders such as the district offices, parents, and the private sector, and lack of resources such as computers, tablets, smart boards, and other resources were also considered factors that affected the implementation and adoption of the e-Education policy in schools.

CHAPTER 5: DISCUSSION AND INTERPRETATION

5.1. INTRODUCTION

The implementation and adoption of the national e-Education policy within school systems has become a customary practice in the 21st century, owing to the pervasive influence of ICT across several domains of human existence. The Gauteng province, specifically the Gauteng Department of Education (GDE), has been able to address educational difficulties by using the accessibility of ICT and the opportunities for collaboration facilitated by technological advancements. The significance of ICT should not be underestimated, as it enables teachers and learners to effectively address obstacles encountered in the teaching and learning process. This platform offers teachers and learners the opportunity to acquire and investigate new knowledge and existing concepts in a more effective and efficient manner. The observed potential of ICT to enhance the quality of education in South Africa has been acknowledged, leading to the identification of several ICT projects aimed at implementing and sustaining the utilisation of ICT (Petje, Nxasana, Gordon, Jordaan, Kyama, Mbikwana, & Rayner, 2002).

McCain and Jukes (2001) maintain that if the education system is to endure and rise to the challenges faced within the 21st century, the system must take on the qualities of a learning organisation, and the teachers must take on the qualities of new millennium learners. According to the national e-Education policy, the provincial education departments are expected to develop ICT strategies that allow for, amongst others, equity in the distribution of resources, regular access to reliable ICT infrastructure, and the capacity building of both school leaders, teachers and administrators in the implementation and adoption of the policy and the integration of ICT in the classroom. In addition, the Professional Development Framework for Digital Learning requires school leaders to develop a school vision that builds on existing capacity to support professional development in digital learning at the school level.

Despite the recognition of the significance of the e-Education policy in the educational community, the successful and enduring implementation and adoption of this policy in schools in South Africa have not been achieved on a system-wide scale (Liebenberg et

al., 2018). The implementation and adoption of the national policy is progressing at a sluggish rate and encountering numerous obstacles. Several challenges hinder the implementation of policies, but it is important to consider the various factors that have influenced the implementation and adoption of e-Education policies. These factors should not be examined in isolation, as there is significant pressure and attention placed on school leaders to effectively implement and adopt these policies. School leaders serve as catalysts for ensuring the successful and enduring implementation and adoption of policies within schools.

This chapter discusses the findings of the previous chapter. It also intends to provide a discussion of the study's key themes. The themes discussed are: a) Participants' knowledge and understanding of the policy; b) Roles of participants in implementing and adopting the policy; c) School leaders' attitude towards the policy; and d) Challenges faced by school leaders.

5.2. EMERGING THEMES

5.2.1. Participants' Knowledge and Understanding of the Policy

The concept of e-Education policy defines the SA government’s position on the use of ICTs to accelerate the achievement of national education goals. The e-Education policy serves as a directive for connecting learners and teachers to each other, providing professional support services, and providing platforms for learning. It enables the connection of learners and teachers to better information, ideas, and one another through effective combinations of pedagogy and technology in support of educational reform. The policy goal is to ensure that every South African is ICT capable, help develop the skills and knowledge they need to achieve personal goals, and be full participants in the global community.

According to the findings of the study, participants understanding of the e-Education policy and the Professional Development Framework for Digital Learning do not vary. Some participants seem to understand the two concepts as guiding principles and the government’s position on the implementation of ICT in schools and the integration of ICT in the classroom. These findings are supported by DBE (2004, p. 6), Vandeyar (2015, p.

5) and Van Staden (2022, p. 4) who indicated that the two initiatives are the main policy documents that frame ICT in the education policy environment. The authors indicated that the e-Education policy principle was the achievement of the national education goal by providing modern technologies to schools to enhance the quality of teaching and learning.

According to Vandeyer (2015), the PDFDL provides the guidelines, skills, knowledge, and attitude required by the school leadership to implement the ICT policy effectively. The guidelines are found to meet the principles of the e-Education policy by defining the specific roles and responsibilities of the persons responsible. The findings are also consistent with the findings by Van Staden (2022), who further indicated that the e-Education policy provides the enabling legislative and policy framework for supporting ICT integration into teaching and learning. Additionally, the author indicated that the policy helps to develop South Africans to attain the essential knowledge and skills needed to achieve personal goals and to be participants in the global community.

5.2.2. Roles of Participants in Implementing and Adopting the Policy

Participants mentioned various roles required of the school leaders.

5.2.2.1. Create and align the school vision with the policy objective

According to the study, the school leadership is critical in developing and aligning the school vision with the national e-Education policy objectives. These findings are consistent with previous research conducted in other parts of Africa and around the world. According to Petersen (2014, p. 304), a school leader's knowledge of implementing and adopting ICT policies is related to the leader's willingness to push for ICT development. According to the author, a school leader must be knowledgeable about ICT as well as capable of organising school activities. Three basic characteristics that should define school leadership for developing ICT were also highlighted: articulating visions and goals, assisting in the professional development of teaching staff, and organising activities to facilitate development. Policy goals and visions are developed at various levels, but in order to have the greatest impact and scope, school leaders must develop goals and visions for the subject matter, technical and pedagogical approaches for the topics, as well as goals for teachers' skills.

To corroborate Petersen's findings, Mingaine (2013, p. 33) contends that school leaders must develop a clear vision and strategic plans for implementing ICT policies in their schools. Furthermore, a school leader who lacks a clear vision is more likely to fail to coordinate the implementation of ICT policies and struggle to implement learning-supporting policies. The author also stated that the school leadership vision, which translates to the school vision, must be informed by pedagogical considerations rather than technological considerations. Furthermore, Gurr (2010), as cited by Mingaine (2013, p. 33), discovered that school leadership is critical in creating a vision that empowers the school community to work cooperatively towards achieving instructional goals and developing school staff.

Furthermore, Apsorn, Sisan, and Tungkunanan (2019, p. 640) discovered that school leaders' visions of implementing ICT policies in school are realised by incorporating, developing, and supporting other school members' visions. To effectively perform school leadership duties, school leaders' roles should be geared towards developing strategies for implementing ICT policies in school. They should demonstrate strategy-development skills in their daily school activities. They should be prepared to learn how to implement and adopt policies, and their policy understanding and competence should be simple. Basic policy implementation and adoption skills are desirable for school leaders; however, Ugur and Koc (2019, p. 46) discovered that some school leaders were incompetent, despite Apsorn et al. (2019) insisting that current school leaders should demonstrate some basic understanding of policy implementation to perform their duties effectively and inspire the school community to implement it.

5.2.2.2. Lead change in school

The significance of policy appropriation within the school context was highlighted in this study. School leaders demonstrated their ability to be implementers of national policies at the school level and drivers of ICT implementation. The agentive role of school leaders in implementing change came to the fore. School leaders generated a new and enabling policy by drawing on their practice to inform policy, and repositioning themselves not merely as conduits of policy but as proactive socio-cultural actors in the implementation

and adoption of a national policy. In so doing, they took a thoughtful stance on policy appropriation.

The study additionally revealed that the competencies of school leaders might be more effectively explained by their perceived role as change management champions. This finding aligns with the research conducted by Naicker (2013, p. 966), which indicates that the role of the principal in schools has increased in significance and has consistently been recognised as the key facilitator of change. The ultimate determination of the outcomes of innovations stemming from national policies often rests with the principal. Apsorn et al. (2019, p. 641) argue that the role of leaders in leading change or innovation inside schools has become imperative, positioning them as a crucial catalyst for such endeavours. The principal, in their capacity as the educational institution's head, bears the responsibility of staying abreast of emerging technology and ensuring that teachers possess the necessary proficiency in their utilisation. Consequently, it is anticipated that leaders will be responsible for devising initiatives and tactics aimed at supporting teachers in the integration and acceptance of technology within educational settings. Teachers bear substantial obligations in instigating, executing, and facilitating instructional modifications that encompass the integration of computer technology for pedagogical purposes.

Furthermore, Ugur and Koc (2019, p. 60) found that school leaders are critical change agents due to their position in schools. As a result, their attitude towards implementing and adopting national policies is critical to the successful implementation of ICT policies in education. According to Fessehation and Pai (2019, p. 136), the school principal is the key to implementing successful change in a school. They create a culture that encourages the exploration of innovation and change in teaching and learning by doing so. Furthermore, Fessehation and Pai (2019) contend that most leaders are unprepared to serve as policy implementers in their schools due to a lack of meaningful interaction with policies and learners. According to Naicker (2013, p. 967), leaders perceive them to be too complex and anxious about difficulties. To gain full support from leaders in the process of school innovation, leaders must be proficient in policy implementation.

5.2.3. School Leaders' Attitude Towards the Policy

The study identified two key successes of the school leadership in the implementation and adoption of the e-Education policy in schools.

5.2.3.1. Performance of learners improved

The study found that the effective implementation of the policy in schools has led to improved learner performance. This finding is consistent with the finding by Mokgadi (2015, p. 27) who found a correlation between investment in educating school leaders in implementing and adopting educational policies, ICT policies in particular, action, improvement in the use of ICT in teaching and learning, and improved learner performance. The author suggests that the successful implementation and adoption of national ICT policies in schools result in the creation of a virtual teaching and learning space. The adoption of ICT policies promotes self-directed learning among learners as well as fosters collaborative learning through virtual interactions. According to Mokgadi (2015), the e-Education policy facilitates a personalised learning experience for learners, enabling them to progress at their own individualised pace and ensuring equitable access to educational success.

Agbo (2015, p. 71) asserts that the use of ICT policies can serve as a means to facilitate the achievement of educational goals, such as fostering collaboration, enhancing problem-solving abilities, promoting effective communication, and facilitating skill development inside educational institutions. According to Agbo (2015), the adoption of these policies plays a crucial role in enhancing learners' evaluation methodologies and information retrieval skills, thereby effectively equipping them for participation in a knowledge-based society. Based on empirical evidence, it has been observed that learners exhibit higher levels of motivation when engaged in learning activities that possess engaging qualities, demonstrate reliability, and incorporate a multidisciplinary approach. According to Mokgadi (2015, p. 28), the implementation of an e-Education policy in schools has been found to be associated with increased attendance, motivation, and academic achievement among learners.

5.2.3.2. Methods of teaching changed

The research revealed that the introduction and acceptance of the national e-Education policy led to notable modifications in the methodologies employed for curriculum delivery. Consequently, traditional teaching tools such as chalk boards and textbooks have been replaced with more advanced technologies, including smart boards, tablets, and computers. The results align with the research conducted by Mokgadi (2015, p. 27), which revealed that the integration of ICT policies in schools not only impacts conventional instructional approaches but also necessitates teachers to demonstrate increased creativity in modifying and tailoring their instructional resources. Vandeyar (2021, p. 52) asserts that the implementation of policies in schools yields advantages, as it enhances classroom instruction and facilitates effective school administration through various means. These include aiding in the creation of schedules, managing records, performing secretarial tasks such as transcribing minutes from staff meetings, organising examinations, composing correspondence, and utilising multimedia tools like PowerPoint presentations and internet resources.

According to Ma (2021, p. 3), the implementation and adoption of the policy have resulted in the cultivation of autonomy among teachers. This autonomy allows them to generate their own learning materials, granting them a greater degree of control over the subject content compared to a conventional classroom environment. According to Ma (2021), the utilisation of ICT has the potential to enhance learners' creative abilities. According to Mokgadi (2015, p. 27), schools have the potential to deliver high-quality instruction by employing several strategies such as real-time conversation, experiential learning, and guided instruction, all of which can be enhanced through the use of ICT.

Lekgothoane and Thaba-Nkadimene (2019) assert that the introduction and adoption of e-Education yield enhancements in teaching, classroom management, and overall school impact. The authors additionally stated that schools that adopted the e-Education policy and incorporated ICT into their instructional practices found it to be beneficial for both personal tasks and teaching purposes. As a result, they expressed a willingness to sustain its usage due to its practicality. The study additionally revealed the significance of incorporating ICT policies to enhance the appeal, convenience, and variety of teaching

methods, thereby increasing the gratification and motivation for both teachers and learners.

5.2.4. Challenges Faced by School Leadership

Participants in the study mentioned different challenges faced by school leadership when implementing and adopting the e-Education policy.

5.2.4.1. Bureaucracy and lack of support from stakeholders

According to Balikci and Aypay (2018, p. 1541), the educational environment resembles bureaucratic organisations. The division of labour and area of specialisation, objectivity, authority hierarchy, rules and regulations, and career orientation are some of these characteristics. In this environment, the legal authority is accepted by the parties involved, includes intellectual rules, and requires everyone to follow and obey the rules. The basis of rational-legal authority is adherence to the rules, a certain scope of authority, hierarchical order and process, the rules determining the organisational structure, accountability, the sense of qualifying to perform what is required by the duty, the need to present in writing the works done, and the fact that the principle of "appointment" is at the forefront. According to Boru (2020, p. 192), school leaders do not have much authority and power, which prevents them from implementing and adopting ICT policies and restricts them through different hierarchical practices. Boru (2020) found that, due to a lack of authority, some directives by the school leaders on policy implementation are ignored, delayed, and rejected in the bureaucratic process.

The findings of this study are in line with those of Balikci and Aypay (2018) and Boru (2020). The study found that the bureaucratic work done by the school principal as the school manager and the lack of support by the GDE head office, and district office, and other relevant stakeholders frustrate the process of the implementation and adoption of the national e-Education policy. School leaders are overburdened by administrative work, attending meetings, and human resources issue, which take much of their time. In addition, a lack of support from relevant stakeholders prevents school leaders from implementing and adopting the policy. Further, insufficient technical support from stakeholders impedes the smooth delivery of ICT in schools.

5.2.4.2. Resistance from school leadership and staff

Social infrastructure is required for the successful implementation of e-Education policy. The focus needs to be put on the capacitation and emancipation of school leaders as e-Education policy implementers. This story of the principal's development in the implementation of e-Education policy is long overdue. It is nineteen years after the promulgation of e-Education policy, and strategic points of policy implementation are not yet fixed. This finding raised a question as to why leaders' digital pedagogical empowerment is prioritised at the expense of the provisioning of adequate school pedagogical technologies. This study reveals that the provisioning of physical infrastructure is equally important to human empowerment.

The effective implementation of policies necessitates the establishment of a streamlined change management framework that will facilitate a smooth transition for all relevant parties involved. The research revealed that the GDE's change management approach was found to be inadequate, resulting in dissatisfaction among school leaders and teachers, hence leading to resistance. The opposition exhibited by certain school leaders has resulted in significant setbacks in the implementation and adoption of the e-Education policy inside Gauteng schools. The results of this study align with the findings of Sincar (2013), which indicated that the attitudes of school leaders and teachers, as well as their resistance to change, were a substantial obstacle to the successful implementation of ICT policies. The study also revealed that teachers' reluctance to embrace change with respect to the adoption of new pedagogical approaches poses a hindrance to the successful implementation of ICT policies. Moreover, according to Sincar (2013, p. 1275), it is not unexpected that leaders and teachers may exhibit resistance towards alterations in instructional methodologies, as the process of policy adoption necessitates the modification of long-standing practices.

The successful implementation of new policies necessitates the management of change, which demands that leaders adopt distinct approaches. The investigation of school leaders' attitudes towards change holds significance due to the influential role their beliefs play in shaping decision-making within educational institutions. The knowledge of how the implementation of new policies would help schools is a critical aspect of school

leaders' attitudes towards the use of technology, indicating a potential lack of vision. According to the study conducted by Fessehatsion (2017), school leaders expressed the belief that the ICT policy would have positive outcomes for their schools; however, they also indicated a lack of perceived assistance and guidance in the process of implementing this policy. Consequently, schools refrain from adopting these technologies due to the prevailing perception that integrating ICT will yield insignificant advantages for their respective schools.

5.2.4.3. Lack of resources

Improved school resources and infrastructure, and the provisioning of ICT resources in particular, enhance the opportunities for effective policy implementation and adoption by school leaders. However, this study has exposed a lack of such resources. The study found that a lack of ICT resources such as computers, tablets, smart boards, and other ICT devices delays the implementation and adoption of the e-Education policy by the school leaders. This is consistent with the study by Msiza, Malatji, and Mphahlele (2020, p. 300) who found that the implementation of the e-learning policy in Nigerian secondary schools was delayed by a shortage of resources such as computers, ICT infrastructure, laboratories, and ICT facilities.

Msiza et al. (2020, p. 300) found that African countries such as Kenya have also attempted to transition from paper-based-to-smart classrooms via e-learning. The Kenyan government places a high value on ICT in schools. The government's ministry of education took steps to support the strategy's implementation, either directly or through the various agencies with which it collaborated. However, policy implementation in schools remained elusive because most schools were not connected to the electricity grid and could not afford the necessary infrastructure. Furthermore, school leaders and teachers were discovered to be computer illiterate or technologically illiterate in general. As a result, learners and wider school communities are unable to take advantage of ICT's potential.

According to Munje and Jita (2020, p. 269), the availability of ICT resources allows the adoption of ICT policies that have the potential to change the way teaching and learning

occur, as well as how learners perceive education, learn, and perform. Even in schools without ICT resources, the relevant participants perceived its importance in teaching and learning environments. They emphasised its potential to motivate learners and improve their performance. Furthermore, Munje and Jita (2020) found that computers improve young minds' training by assisting them with homework and other school projects; thus, their availability is a necessity, not a luxury. According to one study participant, the lack of ICT resources has a negative impact on learners' abilities to learn and perform. According to Sincar (2013, p. 1275), another major challenge for school leaders in their technology leadership is a lack of resources. According to the research literature, school leaders face challenges due to a lack of technological facilities and human resources.

CHAPTER 6: SUMMARY AND CONCLUSIONS

6.1. INTRODUCTION

In the previous chapters (4 and 5), the results of the empirical study were tabled, and the findings of the study were discussed in detail. This chapter provides a summary of the study, together with the conclusions drawn and the resulting recommendations. The limitations encountered in conducting the study are described, and possible avenues for future research are mentioned. The chapter concludes with recommendations about the value of this research study.

6.2. AN OUTLINE OF THE RESEARCH PROBLEM

The main research question was: What has been the experience of Gauteng Department of Education leaders in implementing and adopting the White Paper on e-Education policy in Gauteng schools? The following sub-questions were used to answer the main research question, and they were structured as follows:

- How do school leaders understand and apply the guidelines of the White Paper on e-Education policy to achieve the policy goal?
- What competencies, resources, and structures do the school leaders rely on in the adoption and implementation of the White Paper on e-Education policy?
- What are the successes of the school leaders in the task of implementing and adopting the White Paper on e-Education policy in their schools?

6.3. SUMMARY OF THE STUDY

The research comprises six chapters, which are divided as follows:

Chapter 1: In Chapter 1, the problem statement is discussed to underline the importance of the study. From the problem statement, it is evident that there is a gap between the e-Education policy goals and their implementation at the school level. The majority of schools in Gauteng province continue to lack resources and leaders with ICT capabilities. Based on the problem statement, the aim of the study was therefore to investigate the experiences of the Gauteng Department of Education school leaders with implementing and adopting the White Paper on e-Education in their respective schools.

The chapter also provides the background to the study and the justification for conducting the study, stating the research aim and objectives, the research methodologies, the significance of the study, and lastly, some ethical considerations.

Chapter 2: The chapter provides a discussion on the conceptual framework underpinning the study. The literature review in this chapter indicates how various theorists conceptualise ICT policy implementation and adoption, as well as the importance and role of school leaders as leaders in school settings. The Professional Development Framework for Digital Learning provided a base for the conceptual framework for this study. From this perspective, it was indicated that the e-Education policy provided a basis for major changes in the schooling environment, and school leaders played a crucial role in its implementation and helping the schools adopt the policy.

Chapter 3: Provides the blueprint for how the study was conducted, including the research methodologies, data collection strategies and analysis, population and sampling, ethical considerations, and data analysis.

Chapter 4: This chapter presents the results of the analysis of data gathered through face-to-face interviews. The data was transcribed for analysis more easily and quickly using coding, categorisation and thematic presentations and discussions. The data was analysed and interpreted.

Chapter 5: Provides a discussion of the findings of the study. This includes the discussion of four emerging themes.

Chapter 6: This chapter summarises the research project. It consists of a conclusion and gives practical recommendations and potential future studies. The chapter presents the knowledge contributions of the study based on the empirical evidence presented in Chapter 4. Practical recommendations for the adoption and implementation of the e-Education policy in schools are also presented.

6.4. SUMMARY OF THE FINDINGS

The study aimed to investigate the experiences of the Gauteng Department of Education school leaders with implementing and adopting the national e-Education policy at the school level. The research questions of the study were:

6.4.1. How do school leaders understand and apply the guidelines of the White Paper on e-Education policy to achieve the policy goal?

The findings suggest that though school leaders have a common understanding of the policy and their roles in implementing it, they are poorly equipped for the task of implementing the national e-Education policy. The e-Education policy was communicated to the schools without making the required resources available. Furthermore, the policy guidelines provide for the roles of the district and the provincial offices; however, these stakeholders did not provide enough support as required by the schools. The lack of support left the school leader's device in the implementation and adoption of the policy in the school. Schools formed communities of practices amongst themselves, which fostered school-based ICT policy, which does not translate to nationally defined mandates.

6.4.2. What competencies, resources, and structures do the school leaders rely on in the adoption and implementation of the White Paper on e-Education policy?

The results pertaining to this study inquiry are delineated in three distinct aspects - specifically, the influence of the school leaders, the availability of resources, and the support received from stakeholders. While the primary objective of this study did not revolve around the engagement of stakeholders in the implementation of ICT policy in schools, it is evident that the absence of active involvement from pertinent stakeholders impedes the effective implementation and adoption of the e-Education policy. There exists a prevalent sentiment that it is imperative for relevant institutions and individuals with vested interests to actively contribute to the successful implementation of national policy. The provision of such support, however, would always rely on the governmental rules pertaining to the use of ICT within educational settings. To get backing from

stakeholders, it is imperative for the department and schools to ensure that their implementation strategy explicitly outlines the roles and duties of all relevant stakeholders.

The implementation and adoption of the e-Education policy in the area are hindered by two significant obstacles: inadequately trained leaders at schools and insufficient assistance from stakeholders. The limited capacities of school leaders in implementing national policies hinder their confidence and ability to effectively deploy ICT at the school level. Furthermore, the lack of support from stakeholders and limited experience in integrating computer technology into their classrooms are also evident. It is anticipated that providing targeted training in policy implementation and other ICT issues will enhance the overall academic achievement of learners. Additionally, it is recommended that all staff development initiatives encompass the acquisition of knowledge and skills related to ICT. It is widely acknowledged that the GDE and relevant stakeholders must consistently prioritise the provision of professional and on-going staff development. However, it is emphasised that within this supply, particular emphasis should be placed on training related to policy implementation.

The provision of resources such as computer laboratories, smart boards, projectors, television sets, tablets, and DVD recorders to schools is inconsistent, and the availability of suitable software, reliable electricity, and internet connectivity is inadequate. In this context, educational institutions are confronted with a scarcity of ICT resources, hindering the effective implementation and integration of national policy. Inefficiencies can also arise due to several circumstances, including inadequate planning and coordination of policy implementation at both the province and district levels.

6.4.3. What are the successes of the school leaders in the task of implementing and adopting the e-Education policy in their schools?

The correlation between successful policy implementation and adoption and different facets of teaching and learning, including enhanced learner performance, modifications in teaching and learning methodologies, classroom management, learners' capacity to focus, and lesson delivery, is to be anticipated. The integration of good policy

implementation and adoption is a fundamental element in facilitating successful teaching and learning and should consistently be seen as an integral component of the curriculum. Furthermore, the effective implementation of ICT policies and the availability and utilisation of resources in educational institutions serve as sources of inspiration and motivation for both teachers and learners.

Despite the restricted availability of ICT resources, learners exhibit confidence in their computer proficiency and hold positive attitudes towards the integration of ICT in their lessons. Furthermore, the utilisation of ICT in classrooms has been found to enhance learners' capacity to study and retain information. The promotion of independent learning is further facilitated by engaging in exploratory activities and conducting research for academic projects. It was additionally shown that the integration of ICT in pedagogy leads teachers to perceive a shift from conventional instructional approaches to ones that align with contemporary societal norms.

The utilisation of contemporary tools such as PowerPoint presentations and e-mail communication has facilitated the process of disseminating information, rendering it more convenient and efficient. Furthermore, it is widely acknowledged as a mechanism that imparts fresh significance to the process of education. ICT is perceived as a method for alleviating the burden of excessive book-carrying among learners. The heightened utilisation of ICT provides teachers with additional support in creating their own instructional materials, granting them a level of autonomy over the course content that may not be readily achievable within a conventional teaching framework.

6.5. RECOMMENDATIONS OF THE STUDY

It is imperative to enforce governmental legislation pertaining to ICT matters, including standards concerning the procurement of resources. The significance of the e-Education policy's strategic objectives and the recommendations outlined in the PDFDL paper are noteworthy in this context. Consequently, the subsequent recommendations pertain to the implementation and adoption of the national e-Education policy inside schools in the Gauteng province.

6.5.1. Raising awareness surrounding the concept of policy implementation and adoption inside educational settings.

Raising awareness among stakeholders who currently lack involvement in ICT ideas regarding the relevance and significance of ICT in educational settings, hence fostering the implementation and adoption of the e-Education policy. This group comprises individuals inside educational settings, such as school leaders and other staff members, who possess limited proficiency in effectively utilising technological resources. These individuals must be persuaded through active engagement and demonstration of the feasibility of policy implementation and the practicality of technological applications. This issue can be addressed at the district level. The rationale for this recommendation stems from the premise that it is essential for all school leaders to possess the necessary skills and knowledge to effectively implement ICT policies. This is due to the increasing importance of integrating ICT into educational practices, as schools are progressively incorporating ICT tools and resources into their teaching methodologies. Consequently, a crucial initial measure would involve familiarising them with the governmental legislation pertaining to ICT.

The dissemination of information to relevant stakeholders, including the Mathew-Goniwe School of Leadership and Governance (MGSLG), the Sci-Bono Discovery Centre, members of the School Governing Body (SGB), and significant community members, on the significance of ICT in schools. It is imperative to promote and encourage these stakeholders to endorse and implement ICT initiatives at the governance level, thereby facilitating the integration and adoption of ICT at the school level. The subsequent recommendation necessitates the provision of the aforementioned information to these organisations. The significance of the participation of these individuals depends on their view of school staff members, who would interpret it as a form of support for a significant obligation.

6.5.2. The improvements to departmental support and provisioning are recommended in order to enhance efficiency and effectiveness.

- Providing ICT resources

There is a need for the GDE to provide ICT resources that facilitate the implementation and adoption of policies while also highlighting the importance of acquiring advanced technological proficiency. The resources required for educational purposes should consist of various technological tools such as computers, smart boards, tablets, overhead projectors, internet access, and other ICT resources often utilised within educational institutions. The GDE should prioritise the provision of comprehensive resources to schools in order to facilitate the successful implementation and adoption of the strategy. The improvement of digital literacy by learners necessitates practical engagement with digital technologies. Numerous schools lack access to ICT resources, hence limiting their ability to fully use these resources for the purpose of developing professional skills in accordance with policy guidelines. ICT resources provide teachers and learners with the means to independently carry out their respective research projects.

- Providing technical support

The e-Education policy advocates for the provincial education departments to plan and budget for the appointment of ICT in education specialists at provincial and district levels and the training of district-level ICT and subject specialists in order to provide on-going professional and technical support. Consequently, it is imperative to offer technical help to schools in order to facilitate the upkeep and repair of their existing ICT resources, as well as the maintenance of their laboratories. The seamless continuity of teaching and learning may be hindered when teachers are preoccupied with addressing technical elements of ICT. A deficient and unsubstantiated ICT infrastructure will lead to a decline in staff's trust in ICT as an essential instructional instrument.

The policy promotes the use of qualified experts who will regularly perform updates and offer hardware and software solution for technical support. The aforementioned professionals should also address any concerns pertaining to the instructional network and offer assistance for servers, staff computers, and printers. In addition, it is imperative

for them to offer technical assistance to guarantee the network operates at its peak efficiency during the entirety of the school day. Furthermore, it is imperative for the specialist to provide guidance about the enhancement of the school's ICT vision and the procurement of new equipment. The adoption of these guidelines will significantly contribute to schools' ability to prioritise their primary objective of facilitating teaching and learning while avoiding the hindrance caused by malfunctioning computer systems.

6.5.3. The primary focus of staff development should concentrate ICT matters by:

- Changing the school leaders' perceptions about ICT

The role of the school leaders includes that of a change agent within the context of the school. Consequently, leaders need to be motivated towards changing their discouraged perspective about the utilisation of technology inside the schools. Prior to and throughout the implementation of a new policy, school leaders undergo a sequence of psychological stages in relation to their apprehensions surrounding the new policy. The timely recognition of the issues expressed by school leaders is an essential undertaking for achieving successful integration of technology in the classroom. The acquisition of computer literacy skills is crucial as it facilitates seamless integration within the educational setting. It is imperative for school leaders to possess an understanding of the potential benefits of ICT in order to effectively advocate for its integration into the educational experiences of their learners.

- Enhancing the training programmes for school leaders regarding the implementation and adoption of policies

The recommendation of enhancing professional development in policy implementation abilities is of utmost importance. The effective management of school leadership and staff development is widely acknowledged. It is imperative that school leaders have comprehensive training in policy topics, as they bear the responsibility for their effective implementation within the school environment. Training should not be limited to short-term sessions but rather be implemented as an on-going process.

In the era of the information age, characterised by the continuous introduction of innovations and rapid change, the establishment of various policies and the need for on-going professional development in the areas of policy and ICT have become of utmost importance. The training provided to school leaders will optimise the return on investment in staff development.

6.6. RECOMMENDATION FOR FURTHER RESEARCH

This study focused only on a sample of twenty-one school leaders located in the Ekurhuleni North (EN), Ekurhuleni South (ES), and Johannesburg South (JS) districts within the Gauteng province. This study primarily investigated the implementation and adoption of the e-Education policy by a specific group of school leaders within the defined scope of the research. The study documented the replies obtained from interviews conducted with a sample of twenty-one school leaders. Hence, it is advisable to undertake a comparative analysis encompassing several population cohorts, districts, and the wider province in order to probe deeper into the implementation and adoption of ICT policies in schools throughout the province.

6.7. CONCLUSION

The significance of implementing and adopting the e-Education policy in schools cannot be understated. The incorporation of technology in the realm of education has become an undeniable and widely accepted fact. According to the Department of Basic Education (DBE), it has been emphasised that the utilisation of ICT in education holds significant value. The DBE has put up a recommendation that by the year 2013, all learners should possess computer literacy skills (DBE, 2004, p. 18). Nevertheless, the government's effort encountered various hurdles that resulted in a postponement of the introduction of ICT in schools. One of the key deficiencies observed was the insufficient allocation of essential physical and human resources by both the national and provincial departments, which hindered the successful implementation of the project.

The successful implementation and adoption process of educational initiatives is contingent upon the presence of cohesion within schools. The involvement of the department, school leaders, and key stakeholders is crucial to the adoption of ICT in

educational institutions. The school is obligated to conform to government policies, as these policies serve as the guiding principles for the application of ICT. A government policy serves as a means of informing the general public that a new, amended, or expedited course of action on specific matters is planned to be implemented within a specified timeframe (Zida et al., 2017).

At the elementary level, school leaders bear the responsibility of ensuring the proper implementation and adoption of policies within the classroom setting. Their active engagement with teachers and learners, coupled with their expertise in policy and ICT issues, is of paramount significance. Tshelane (2015) and Mukhari (2016) assert that the pivotal role of school leaders in the execution of ICT policy within educational institutions stems from their accountability in effecting transformative measures by promoting the integration of ICT.

The results of the empirical study suggest that school leaders in Gauteng province possess a shared comprehension of the e-Education policy and PDFDL. However, they face challenges in terms of their capacity and access to resources, hindering their ability to effectively execute the policy. Furthermore, it has been observed that pertinent stakeholders are failing to fulfil their responsibilities in effectively enhancing the professional development of school leaders in topics pertaining to policy. Schools are making concerted efforts, despite resource constraints, to effectively incorporate ICT into their instructional practices. In the context of educational practices, teachers employ a restricted number of computers and smart boards to facilitate lesson planning and information retrieval, thereby benefiting both teachers and learners. Despite the schools' commitment, several problems exist, including bureaucratic obstacles, insufficient support from stakeholders, resistance from school leadership and employees, and limited resources.

Based on the empirical investigation's findings, it is recommended that schools in the Gauteng province prioritise increased awareness of e-Education policy implementation and adoption. Additionally, efforts should be made to improve the support and

provisioning provided by the department, and staff development should be focused on policy-related matters.

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ANNEXURE A: Participant Information Sheet

University of the Witwatersrand,
Wits School of Governance
2 St Davids Pl, Parktown, Johannesburg, 2050
011 717 3520

Good day

My name is Rofhiwa Mulaudzi. I am a Master's in Management: Public Policy student at the Wits School of Governance at the University of the Witwatersrand. As part of my studies, I must undertake a research project. I am conducting research investigating the adoption and implementation of the e-Education policy in the Gauteng provincial government. The research project aims to investigate the experiences of school principals on the adoption and implementation of the e-Education policy during the roll-out and use of ICT in their schools.

I work at the Gauteng Department of Education as an Assistant Director, Research from 2017 to date. This is an independent research project and does not form part of the Gauteng Department of Education. As part of this research project, I would like to invite you to be part of the study. I would like you to be part of the interview which will take around 35 minutes. With your permission, the interview will be recorded using Microsoft Teams or digital devices.

There will be no direct benefits that will be received from participating in the research project. In addition, there will be no study, and there are no hindrances or any form of penalties for not participating. If you don't want to, you may not answer any questions or withdraw from participation at any time. Participation in the research project will be confidential and the information you provide will not be revealed to anyone and will be held securely. The password-encrypted computer will be used to store the raw data to restrict access except for the researcher. Pseudonym (false name) will be used to signify your participation, in the final research report. If you experience any discomfort or distress, the interview will stop or resume another time.

If you have any questions afterward about this research, feel free to contact me on the details listed below. This study will be written up as a research report which will be available online through the university library website. If you wish to receive a summary of this report, I will be happy to send it to you upon request. If you have any queries, concerns, or complaints regarding the ethical procedures of this study, you are welcome to contact the University Human Research Ethics Committee (non-medical), telephone + 27(0)11 717 1408, email: Shaun.Schoeman@wits.ac.za

Yours sincerely,

Rofhiwa Mulaudzi: 0609787f@learners.wits.ac.za, 0817844120

Geci Karuri-Sebina: geci.karuri-sebina@wits.ac.za, 0721481132

ANNEXURE B: Consent Form

Title of project: Investigation of the Adoption and Implementation of the e-Education Policy in Gauteng Provincial Government

Name of researcher: Rofhiwa Mulaudzi

I, ……., agree to participate in this research project. The research has been explained to me and I understand what my participation will involve. I agree to the following:

(Please tick the relevant options below).

I agree that my participation will remain confidential	YES	NO
I agree that the researcher may use unspecified quotes in his / her research report	YES	NO
I agree that the interview may be audio & video recorded	YES	NO
I agree that the information I provide may be used confidentially after this project has ended, for academic purposes by other researchers, subject to their own ethics clearance being obtained.	YES	NO

…… (signature)

…… (name of participant)

…… (date)

…… (signature)

…… (name of the person seeking consent)

…… (date)

ANNEXURE C: Interview Guide

Interviewee's years of experience:

1-5	6-10	11-15	More than 15

Highest qualification:

Grade 12	Undergraduate Degree	Postgraduate Degree	Other

Which one of the following age groups represents your age?

18-25	26-30	31-35	36-40	41-45	46-50	51-55	56-64

Which one of the following represents your race?

African	Coloured	Indian	White

Which one of the following represents your gender?

Female	Male

Please answer the following questions

1. Ice-breaking discussions:
   - The researcher will introduce himself
   - Asks for the principal background information in the education sphere
   - Ask about the vision and mission of the school
   - Ask about the role of the principal in the school

2. What are your level of competency and your role as a leader of a school and manager regarding the adoption and the implementation of the White Paper on e-Education policy?
   - Explain your knowledge and understanding of the White Paper on e-Education policy as a leader and manager of the school.
   - What is your knowledge and understanding of the guidelines of the White paper i.e., Professional Development Framework for Digital Learning?

- What is your role as a manager in implementing and adopting the e-Education policy in our school?
- Explain your role in demonstrating your commitment to the vision for digital learning in the school
- How did you accept and assume the responsibility for planning and implementing digital learning at the school?
- What is your role in initiating peer support and collaborative, and workplace learning?

3. What are the characteristics of your school in dealing with the adoption and implementation of the White Paper?
   - Which ICT resources are available at the school?
   - What is the level of ICT integration by teachers in your school?
   - What do you attribute to the improvement or lack of improvement in the working conditions and/ or your learners' performance since the adoption and implementation of the e-Education Policy?
   - What kind of support do you give to your teachers to enable ICT integration in your school?
   - Which systems do you have at your school that enables you to achieve the national education goal of using ICT in schools?
   - What challenges do you face as a manager and leader in implementing and adopting the e-Education policy?
   - How does GDE assist or contribute to dealing with the challenges?

Thank you for your time

ANNEXURE D: Ethics Certificate

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

SCHOOL OF GOVERNANCE ETHICS COMMITTEE
CONSTITUTED UNDER THE UNIVERSITY HUMAN RESEARCH ETHICS COMMITTEE (NON-MEDICAL)

CLEARANCE CERTIFICATE	**PROTOCOL NUMBER: WSG-2022-34**
PROJECT TITLE	Investigation of the Adoption and Implementation of the e-education Policy in the Gauteng Provincial Government
INVESTIGATOR	Rofhiwa Mulaudzi
SCHOOL/DEPARTMENT OF INVESTIGATOR	School of Governance
DATE CONSIDERED	29 July 2022
DECISION OF THE COMMITTEE	Conditionally approved pending submitted changes
RISK LEVEL	MINIMAL RISK
EXPIRY DATE	Date of submission of the project Research Report

ISSUE DATE OF CERTIFICATE 29 July 2022 **CHAIRPERSON** Rekgotsofetse Chikane
Rekgotsofetse Chikane

cc: Supervisor:

DECLARATION OF INVESTIGATOR

To be completed in duplicate and **ONE COPY** returned to the Chairperson of the School/Department ethics committee.

I fully understand the conditions under which I am are authorized to carry out the abovementioned research and I guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I/we undertake to resubmit the protocol to the Committee.

Signature **Date** 01/08/2022

PLEASE QUOTE THE PROTOCOL NUMBER ON ALL ENQUIRIES

ANNEXURE E: Approval Letter from the Gauteng Department of Education

GAUTENG PROVINCE
Department: Education
REPUBLIC OF SOUTH AFRICA

8/4/4/1/2

GDE RESEARCH APPROVAL LETTER

Date:	**11 November 2021**
Validity of Research Approval:	**08 February 2022– 30 September 2022** **2021/343A**
Name of Researcher:	**Mulaudzi R**
Address of Researcher:	**4673 Polish Nymphs Street**
	Leopards Rest Sec Estate
	Albertsdal X31
Telephone Number:	**081 7844 120/ 011 355 1323**
Email address:	**Rofhi.mulaudzi@gmail.com**
Research Topic:	**An investigation into adoption and implementation of the E-Education Policy in Gauteng Provincial Government**
Type of qualification	**Master of Management: Public Policy**
Number and type of schools:	**21 Secondary Schools**
District/s/HO	**Ekurhuleni North ,Ekurhuleni South and Johannesburg South**

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.

The following conditions apply to GDE research. The researcher may proceed with the above study subject to the conditions listed below being 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

1. *Letter that would indicate that the said researcher/s has/have been granted permission from the Gauteng Department of Education to conduct the research study.*
2. *The District/Head Office Senior Manager/s must be approached separately, and in writing, for permission to involve District/Head Office Officials in the project.*
3. ***Because of COVID 19 pandemic researchers can ONLY collect data online, telephonically or may make arrangements for Zoom with the school Principal. Requests for such arrangements should be submitted to the GDE Education Research and Knowledge Management directorate. The approval letter will then indicate the type of arrangements that have been made with the school.***
4. ***The Researchers are advised to make arrangements with the schools via Fax, email or telephonically with the Principal.***
5. *A copy of this letter must be forwarded to the school principal and the chairperson of the School Governing Body (SGB) that would indicate that the researcher/s have been granted permission from the Gauteng Department of Education to conduct the research study.*
6. *A letter / document that outline the purpose of the research and the anticipated outcomes of such research must be made available to the principals, SGBs and District/Head Office Senior Managers of the schools and districts/offices concerned, respectively.*
7. *The Researcher will make every effort obtain the goodwill and co-operation of all the GDE officials, principals, and chairpersons of the SGBs, teachers and learners involved. Persons who offer their co-operation will not receive additional remuneration from the Department while those that opt not to participate will not be penalised in any way.*
8. *Research may only be conducted after school hours so that the normal school programme is not interrupted. The Principal (if at a school) and/or Director (if at a district/head office) must be consulted about an appropriate time when the researcher/s may carry out their research at the sites that they manage.*
9. *Research may only commence from the second week of February and must be concluded before the beginning of the last quarter of the academic year. If incomplete, an amended Research Approval letter may be requested to conduct research in the following year.*
10. *Items 6 and 7 will not apply to any research effort being undertaken on behalf of the GDE. Such research will have been commissioned and be paid for by the Gauteng Department of Education.*
11. *It is the researcher's responsibility to obtain written parental consent of all learners that are expected to participate in the study.*
12. *The researcher is responsible for supplying and utilising his/her own research resources, such as stationery, photocopies, transport, faxes and telephones and should not depend on the goodwill of the institutions and/or the offices visited for supplying such resources.*
13. *The names of the GDE officials, schools, principals, parents, teachers and learners that participate in the study may not appear in the research report without the written consent of each of these individuals and/or organisations.*
14. *On completion of the study the researcher/s must supply the Director: Knowledge Management & Research with one Hard Cover bound and an electronic copy of the research.*
15. *The researcher may be expected to provide short presentations on the purpose, findings and recommendations of his/her research to both GDE officials and the schools concerned.*
16. *Should the researcher have been involved with research at a school and/or a district/head office level, the Director concerned must also be supplied with a brief summary of the purpose, findings and recommendations of the research study.*

The Gauteng Department of Education wishes you well in this important undertaking and looks forward to examining the findings of your research study.

Kind regards

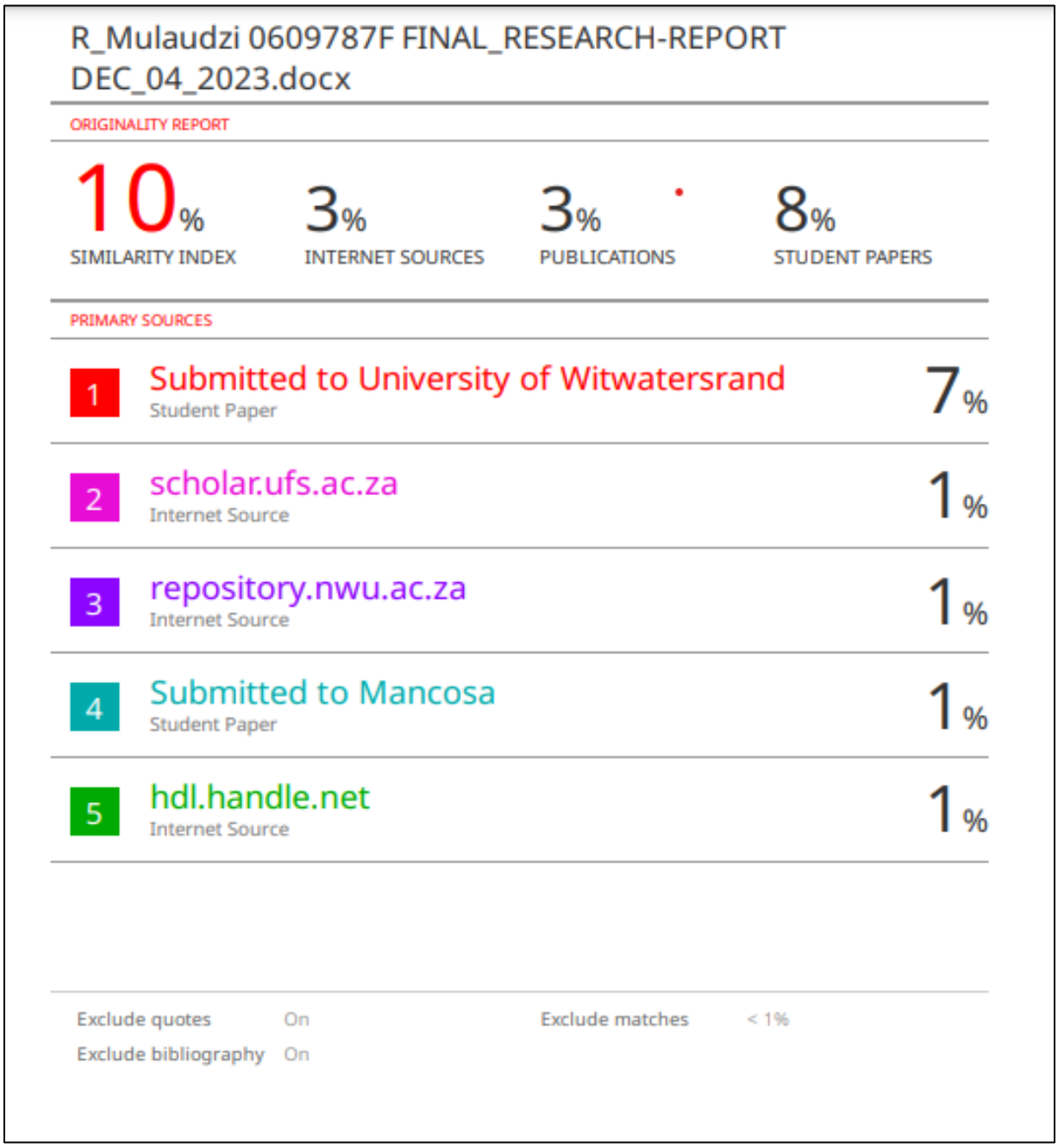
.....

Mr Gumani Mukatuni
Acting CES: Education Research and Knowledge Management

DATE: 27/06/2022.

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

ANNEXURE F: Turn-It-In Report



R_Mulaudzi 0609787F FINAL_RESEARCH-REPORT DEC_04_2023.docx

ORIGINALITY REPORT

10%	3%	3%	8%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

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2	scholar.ufs.ac.za Internet Source	1%
3	repository.nwu.ac.za Internet Source	1%
4	Submitted to Mancosa Student Paper	1%
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