



**Exploring School Culture and its Influence on the Utilization of ICTs by teachers:
A case of two Gauteng schools.**

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**Submitted In Fulfilment of a Degree of Master of Education by Research and
Coursework**

**Wits School of Education, Faculty of Humanities, University of the Witwatersrand,
Johannesburg**

September 2025

DECLARATION

I, Promise Makhanza, declare that this thesis, titled "Exploring School Culture and its Influence on the Utilization of ICTs by Teachers: A Case of Two Gauteng Schools", is my original work. I am the sole author of this study, and it has never been submitted, in whole or in part, for any degree or examination at any other university.

I have duly acknowledged the work of other scholars through in-text referencing and have provided a complete reference list at the end of this thesis. I understand that the University of the Witwatersrand reserves the right to take disciplinary action against me should it be found that I have failed to acknowledge the work of others in accordance with academic integrity policies.

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18 September 2025

ABSTRACT

This study explored the influence of school culture on the utilization of Information and Communication Technologies (ICTs) by teachers at two Gauteng schools. As technology continues to reshape education, understanding how school culture impacts the utilization of ICTs is essential. The study employed a qualitative research approach, utilizing semi-structured interviews with school principals and questionnaires completed by teachers to gain insights into ICT utilization within the two schools. The study was guided by the model of influences on ICT implementation in the case study school by Tearle, (2004) as the conceptual framework. The study revealed that while both schools have access to basic ICT tools such as smartboards, projectors, and teacher laptops, disparities exist in the availability of advanced ICTs such as learner tablets, eBooks, and dedicated digital learning platforms. The study highlights the pivotal role of school leadership in fostering a culture that supports ICT utilization, with School A demonstrating a proactive approach through structured training, resource allocation, and strong leadership support. In contrast, School B faces challenges related to a flexible approach to ICT utilisation, resource limitations, inconsistent access to ICTs, and varying levels of teacher ICT proficiency. Despite the benefits of ICT utilization, challenges such as poor internet connectivity, technical issues, and the digital divide hinder seamless utilization. The study underscores the need for ongoing professional development, improved infrastructure, and strategic leadership to enhance ICT utilization in schools.

Keywords: School culture, ICT utilization, ICTs in education, teacher training, school leadership, digital learning, Gauteng schools.

ABBREVIATIONS

BA–Bachelor of Arts

B. Ed – Bachelor of Education

BSc–Bachelor of Science

CAT – Computer Applications Technology

DBE – Department of Basic Education

EGD– Engineering & Graphics Design

GDE – Gauteng Department of Education

HDMI –High-Definition Multimedia Interface

ICTs – Information and Communication Technologies

LLB– Bachelor of Laws (Latin: Legum Baccalaureus)

OPC – Open Platform Communications

PGCE – Postgraduate Certificate in Education

SMT – School Management Team

SOS –School of Specialization

WITS – University of the Witwatersrand

ACKNOWLEDGEMENTS

I would like to express my deepest gratitude to my supervisor, Professor Eunice Nyamupangedengu, for her unwavering support, guidance, and patience throughout this journey. Your insightful feedback, encouragement, and dedication have played a crucial role in shaping this research. Thank you for believing in me and for pushing me to reach my full potential.

To my family, I cannot thank you enough for the love, patience, and sacrifices you made to support me. Thank you for understanding that my time after work and on weekends was dedicated to my studies, even when it meant that I could not always be present for family activities or daily responsibilities. Your unwavering support has been my pillar of strength.

To my father, Aaron Makhanza, thank you for your constant prayers and words of encouragement. You gave me hope when I felt overwhelmed, reminding me that one day this journey would be complete. Your belief in me has been a source of motivation.

To my sister, Smangele Thuli Makhanza, your phone calls during moments of academic stress meant more than words can express. Thank you for always checking in on me, for cheering me up, and for reminding me that I was never alone in this journey. Your support has been invaluable.

To my little brothers, Gift and Simon Makhanza, thank you for your patience and understanding. Even when I was physically present at home but occupied with my studies, you never gave up on me. Your love and support have been deeply appreciated.

To the Wits Postgraduate Merit Award, thank you for funding my studies. This achievement would not have been possible without your financial assistance, and I am truly grateful for the opportunity you provided me.

To my learners, the Matric Class of 2024, thank you for the love and support you continually showed me. Your enthusiasm and appreciation fuelled my determination to keep going. To the Matric Class of 2025, thank you for your constant words of encouragement. Your belief in me, even as I guided you through your own academic journey, meant the world to me.

To the Gauteng Department of Education, thank you for granting me permission to conduct my research in the schools. Your support was instrumental in making this study possible.

And lastly, I want to thank myself for showing resilience, for persevering through sleepless nights, for balancing full-time teaching with academic commitments, and for never giving up. The dedication and commitment I have shown to this journey have led me to this moment, and for that, I am truly proud.

Above all, I give thanks to God, the Almighty, for granting me the strength, wisdom, and perseverance to continue, even when the journey was difficult. Here is my grateful heart, Lord. I could not have done this without You.

DEDICATION

This thesis is dedicated to my beloved mother, Norah Lindiwe Makhanza, whose unwavering love, wisdom, and strength continue to inspire me even in her absence. Though you are no longer physically here, your presence remains deeply embedded in my heart and in every achievement I pursue. Etlela hi kurhula mama.

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CHAPTER ONE

INTRODUCTION

1.1. Background of the study

This study explored the school culture and how it influenced teachers' utilization of Information and Communication Technologies (ICTs) in two Gauteng schools. School culture encompasses the traditions, shared values, and behaviours that define a school's distinct identity (Demirhan, 2023). ICTs encompass all advancements in digital data management and communication (Suleiman et al., 2020). Smart boards, interactive whiteboards, servers, routers, the internet, software, computers, mobile phones, and storage resources are examples of ICTs. There are many other examples of ICTs. As ICTs advance, schools must utilize ICTs in their teaching and learning. As a result, to fully realize the potential of ICTs in teaching and learning, schools must foster a culture that promotes and encourages its utilization (Demirhan, 2023). ICTs play an important role in education by providing learners and teachers with the resources and tools they require to thrive in the digital age. Thus, the utilization of ICTs in teaching and learning can help teachers to adapt their approaches and develop interesting and interactive ways of teaching (Paje et al., 2021). As supported by research conducted by Ahmad et al. (2019), Sun and Gao (2019), Blau et al. (2020), and Lai et al. (2022), a positive school culture enhances creativity and innovation, partnership and continuous development, which in turn enhances the utilization of ICTs in teaching and learning. The study by Darling-Hammond and Cook-Harvey (2018) also reveals that a positive school culture is characterized by tolerance and respect for everyone in the school, which leads to happy and successful students and teachers. In addition, a positive school culture creates unity and uniqueness in the individuals while at the same time promoting teamwork (Cortina et al., 2017). In the words of Sun and Gao (2019), a school culture that appreciates flexibility and open communication can help teachers and students effectively utilize ICTs. A hostile or uncooperative school culture can be a barrier to the effective utilization of ICTs, which can result in underutilization and missed opportunities to enhance academic achievement and student engagement (Tshelane, 2015). These findings are based on research conducted in other nations in various settings. This study investigated the impact of school culture on the use of ICTs in South Africa to determine whether context matters.

1.2. Problem statement

Despite the widely acknowledged benefits of ICTs for teaching and learning, there is still variation in how successfully they are utilized in classrooms. The restricted utilization of ICTs in education is a key concern. This problem is created by numerous aspects of the school culture, including resource availability, teacher behaviours, and leadership, all of which contribute to inadequate ICT utilization (Aruleba and Jere, 2022). Singun (2025) explained that even when ICTs are available, their use is often limited due to institutional and cultural constraints. A school culture that is uncooperative and restricted can hinder the use of ICTs, resulting in underutilization of ICT tools and missed opportunities to improve teaching and learning. This problem undermines ICTs' potential benefits in increasing student learning outcomes and experiences (Verma, 2021).

1.3. Rationale and significance of the study

This study's rationale was to understand better how school culture influences the utilization of ICTs in teaching and learning at two South African schools in Gauteng province. As technology progresses, schools must adapt and successfully utilize ICTs for teaching and learning. This study aimed to provide critical insights into some aspects that support the effective utilization of ICTs by investigating the impact of school leadership, teacher practices and perspectives, and ICTs within the school culture.

This study is significant in a variety of ways. First, it addresses a gap in the South African literature by investigating the distinctive influence of school culture on the utilization of ICTs in teaching and learning. This research will help us understand how leadership, teacher practices, and resources in South Africa might support or hinder effective ICT utilization. Further, this study has practical implications for educational institutions since it can help them develop a school culture that encourages the utilization of ICTs in teaching and learning. Creating a school culture that supports innovation, teamwork, and continuous improvement can help schools better utilize ICTs and create an atmosphere that promotes student involvement and achievement. This research is important because it can help us better understand how school culture influences the utilization of ICTs, which could lead to improvements in educational practices.

1.4. Purpose of the Study

The purpose of the study is to explore the school culture and its influence on the utilization of ICTs by teachers at two Gauteng schools in South Africa.

1.5. Research Questions

1.5.1. Main research question

This study seeks to answer the following main research question:

How does school culture influence the utilization of ICTs in teaching and learning?

1.5.2. Sub-research questions

- a) What ICTs are available for teaching and learning programs at the two schools?
- b) What is the principal's role in the utilization of ICTs in schools?

How do teachers perceive the use of ICTs available at their school for teaching and learning?

1.6. Chapter outline

The chapter outline highlighted key aspects of the study on the influence of school culture on the utilization of ICTs by teachers at two Gauteng schools.

The first chapter introduced the research by providing background information on the relationship between school culture and ICT utilization in teaching. It then addressed the problem statement, underlining the challenges of limited ICT utilization due to cultural and institutional constraints. The chapter also discussed the study's objective, research questions, and the significance of knowing how school culture influences the utilization of ICTs in South African schools.

Chapter Two of the study focused on a literature review. It delved into existing studies on school culture and ICT utilization, examining global and South African perspectives. It reviewed the impact of ICTs on teaching and learning, cultural factors that either support or hinder the utilization of ICTs and the role of leadership in fostering an ICT-friendly school environment. The chapter also presented the conceptual framework that guided the study, emphasizing the interconnectedness of school culture, leadership, and ICT implementation.

Chapter Three focussed on the research methodology and how the study was conducted using a qualitative approach. The research design is a case study of two schools in Gauteng. Semi structured interviews and questionnaires were used as data collection methods with the teachers and principals who consented to participate in the study. Other ethical considerations, including confidentiality, informed consent, and data protection, were also discussed to ensure the study was conducted ethically.

Chapter Four focused on data analysis and presentation of findings. The analysis involved thematic coding of qualitative data from interviews and questionnaires conducted with the principals and teachers used in the study. The study examined how different school cultures influence ICT utilization, with findings categorized into themes such as availability of ICTs, leadership support, and teacher attitudes towards ICTs. It provided the findings and discussion, comparing the two case study schools and highlighting the differences in the utilization of ICTs, training opportunities, and leadership involvement. The key role of principals in increasing the utilization of ICTs is highlighted, including challenges such as infrastructure limitations and teacher reluctance to change. The chapter concluded by discussing how school culture promotes or hinders ICT utilization.

Chapter Five included conclusions and recommendations. The study concluded that creating a supportive school culture, offering ongoing professional development, and improving leadership commitment are critical for efficient ICT utilization. The chapter also addressed study limitations, such as the small sample size and context-specific findings. The chapter concluded by reinforcing the importance of school culture in shaping the successful adoption of ICTs in education.

1.7. Chapter conclusion

This chapter discussed the introduction, background, problem statement, purpose, research questions, rationale, and significance of the study, as well as the chapter outline.

CHAPTER TWO

LITERATURE REVIEW

2.1. Introduction

In this chapter, I discussed the existing literature related to the school culture and its influence on the utilization of ICTs in teaching and learning. It examined various global contexts to understand how different school cultures influence ICT utilization and how this might relate to South African school contexts. Specifically, I examined eight key areas: (1) school culture, (2) ICTs and their impact on teaching and learning, (3) cultural factors that can hinder the utilization of ICTs, (4) the influence of school culture on the utilization of ICTs in teaching and learning challenges in implementing ICTs, (5) the relationship between ICTs and school culture, (6) challenges in implementing ICTs, (7) importance of leadership on school culture, and (8) the conceptual framework that guided this study. These sections utilized literature from various contexts worldwide, highlighting the uniqueness of school cultures in different settings, including South Africa, to emphasize how context influences the utilization of ICTs.

2.2. School Culture

School culture is shared beliefs, traditions, and behaviours that give a school its unique identity (Demirhan, 2023). Several factors, such as leadership practices, teacher behaviour, and resource availability, influence it. The relationships between students and teachers form its cultural identity, the support for innovation, and the school's overall atmosphere (Torres, 2019). Tuytens et al. (2019) stated that school culture is the heart of the institution that pumps life into teaching, learning, and student engagement.

2.3. ICTs and their impact on teaching and learning.

2.3.1 What are Information and Communication Technologies (ICTs)?

Chapter One states that ICTs include various digital tools and communication systems, such as servers, routers, internet access, smart boards, software applications, and interactive whiteboards (Suleiman et al., 2020). While ICTs provide various tools that improve the teaching and learning process, their usefulness is ultimately determined by how they are utilized in teaching and learning. The utilization of ICTs in education has changed the way of teaching and learning, shifting it from traditional to more technology-based teaching (Jadhav et al., 2022). ICTs have an innovative impact on the teaching and learning environment.

2.3.2 Impact of ICTs on teaching and learning

Educational research has discussed the utilization of ICTs in education. The application of ICTs in learning can enhance learning, improve current teaching methodologies, help in the access of information and make the learning process more interactive, as pointed out by Zafar (2019). Awacorach et al. (2021) assert that ICTs can support shifting from teacher-centred teaching to more student-centred approaches, fostering active learning and collaboration. For example, in Finland, where education is highly valued, ICTs have been utilized successfully in schools to support independent learning and problem-solving, which aligns with the overall educational goals (Oyelere et al., 2019). According to Bruggeman et al. (2021), ICT utilization help students take the reins of their learning by promoting teamwork, critical thinking, and independent learning. The utilization of ICTs enables interactive and personalized learning processes, but their influence differs based on the context. Zhao et al. (2020) further highlighted how ICTs enable differentiated instruction by helping teachers meet diverse student needs with various digital tools.

According to Li et al. (2019), utilizing ICTs in education helps students develop technological literacy, digital communication skills, and problem-solving abilities within digital environments, preparing them for both academic and workplace settings. ICT utilization also prepares students for future challenges by equipping them with essential digital skills. ICTs promote collaborative learning, self-directed learning, and critical teaching for digital competencies (Yuldasheva, 2021). Nevertheless, the effectiveness of ICTs depends on the quality and availability of these resources and the availability of institutional support. In the present digital world, ICTs are vital in attaining the skills that students and teachers are expected to have in the 21st century (Yuldasheva, 2021). Well-designed ICT environments help the student-centred learning theory by offering multimedia content and facilitating online discussions and collaborative projects (Paje et al., 2021). Multimedia content, such as interactive simulations, digital textbooks, videos, caters to various learning styles, making the subject matter more engaging and accessible. These ICTs enable students to interact with materials in a variety of ways, promoting greater understanding (Verawati and Nisrina, 2025). ICTs encourage online discussions and collaborative projects, promoting peer-to-peer learning and allowing students to exchange ideas, ask questions, and collaborate on projects outside of the classroom (Verawati and Nisrina, 2025). According to (Eswaran, 2024), ICTs can also assist students explore new ideas by using creative applications such as developing presentations, generating videos, and participating in project-based learning, which promotes critical thinking. All of this serves to broaden their perspectives and enhance

their learning experience. These ICTs promote active, student-centred learning by allowing students to take charge of how they learn and engage with the subject matter, their classmates, and beyond in more meaningful ways. This change to student-centred learning helps the learners engage in the learning process, develop new ideas and even interact with their peers globally (Arkorful et al., 2021). Moreover, ICTs enable students to learn at their own pace through course material made available to them, thus increasing the level of autonomy in learning.

Besides increasing students' interest in learning, ICTs also enhance communication and collaboration between students, teachers, and parents (Sam and Alias, 2024). Teachers can enhance their teaching practices and tailor lessons to the specific needs of each student with the help of various ICTs while ensuring that there is inclusivity in the lesson. Furthermore, ICTs assist teachers in collaborating professionally, which helps them to update on the current teaching strategies (Arkorful et al., 2021). From the student's point of view, digital learning tools help to develop teamwork, independent work, and collaborative learning, which makes the learning process more interesting and compelling (Li et al., 2019).

Research has revealed that using ICT in learning environments improves students' engagement, offers better opportunities for students to access information, and encourages more active learning (Mahdum et al., 2019; Graham et al., 2020; Al-Mamary, 2022). Thus, through students' cognitive and social engagement, ICTs support the development of critical thinking, problem-solving, and collaboration skills (Mahdum et al., 2019).

2.4. Cultural factors that can hinder the utilization of ICTs

A survey of literature on the utilization of ICTs in teaching and learning shows that the extent to which ICTs can transform teaching depends on their utilization in the curriculum and the level of teacher support (Abedi, 2024). A study conducted in Germany by Eickelmann and Vennemann (2017) emphasized that even well-funded ICT initiatives may fail without a supportive school environment. The utilization of ICTs in teaching is also different in different countries. In better technological environments like Finland's, ICTs are more utilized in classrooms (Oyelere et al., 2019). However, in developing countries, there are problems with the lack of access to devices and unprepared teachers who cannot use them effectively (Hennessy et al., 2022). As such, the transformative potential of ICTs is mediated by factors such as teacher readiness, school culture, and resource availability.

One of them is the support and training teachers get. According to Jadhav et al. (2022), professional development is a more significant predictor of the effectiveness of the utilization of

ICT than the actual presence of ICTs in the schools. Those schools that focus on the improvement of the continuous training of the teachers, through the provision of workshops on ICT, enables the teachers to derive strategies on how to enhance teaching and learning through the use of ICT (Paje et al., 2021). In addition, the provision of technical support means that teachers are in a position to solve some of the challenges that are associated with the use of ICTs in teaching and learning, thus making it possible to use ICTs in teaching and learning. In addition, research highlights that the availability of ICTs alone is insufficient to improve learning outcomes. What matters most is how teachers utilize ICTs in their teaching practices (Mahdum et al., 2019; Graham et al., 2020; Al-Mamary, 2022). Therefore, professional development focusing on ICT knowledge and subject-specific applications is essential to maximize the benefits of technology in education (Paje et al., 2021).

2.5.The influence of school culture on the utilization of ICTs in teaching and learning

Research has shown that teachers in schools with a culture of experimentation and risk-taking are likely to utilize ICTs in their classrooms (Bandera et al., 2018; Meace et al., 2022). On the other hand, adverse or conservative school cultures may restrict the utilization of ICTs. For instance, teachers in such environments may not utilize new ICTs because of the fear of failure or lack of institutional support (Alabadi, 2019). For instance, in South Africa, many rural schools are characterized by traditional and hierarchical cultures that slow the adoption of ICTs. On the other hand, urban schools with better resources and progressive cultures embrace innovative practices, including using ICTs (Farris, 2021). This is a good example that shows how cultural differences affect the utilization of ICTs and why it is crucial to consider the local context.

School culture shapes the identity of a school and it plays a critical role in ensuring effective utilizing ICTs in teaching and learning (Lee & Louis, 2019). Schools that prioritize ICTs often provide resources and support to encourage their utilization, including teacher training and consistent access to ICTs (Lai et al., 2022). The shared beliefs, values, norms, and practices within a school influence teacher attitude toward innovation and professional development, which are essential for effective ICT utilization (Webber, 2021). Schools with a culture of openness to change are more likely to embrace ICTs, empowering teachers to experiment with new ICTs without fear of failure (Su, 2024).

Global research indicates that school culture is a significant driver of ICT adoption. Consider Singapore for example, where the government emphasizes on digital literacy has resulted in the

formation of a school culture that supports technology innovation and professional development (Foong et al., 2024). However, in some traditional school cultures in Eastern Europe, teachers may be hesitant to embrace ICTs due to a lack of training, resources, or leadership support (Modeva and Modev, 2020). These distinctions underscore the importance of understanding the context in which ICTs are used in schools.

Due to historical, socioeconomic, and geographic factors, school cultures in South Africa differ significantly (Wills and Hofmeyr, 2019). On the one hand, progressive cultures in metropolitan, well-resourced schools frequently encourage the utilization of ICTs in the classroom. In rural schools, however, they might not have the necessary resources and assistance to make effective utilization of ICTs (Motsoere, 2016). This distinction emphasizes the need of considering specific educational circumstances when investigating how culture influences the usage of ICT. Educators are more likely to utilize ICT effectively in the classroom in supportive school environments that foster innovation and professional growth (Ahmad et al., 2019). In such settings, both teachers and students see ICTs as learning tools.

According to Tondeur et al. (2016), schools with positive ICT cultures frequently offer a variety of support networks, such as continuing professional development and technical help. By giving teachers the tools, they need to effectively utilize ICTs efficiently, this support helps students develop their digital competencies and ICT abilities (Li et al., 2019). However, by restricting chances for ICT utilization, unfavourable or unsupportive school cultures can hinder students' progress (Verma, 2021). Schools must give clear instructions for ICT utilization, sufficient resources, and support for teachers' creative thinking to foster efficient ICT utilization (Sun & Gao, 2019).

School culture frequently influences the availability of ICT utilization. Schools with a strong ICT focus may have dedicated ICT labs equipped with interactive whiteboards, computers, and software (Jadhav et al., 2022). They may also provide online tools to support research and learning activities. Furthermore, professional development opportunities allow teachers to improve their ICT abilities and keep up with developing technology (Suleiman et al., 2020). Cultivating an ICT-embracing culture necessitates the availability of technical tools and communities of practice where teachers can cooperate and exchange ideas on how to utilize ICTs efficiently.

Supportive school leadership is important to develop a culture of risk-taking and the desire to constantly improve the utilization of ICT (Bozkurt et al., 2021). Leadership is key in creating a culture where teachers are willing to try out new ICTs and engage in experimental practices in the classroom (Lee & Louis, 2019). However, in schools where ICTs are considered as distractions or innovation is discouraged, teachers may lack motivation to utilize them in their teaching (Bariu, 2020). A lack of resources, supervision, or professional development impedes successful ICT utilization.

Schools with weak ICT cultures frequently fail to give the necessary support for utilizing ICTs (Verma, 2021). Teachers in such environments may confront obstacles such as limited access to ICTs or unclear policies about their utilization. The degree of assistance provided by a school has a significant impact on the effectiveness of ICT utilization. Thus, schools must establish a good culture that encourages continual learning and collaboration (Bozkurt et al., 2021). Schools should also link ICT projects with their own culture to enable effective utilization and maximize the benefits of ICTs for teaching and learning.

Webber (2021) points out that culture is the primary driver of educational success and failure. Those schools that know why they exist and what they stand for have a better chance of achieving their goals and creating a strong identity. Carey (2015) states that a school's culture is the experiences, ideals and bonds of a given school community, thus creating the 'core' that ties people to the organization's vision. It sets the context for understanding behaviour patterns and building good working relationships within the organization.

2.6. The relationship between ICT utilization and school culture

The relationship between ICTs and school culture is both dynamic and reciprocal. Well-designed and sufficiently resourced schools are better able to support effective teaching and learning, resulting in a more positive school culture (Li et al., 2022). Schools prioritizing ICTs such as computers, internet access, interactive whiteboards, and educational software are often called ICT well-resourced schools (Bariu, 2020). These schools emphasize the utilization of ICTs in teaching by equipping teachers and students with necessary resources and support, including professional development and technological updates (Suleiman et al., 2020).

The utilization of ICTs is also likely to change the ways of teaching and learning and to create a new culture of teaching and learning in schools that have them. However, the use of ICTs is greatly influenced by school culture. Collaboration, innovation, and leadership cultures improve the efficient utilization of ICTs by encouraging teachers to try novel teaching practices and

offering ongoing professional development (Blau and Shamir-Inbal, 2017). Rigid or hierarchical school cultures, where decisions are made from the top down, are more likely to oppose technological advancements. According to Wei (2017), in Malaysian schools with a hierarchical structure, instructors felt less empowered to try out new technologies, reducing the impact of ICT projects.

In South Africa, leadership, resources and community involvement influence the relationship between school culture and ICTs. Schools that practice shared leadership and collaboration are more effective in utilizing ICTs to enhance learning, as stated by Blau et al. (2020). However, schools characterized by isolation or limited teacher collaboration tend to experience fragmented and inconsistent ICT utilization (Blau et al. (2020).

The utilization of ICTs in the classroom can improve collaboration, communication and creativity, but the failure to utilize them can result in inequality in education systems (Arkorful et al., 2021). When access to ICTs is limited, students may not have access to the necessary learning resources and tools, which could result in poor learning outcomes (Arkorful et al., 2021). This can impact student engagement and teachers' professional development since teachers may not be able to develop their ICT skills and offer various learning experiences to the students (Verma, 2021). A positive school culture that embraces ICTs and teachers will enhance students' motivation, engagement and achievement (Jadhav et al., 2022).

A supportive school culture ensures that ICTs are effectively used in the classroom, enabling tailored learning opportunities and encouraging student collaboration (Paje et al., 2021). Schools that stress continuous professional development and innovation assist teachers gain confidence in their use of ICTs. This makes teachers and students to appreciate the role of ICTs in the learning process (Lai et al., 2022). An enabling culture jointly with the use of ICT can enhance children's learning, digital competence and optimism (Ajani & Govender, 2023).

The relationship between school culture and ICTs is also context dependent. ICT utilization is more effective in countries like Finland, where the school culture supports autonomy, trust, and collaboration. Finnish teachers are confident of implementing the ICT initiatives and a collaborative culture helps in the sharing of ideas on the same (Jari, 2014). Conversely, schools with hierarchical cultures or those resistant to change, particularly in parts of Asia and Africa, encounter challenges in implementing ICT initiatives (Khan et al., 2021). As for South Africa, the better resourced and more progressive culture schools are more likely to utilize ICTs than the

rural schools where traditional teaching methods are still dominant and resource limitations are still present (Kukano, Mafora 2020).

According to research, school culture significantly impacts the success of ICT utilization. While cultures encouraging innovation and professional growth are conducive to efficient ICT utilization, schools that reject change have major hurdles when utilizing ICTs (Khan et al., 2021). Context is a key component of ICT utilization in countries such as South Africa, where there is a visible diversity of school cultures. Some city-based schools can excel at ICT utilization, while rural schools, with limited resources and conservative approaches, find it challenging to achieve the same results.

2.7. Challenges in implementing ICTs.

Implementing ICTs in schools while keeping up a positive school culture has several challenges. The biggest challenge is the financial limit. Teacher training, internet connectivity and ICT maintenance are all paid for by schools (Kibuku et al., 2020). However, sometimes, the technology software and connectivity costs are so high that schools cannot afford the right ICTs to implement adequate ICTs (AlSadrani et al., 2020). This can lead to students and teachers being unable to utilize the latest ICTs due to outdated or inadequate ICTs, which lowers the quality of teaching. In addition, limited funding may hinder schools from providing appropriate professional learning as deficiencies in teachers' knowledge and skills may impact the overall quality of education (AlSadrani et al., 2020). Hence, financial issues can hinder creative and integrative learning experiences and thus reduce the expected values of using ICT in education.

Teachers' attitudes toward ICTs also play an important role in their implementation. Positive attitudes improve the chance of utilization of ICTs because teachers are more willing to try new technologies and teaching practices (Spiteri & Chang Rundgren, 2020). Educators that are open to change are more likely to establish engaging learning settings that support innovation (Graham et al. 2020). However, some teachers may be hesitant to utilize ICTs because of unfavourable attitudes or uneasiness with new technologies (Verma, 2021). This resistance can be a significant problem, particularly in contexts where there is no professional development from a professional point of view (Nesterenko et al., 2024). If there is insufficient training then educators may be unqualified and lack the confidence necessary to use the ICTs correctly. Therefore, training programs should not only focus on technical skills but also build positive teacher attitudes and promote openness to technological change.

Another significant issue is the absence of leadership support. Strong leadership is necessary to provide human and digital resources such as professional development, ICTs, and technical assistance to be effective in the utilization of ICTs (Kibuku et al., 2020). Without proper leadership support from schools, teachers may be unable to use ICTs properly in their classrooms. This is because educators need continuous professional development to make them feel confident and well-equipped; however, limited access to these opportunities only compounds the problem of the underutilization of ICT (Spiteri & Chang Rundgren, 2020). Furthermore, poor or inadequate ICTs may limit teachers' and students' opportunities to engage fully with technology, thus jeopardizing attempts to improve learning (Verma, 2021).

The challenges of using ICTs are often deeply connected with the culture of the school. Teacher resistance to change is one of the most common cultural obstacles, especially in schools that are not characterized by a culture of continuous learning or innovation (Nesterenko et al., 2024). Researchers have established that teachers in schools with traditional or rigid cultures perceive ICTs as extra workload instead of as a means of enhancing teaching (Nesterenko et al., 2024). By contrast, schools with professional development leading collaborative cultures implement ICTs effectively.

In South Africa, the utilization of ICT is further complicated by infrastructural constraints, resource limitations and the absence of proper leadership support (Modise, 2022). Many schools, especially in rural areas, cannot offer professional development or even get the necessary technology to support the use of ICT. This contrasts countries such as Australia and Canada, where schools are exposed to good professional development programs and leadership support to enable them to use ICT easily (Katz & Earl, 2022). Hence, the challenges of ICT are both technical and cultural; thus, schools with good collaborative and supportive leadership are in a better position to address these challenges and use technology effectively.

Leadership is essential in developing a culture that encourages the uptake of ICTs. Strong school leaders are in a position to provide clear direction, motivate teachers and ensure that the ICT initiatives are in harmony with the overall educational goals (Zhao, Wan, Sun, & Lu, 2020). Visionary leaders are schools that are likely to spend money on professional development and innovation, resulting in better and more appropriate use of ICTs. By contrast, schools with weak or fragmented leadership may be unable to use ICTs to their full potential due to uncertainty about what to do and how to do it. Leaders who embrace the culture of learning and innovation can

generate a context that encourages the uptake of new technologies so that teachers and students can benefit fully from utilizing ICTs (Keane, O'Donnell and McGee, 2020).

2.8. Importance of leadership on school culture

Leadership is important in the development of the teaching and learning environment in schools. In this context, school leadership includes the principal, the school management team, the deputy principals, and the heads of departments. As pointed out by Liu et al. (2021), leadership is the tone, expectations, and behaviours that are displayed, which helps to determine how both teachers and students participate in the process and, in effect, the direction of the school. Strong leadership is a critical factor in creating robust school cultures based on collaboration, innovation, and continuous development (Torres, 2019). Effective school leaders should model open communication, respect, and teamwork to generate a positive culture of professional growth for teachers and student learning experiences (Lee & Louis, 2019). These attributes also help the uptake of ICTs because leadership induces the context that encourages the utilization of ICTs and the adoption of new teaching strategies (Gacicio et al., 2021).

School leaders must first set goals and expectations for using ICTs in the classroom. The result is that educators are provided with opportunities for continued professional development in using ICTs to ensure they are competent in utilizing ICTs to teach (Lai et al., 2022). Leadership entails providing financial support to buy the needed ICTs and regular educator maintenance (Sun & Gao, 2019). Due to insufficient funds, teaching and learning may suffer if schools cannot maintain and improve their ICT infrastructure. Therefore, leaders educate teachers for a prosperous future with technological transformations by emphasizing professional growth (Verma, 2021). This increases the possibility that teachers will utilize ICTs in their lesson plans and their sense of self efficacy.

Leadership also brings teachers together to collaborate, exchange ideas, and discuss the best ways of utilizing ICTs in teaching and learning, as stated by Gacicio et al. (2021). They can help develop a learning culture where risk is encouraged and taught, making teachers want to try new ICTs and teaching tactics. The purpose of this collaborative environment is to guarantee that students can benefit from ICTs and that teachers may utilize them consistently. According to Håkansson Lindqvist (2019), leaders who focus on technology and offer ongoing professional learning are likelier to see effective ICT use in their schools. Similarly, (Omar and Ismail, 2021) highlight that when school leaders actively promote ICT utilization, teachers feel more confident and motivated to incorporate these ICTs into their pedagogy.

In Håkansson Lindqvist (2019), leadership is highlighted as playing a crucial role in developing a vision that integrates ICTs into the core of the school's mission for student success. In schools where leadership is distant or even hostile to change, it can be challenging to cultivate a culture of ICT maturity. Good leadership ensures that the use of ICT is consistent with general educational objectives, thus providing a reasonable basis for the use of ICT.

In South Africa, the role of leadership in shaping school culture is particularly significant because of the country's diverse educational contexts. Leaders of urban schools with more significant resources are better positioned to innovate on the ICT front, whereas those in rural or deprived schools have more hurdles to cross (Mkhize and Davids, 2021). Literature indicates that leadership can help overcome some challenges by creating a positive, innovative school culture, regardless of the school's socioeconomic status (Leithwood, 2021). Those leaders who actively support their teachers and encourage them to utilize ICTs in their teaching make for an environment in which technology is an integral part of the teaching and learning process.

Effective leadership is supposed to direct the utilization of resources towards implementing ICTs and promote sharing and learning from other teachers. Dexter and Richardson (2020) pointed out that practical principles in the utilization of ICTs set a vision for the use of technology and promote the culture of trial and error to create a principle of innovation and learning. In schools where the leadership is good, they are likely to emphasize the in-service training of teachers on the utilization of ICTs and the funding of the physical infrastructure that supports the use of technology to develop a cultural disposition that appreciates the utilization of ICTs (Leithwood, 2021).

As Modise's (2022) research in South Africa shows, leadership plays an important role in integrating ICTs into the curriculum. Schools with good, enabling leadership are more likely to have teachers using ICTs in their teaching. On the flip side, in schools where leadership is weak, the ICT initiatives fail to take off due to lack of direction and poor support.

International comparisons also highlight the critical role of leadership in ICTs' utilization. For example, in Canada, principals and administrators often lead by example, promoting a culture of collaboration and professional learning, which facilitates successful ICT utilization (Li et al., 2019). In contrast, in schools where leaders do not prioritize technology or fail to provide adequate resources, teachers may resist adopting new ICTs. Strong leadership provides the necessary resources and creates a positive school culture that motivates teachers to explore new ways of teaching and learning through ICTs.

2.9. Conceptual framework

Tearle's (2004) conceptual framework is a suitable framework to describe how school culture influences the utilization of ICTs because it provides an exhaustive and systematic approach to comprehending and implementing change in teaching and learning. The framework takes into account a number of factors critical to the effective utilization of ICTs in the classroom, including teacher beliefs, leadership, and culture. Furthermore, the framework provides necessary strategies and tools for implementing change that may be tailored to the specific potential and challenges of different school cultures. The framework provides a conceptual and valuable foundation for comprehending and addressing how school culture affects the use of ICTs in instruction.

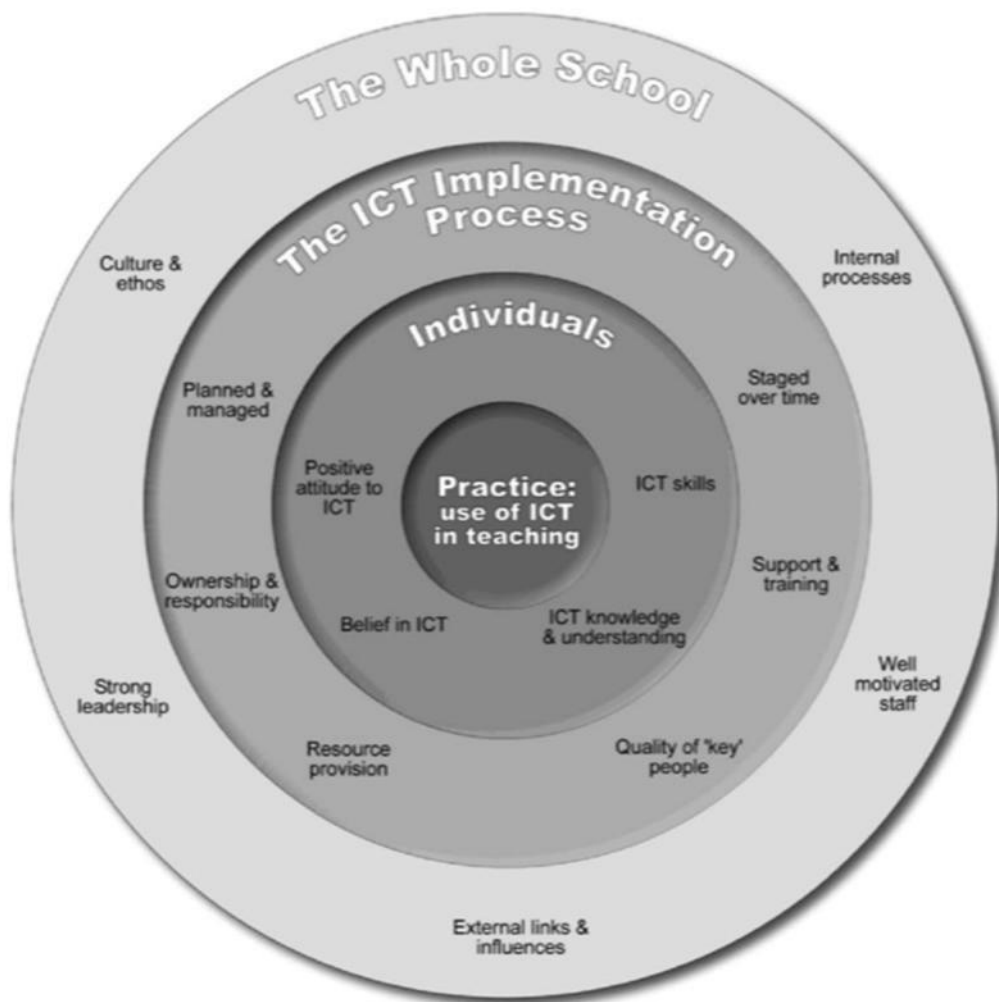


Figure 1. Model of influences on ICT implementation in the case study school (Tearle, 2004).

The framework presented by Tearle (2004) for explaining the influences on ICT implementation in the case study school is a valuable tool in understanding the process through which the various aspects of a school contribute to the effective use of ICTs in teaching. The model is based on four main interconnected aspects: the whole school, the implementation of ICT, individuals, and the

practice of ICT in teaching. These aspects are all interlinked and interdependent and can, therefore, combine to create a single system rather than four separate entities. Each of the elements impacts the overall school climate and how the school utilizes the ICTs in learning and teaching (Yu et al., 2023). However, the framework can be adapted and developed to fit the research topic more closely. This explanation will discuss the four aspects as mutually inclusive, along with the changes that can be made to the model to fit better into the study. Furthermore, the reasons for eliminating some of the elements will also be outlined.

1. The Whole School

The whole school model represents the general organizational structure within which the implementation of ICTs is embedded, comprising several essential elements that determine the optimal technology usage in education. This model has several important elements, one of which is school culture and ethos, which includes the shared beliefs, values and practices that either facilitate or obstruct the utilization of ICT in teaching. A school with such a culture would emphasize innovation, learning and accepting new technologies, thus being more receptive to using ICTs. This is because a favourable environment enhances the willingness of teachers to incorporate new technologies into their teaching (Tondeur et al., 2016).

This is because strong leadership is a key driver in the decision to utilize ICTs or not. Principal leaders who support technology utilize, provide for it and have a clear plan are likely to foster a positive climate in which teachers want to incorporate ICTs into their teaching. These leaders further ensure that teachers need support and guidance to utilize ICTs effectively within the learning environment. Therefore, leadership is a key determinant of a school's culture that fosters technological development (Tondeur et al., 2016).

Internal procedures and external links also affect the utilization of ICT. Decision-making in schools and the external environment, including technology suppliers or educational authorities, can facilitate or hinder the utilization of ICT. Those schools with more transparent and supportive internal processes and better external links are better positioned to utilize the available technological resources well. These processes ensure that the utilization of ICTs is in line with the broader educational objectives of the school, thus ensuring that technology is utilized effectively in teaching and learning. Therefore, school culture is seen as a fundamental factor in the research as it affects leadership and motivation and how technology is utilized in the classroom.

To further specify the research object, "well-motivated staff" was replaced by "motivation of teachers". This adjustment ensured that the research stayed within the scope of how school culture impacts teachers' willingness to employ ICTs in teaching and learning. In consequence, the study examines the way school culture encourages teacher motivation, thus making it more applicable to the area of ICT utilization. The study examines whether elements of the school environment, leadership, and resources lead teachers to incorporate ICTs well into their teaching. This specific focus helps to improve the study's coherence and ensures that the conclusions are relevant to the main research question of how school culture influences the utilization of ICTs by teachers.

2. ICT Implementation Process

It is important to ensure that ICTs are utilized effectively in the classroom, which is one part of it. It involves factors like ownership and accountability, availability of resources, help and training, quality of key persons and procedural planning and control. Therefore, teachers and school administrators have to take responsibility for using ICTs strategically. Because of the lack of accountability, the utilization of ICT is limited or haphazard. To promote the utilization of ICT in the classroom, schools have to guarantee enough computers, projectors and high-speed internet connection (Sang et al., 2011).

To incorporate successfully the utilization of ICT in any organization, training and support are necessary. This paper also highlights the need for in-service training to enhance teachers' technical competence in the utilization of ICT. Technical and pedagogical support is important to ensure teachers are well-prepared to include ICT in their teaching (Blau & Shamir-Inbal, 2017). The quality of key people, such as ICT coordinators and school leaders, is also important in the success of the ICT initiatives. These individuals shape the organization's attitude towards technology and determine how the teacher's incorporate ICT into their teaching (Aljaber, 2021).

A deliberate strategy is needed for the formal and intentional adoption of ICT. This means that schools should have an ICT strategy consistent with learning objectives. Thus, utilizing ICTs is appropriate and meaningful and contributes to achieving learning objectives.

The study's focus on the process of implementing ICT made it necessary to alter the "Staged over time" aspect of the model. As the study focuses on the present school culture and its direct connection with the utilization of ICT, the long-term evolution of ICT utilization was considered less important. The focus is on the present environment, resources, and processes that determine

the utilization of ICT, which is more in harmony with the study's focus on the present culture of schools and its effects.

3. Individuals

The third component of the model are the individuals who are involved in implementing ICT, more specifically, teachers. The effectiveness of ICT utilization depends on the teachers' properties, such as their ICT skills, perception towards ICT, knowledge and understanding of ICT, and belief in the efficacy of ICT. Teachers must be competent in ICT to utilize ICTs efficiently in their classes. Without such skills, even the best technology will be underutilized (Howard et al., 2020).

This is where belief in the attitudinal perception towards using ICTs comes in. Teachers who appreciate the advantages of technology are likely to embrace and utilize the tools in their teaching. This is because the knowledge and understanding of the ICTs that the teachers have determined how well they can include the tools in their pedagogical practice. Teachers also require a higher order of knowledge on how to apply technology in teaching and learning, not just for the technical work but also to improve the teaching processes.

Finally, teachers have to believe that the ICTs are helpful. If teachers do not think technology can improve teaching and learning, their utilization of ICT will likely be limited or superficial. The implication is that a positive school culture can help change teachers' perceptions of utilizing ICTs in teaching and learning. In this case, the role of school culture in determining teachers' motivations, attitudes and beliefs towards using ICT in teaching and learning is essential for integrating technology in learning and teaching.

4. Practice of ICT in Teaching:

Using ICT in teaching is the last chapter of implementing ICT in schools because it shows how technology is utilized in teaching. The culture of a school, the execution of the strategy, and the knowledge, skills, and attitudes of teachers are all factors that determine the extent to which they utilize ICTs in teaching. This is the most important aspect, as the other factors will be irrelevant if the student is not using the ICT in the classroom. This is in line with the purpose of the study, which is to examine the effect of school culture on the implementation of ICTs in teaching. One of the areas of interest is how the school's culture affects the utilization of ICT in teaching and learning because it provides the connection between the general atmosphere, the execution of the strategies, and the individual preparation for practical implementation in teaching.

The utilization of ICT in teaching comprises several critical elements. First, teachers utilize it to develop lesson plans and integrate internet resources, interactive exercises, and PowerPoint presentations into the teaching process. Third, students are more engaged because ICTs make it easy to develop fun and productive classes that can be developed for every student with different learning styles to participate fully in the learning process. This is done through collaborative learning, active engagement with the topic and the provision of learning resources specific to the learner's learning needs. ICTs enhance effective learning.

In this framework, the application of ICT in teaching is not an isolated practice but a product of the combined effect of the whole school environment, the ICT implementation process, and the teacher's characteristics. It shows how all these factors affect the utilization of ICT in teaching.

If a school has a positive culture of innovation and learning, teachers will likely want to utilize technology in their classes. Furthermore, a properly planned and organized ICT implementation process helps teachers access the necessary technology and learning and assists them in applying ICT effectively. However, teachers' perceptions, skills, and disposition on ICT play a significant role in whether or not they integrate technology into their teaching. The reciprocal relationship of the aspects in this framework shows that the four elements are not separate but are related. The whole school culture affects both the way ICT is implemented and the ways of thinking and competence of each teacher. First, how the teachers employ the ICTs and the effectiveness of the ICT implementation process vary with the actual practice of ICT in teaching. For instance, a successful ICT implementation process can be attributed to strong leadership and a good leadership culture that embraces resource allocation and training as key aspects (Blau and ShamirInbal, 2017).

In the same way, teachers who are encouraged and empowered by their schools' culture are likely to have positive perceptions towards ICTs, engage in professional activities, and incorporate technology into their classrooms. Therefore, the quality of the ICT implementation and the attitude of individuals are critical in the extent and effectiveness of using ICT in teaching. This is in line with the research interest because it looks at the dynamics of school culture in relationship to these dynamics as the school culture influences the institutional approach to the implementation of ICT and the motivation of the teachers to include technology in teaching. This model is suitable for the research title because it correctly depicts the relationship between the whole school environment, the ICT implementation process, the individual teacher, and the utilization of ICT in teaching. The study bears the title "Exploring the school culture and its

influence on the utilization of ICTs by teachers: A case of two Gauteng schools” to establish how school culture encourages or hinders the utilization of ICTs. The study also excludes factors like “well-motivated staff” and “staged over time” to focus more on the direct and cultural influences on teachers’ ICT utilization. This enables a more specific analysis of how school culture affects the take-up of ICTs, with particular reference to the role of leadership, resources, and teacher perspectives and abilities in shaping the utilization of technologies into teaching and learning.

2.10. Chapter summary

In conclusion, this chapter has discussed school culture, ICTs and their impact on teaching and learning, cultural factors that can hinder the utilization of ICTs, the influence of school culture on the utilization of ICTs in teaching and learning challenges in implementing ICTs, the relationship between ICTs and school culture, challenges in implementing ICTs, the importance of leadership on school culture, and the conceptual framework that guided this study.

CHAPTER THREE

METHODOLOGY

This chapter offered a systematic review of the methods employed in collecting, sorting and analysing the qualitative data discussed in this chapter in detail. Questionnaires and semi structured interviews were used to collect qualitative data (Cohen et al., 2018). Furthermore, ethical considerations are the core of this methodological framework. Efforts have been made to ensure that ethical standards are adhered to throughout the research process so that participants' rights and confidentiality are protected. Furthermore, the chapter provided the discussion on trustworthiness and confirmability which emphasized the strict procedures taken to ensure the credibility and the accuracy of the findings.

3.1. Research design— Case study

A research design is a process of identifying how data will be gathered, how it will be analysed and how it will be interpreted in order to answer the research question (Rezigalla, 2020). In turn, the research design defines the overall study plan, which includes the methodology, data collection methods, the analytical instrument used to develop a complex analysis of the topic under investigation, and the plan for presenting the study findings.

The research design for this study was a case study. A case study is a detailed examination of one or a few particular cases or situations (Cohen et al., 2018). Cohen et al. (2018) differentiate three types of case studies: intrinsic, instrumental, and collective. In this case, the study explored how school culture affects teachers' use of ICT in their classes. The focus was on the teachers themselves and how their schools' culture affects how they use ICT in teaching. For this case, the study selected two schools in Gauteng and analysed the part that school culture plays in determining how teachers use ICT in their teaching. The core of the research was to find out how the school culture enables or limits teachers' use of ICTs. An instrumental case study was appropriate for this study since it allowed for a close examination of one school, thus offering a complete perspective on the school's culture and how it affects the use of technology in learning. This kind allows us to use the two schools as case studies to obtain a deeper understanding of the role of school culture in ICT utilization, rather than focusing exclusively on the schools' uniqueness. In this case, I collected extensive data on the school's culture regarding the use of ICTs in the school setting and the possible determinants of the use of ICTs. This approach also enabled the investigation of real-life experiences and interactions, which provided rich qualitative data that could help reveal the issue's complexity. Also, the case study design helped the researcher capture each school's specificities and context about culture and the use of ICTs in teaching and learning.

3.2. Research approach— Qualitative approach.

This study was conducted using a qualitative research method. Quantitative research collects and analyses numerical data (Islam and Aldaihani, 2022). In the book, Cresswell and Poth (2016) identified three leading research approaches: qualitative, quantitative, and mixed methods. Each way of collecting and analysing data depends on research questions and objectives. For this study, a qualitative approach was suitable since it enabled us to investigate the school culture and how it affects the use of ICT in teaching. As a qualitative study, it was able to fully capture the intricacies, complexity, and dynamics of the participants' experiences in relation to the relationship between school culture and the use of ICT in the classroom.

3.3. Population and Sampling of participants

The suitable population for the study were the principals and educators within schools. Sampling is selecting a certain number of people or things from a population (Islam and Aldaihani, 2022). For this study, a purposive sampling of participants was employed: one principal from each of the two government schools, one of which is a school of specialization with ICT infrastructure,

the other not a school of specialization but with ICTs. However, there are ten teachers from each school as well. Purposive sampling has features explicitly chosen for the study (Andrade, 2021). I used purposive sampling to guarantee that the participants were chosen to represent particular groups or factors important in the study, such as teaching experience or knowledge of ICT. This guaranteed that the sample is representative of the teacher population of each school (Brosnan, 2013). Nine teachers per school were sampled to obtain sufficient data and avoid overstretching the resources. It enabled a more detailed examination without overburdening the researcher with many participants. A small sample size made data collection, analysis, and interpretation more straightforward. It enabled one to focus on the participants' responses in detail and fully understand their viewpoints. As this is a qualitative study utilizing a case study approach, the findings cannot be generalized to a larger population. However the two cases were intended to, offer valuable insights into the possible impact of school culture in ICT utilization in school settings. The goal was to provide a more in-depth knowledge of the various factors that can be at work within these schools rather than drawing generalizations about all schools. Given the time and financial constraints and difficulties in accessing certain groups, a smaller sample size may be more feasible within the research context. This sampling was convenient because it was easy to access these schools.

Table 1: Participant Profile for Interviews

School Pseudonym	Gender	Age	Years of Teaching Experience	Subject they are teaching	Qualification	Position Held	Type of School
School A	Male	48	24	Life sciences and Natural sciences	Diploma in Education B. Ed honours	Principal	School of specialization (SOS) Public school
School B	Male	53	30	Geography	Diploma in Education, B. Ed honours	Principal	Regular school Public school

This table shows the profile for the two principals, who consented to be part of the study by conducting the interview.

In South Africa, a School of Specialization (SOS) is different from a normal public school in that it has a particular area of interest, which includes Engineering, Arts and Culture, Maths and Science, ICT, or Commerce and Entrepreneurship. These schools are meant to provide specialized training and help learners to prepare for a particular career path while in the national curriculum. They are likely to have more sophisticated facilities, industry links, and specific courses to help with learning from practice. On the other hand, a normal public school offers a more generic education across many subjects, and not only for specific academic and career directions.

Table 2: Participant Profile for Questionnaires for teachers at school A

Teacher (Pseudonym)	Gender	Age	Years of Teaching Experience	Subjects taught	Qualification
Tsakani	Female	30	5	Physical sciences and Technical Sciences	B. Ed
Tammy	Female	51	15	Life Orientation	Diploma in Education
Sbonga	Male	32	9	Life sciences and Natural sciences	B. Ed
Harry	Male	26	4	Physical Sciences and Technical Sciences	B. Ed, B. Ed Honours
Buhle	Female	31	8	Fitting and Turning	Mechanical Engineering
Craig	Female	25	3	EGD	B. Ed
Lesedi	Female	26	4	Plumbing and Technical Mathematics	B. Ed
Kim	Male	31	2	CAT and Electrical Technology	B. Ed
Blessing	Male	33	4	Sesotho and Agricultural Technology	BSc in Agriculture and PGCE

This table shows the nine teachers from School A, who consented to be part of the study by completing the questionnaires.

At first, I wanted to involve ten teachers from each school and two principals, but I could only find nine teachers from each school. It was during examinations, so most teachers were marking examination papers. Hence, my research has been conducted with eighteen teachers from both schools who were readily available to participate in my research.

Table 3 Participant Profile for Questionnaires for teachers at school B

Teacher (Pseudonym)	Gender	Age	Years of Teaching Experience	Subjects taught	Qualification
Thabiso	Male	32	7	Physical sciences	B. Ed, LLB
Keano	Male	52	25	English	B. Ed, Honours in Education
Millilani	Male	56	33	Geography	Diploma in Education, B. Ed Honours
Tumi	Female	24	3	Isizulu	B. Ed
Zano	Female	37	12	Mathematics	B. Ed
Femmy	Male	36	4	Physical sciences	BSc, PGCE
Keamogetswe	Male	32	10	Accounting	B. Ed
Kelvin	Male	27	6	Agriculture	B. Ed
Reaboka	Female	26	3	Life orientation	BA, PGCE

This table shows the nine teachers from School B, who consented to be part of the study by completing the questionnaires.

3.4. Data collection

The data collection methods for this study on the utilization of ICTs in teaching and learning as well as the influence of school culture on them, included semi-structured interviews with principals and teacher questionnaires. Interviews with principals offered important information regarding the general climate of the school and the specific strategies and mechanisms concerning the integration of ICT in teaching and learning processes. These interviews offered a wealth of information regarding the school's vision concerning the use of ICT, the amount of support and resources available and any existing challenges or barriers. In order to collect data on the actual use of ICTs in the classroom, I employed questionnaires for teachers. Using the questionnaires, teachers gave information on their confidence and aptness with the ICTs and their perception of utilizing ICTs in their teaching.

3.5. Data collection instruments

This study utilized semi-structured interviews and questionnaires as data collection methods. This approach gave a thorough grasp of how school culture influences the utilization of ICTs in the classroom. While focus group interviews could have been a more efficient way to condense data and capture teachers' collective insights on ICT utilization, individual teacher questionnaires were chosen to allow for greater breadth of responses. This method ensured that each teacher's perspective was gathered without overwhelming the data collection process. However, focus group interviews could be considered in future research to foster richer discussions on shared teacher experiences. The questionnaire approach allowed the researcher to manage the volume of responses from teachers while still collecting valuable data. The principals' interviews provided further depth to the conclusions, complementing teacher data.

3.5.1. Semi-structured interviews (see Appendix 4 on page 146)

Semi-structured interviews are a qualitative research method where the interviewer has predetermined questions or topics to cover. However, the conversation is flexible and allows for probing clarification and exploration of emergent themes (Islam and Aldaihani, 2022). In semi structured interviews, the interviewer has a general outline or framework to guide the discussion. However, there is room for participants to express their views in their own words, providing rich, detailed insights into their experiences, perspectives, and attitudes. As explained by Harrell and Bradley (2009), semi-structured interviews provide a way of conducting an interview with a certain degree of structure while still allowing for a high level of participant interaction. This flexibility is useful when studying complex topics like school culture and the use of ICTs because it allows participants to expand on their answers and give examples of what they mean in their own words. Semi-structured interviews helped the researcher identify the factors that shape the use of ICTs within the context of school culture (Deyalage, 2024). Some examples of follow-up questions and probes include: To help elaborate on responses and provide further context. Semi structured interviews produce a wealth of qualitative data that reflects the perspectives, views, and experiences of the participants and the themes that emerge from the interviewees' responses (Islam and Aldaihani, 2022). It produced the following findings that offered an in-depth understanding of the interaction between school culture and the use of ICTs.

Conducting interviews with school principals offered invaluable insights into the influence of school culture on ICT utilization, providing a holistic perspective that complements the data gathered from teachers' questionnaires. Implementing several strategies to ensure the effectiveness and efficiency of these interviews significantly benefitted the researcher in various

ways. First of all, the length of the interview was limited to twenty minutes to avoid endless discussions and ensure that only the most relevant and in-depth information was collected within a certain time frame. This approach acknowledged the time of the busy principals and made data collection and analysis more efficient. Also, the interviews were held after school to avoid interruptions to the learning and teaching process, which shows that the researcher understood the operating requirements of the school. The researcher ensured that the principals were not bothered by the day-to-day activities of the school when they wanted to get their views on a specific topic. Also, proactive communication and advance scheduling is very useful in obtaining cooperation and participation from the principals. As a result, all the information provided by the interviewees was captured correctly since the interviews were recorded and transcribed. (see Appendices 1 and 2 on page 54).

3.5.2. Questionnaires (see Appendix 3 on page 145)

Questionnaires are one of the most commonly used data collection tools in research, which are based on a set of structured questions to collect data from respondents (Cohen et al., 2018). They are usually in written format and can be in the form of a paper-based questionnaire or an online survey and can be in the form of closed or open-ended questions. Surveys were appropriate for studying the effect of school culture on the use of ICTs in learning and teaching because it uses standardized questions to ensure that every participant is asked the same set of questions and, therefore, enables comparison of the results (Deyalage, 2024). This ensured that data was collected in a similar manner, thus allowing for easy comparison of the results between different participants and schools. Surveys can be conducted to several people at the same time, which makes it a convenient way of data collection especially when handling a large number of participants or several groups of participants. This was particularly used in the context of understanding the impact of school culture on the use of ICT, as it allowed the researchers to determine the extent of the uptake of certain beliefs, behaviours or perspectives. As for other data collection methods, for example, observations, questionnaires can be fairly cheap to implement, especially if they are sent out electronically. Questionnaires are useful in identifying teachers' perceptions, attitudes and behaviours towards the use of ICTs in teaching and learning within the context of the school culture. It enabled the researcher to collect data systematically on different aspects of school culture and the impact of the use of ICTs, thus providing a conceptual framework for examining these associations. The questionnaires were developed in a manner that

was suitable for the purpose of the study and would enable the collection of data that was relevant to the objectives of the study.

A Google form was used to survey teachers from both schools to obtain a wealth of information on the school culture and the extent of the integration of ICTs in teaching and learning. First, using digital platform like Google Forms help in increasing the efficiency of data collection because surveys can easily be distributed to large number of participants. This approach allows for the collection of data from a number of teachers in various schools thus increasing the richness of the data collected in the study. To this end, the time limit of ten minutes for surveys was adopted to ensure that data collection process is not only effective but also brief. This respected the participants' time and minimizes potential fatigue or disengagement, thereby optimizing the quality of responses obtained. Additionally, adhering to a predefined time limit fostered consistency in data collection across participants, reducing variability in response quality and ensuring uniformity in the research process.

Both the semi-structured interviews were conducted to address the following questions:

1. What ICTs are available for teaching and learning programs?
2. What is the principal's role in the utilization of ICTs in schools?
3. How do teachers perceive the use of ICTs available at their school for teaching and learning?

3.6. Data organization and Analysis:

According to Briney (2015), data organization and analysis is how the researcher structures the data and creates meaning from the information collected. This study focused on examining the influence of school culture on the utilization of ICTs in teaching and learning. This process is critical to uncovering insights into how school culture impacts teachers' utilization of ICTs.

Interviews

Step 1: Prepare the data for analysis.

I began by transferring the collected data from my phone to a computer, to ensure that proper measures were taken to protect participants' privacy and data security.

Step 2: Transcription

I transcribed the data and reviewed it carefully. I reviewed the data by reading the interview transcripts multiple times, paying special attention to the participants' language and word choices. I then summarized each interview transcript, making sure to align the content with the study's

objectives. These summaries, along with the full transcripts, were included in the appendices (see Appendices on pages 70 to 118).

Step 3: Analysis of transcribed interviews

Analysis of interviews was deductive. I utilized predefined codes. The codes were derived from the conceptual framework for the study i.e. the model of influences of ICT implementation (see Fig 1). Below are the examples of the codes derived from the model:

SL: strong leadership,

RP: resource provision and ICT skills,

ICTKU: ICT knowledge and understanding,

BICT: belief in ICT,

PAICT: positive attitude to ICT,

ST: support and training, and

MT: motivation of teachers.

These predefined codes, grounded in existing literature, helped me to organize the data and allowed for a deductive approach to analysis. Below is an example of a coded interview excerpt.

***Principal A:** So, first, as I have already mentioned, 21 classes have smartboards (RP), and the rest of the classes we are using projectors (RP). So, in their lesson plans, there must be ICT related (SL)(ST). So, our periods are one hour long each and 15 minutes is normal teaching where you explain but via the smartboards (RP) or whatever they are*

having and after they watch a YouTube video (RP). This means they have 2 teachers, a teacher, and a YouTube video (RP). So, in a lesson, a learner will be taught by 2 people, meaning a YouTube video (RP) or whatever is from the smartboard (RP), and the normal teaching and learning by a teacher. That is what we are encouraging (SL)(ST). So, in your lesson plan, you are encouraged to have ICT usage (SL)(ST) in your lesson.

Questionnaires

The teachers were informed about the purpose of the questionnaire and the ethical considerations, including confidentiality, data retention, and future utilize of the data. To protect the participants' identities, pseudonyms were utilized for the teachers and their schools. The data analysis employed qualitative thematic analysis to explore the open-ended responses.

Organization of the questionnaires

Step 1: Data capturing

For paper copies, I scanned them. I downloaded the responses into a Microsoft Excel document and Word format for online questionnaires.

Step 2: Data cleaning and checking.

I carefully reviewed the completed questionnaires for missing or inconsistent answers, ensuring that the data was both accurate and usable.

Step 3: Transcription.

Since the questionnaire included open-ended questions, I transcribed the responses

Step 4: Analysis of the questionnaires

I categorized these responses into themes for qualitative analysis. Thematic analysis was applied to identify and categorize significant themes and insights within the responses.

Given that both interviews and questionnaires were utilized in this study, I compared the results from the two data sources. I carefully examined the consistency between the questionnaire responses and the insights gleaned from the interviews, which allowed me to triangulate the data and strengthen the findings.

Once the questionnaire data was analysed, I summarized the findings in tables to illustrate trends. Additionally, I presented the key themes and insights from the open-ended responses, providing a clear understanding of the data.

The results of this data analysis will be utilized to answer the research questions and draw conclusions regarding the school culture and its influence on the utilization of ICTs in teaching and learning. For this analysis, I will utilize the Model of Influences on ICT Implementation in the Case Study School (Tearle, 2004), applying a deductive approach to identify relevant themes and codes. These predefined themes will guide the data analysis and allow me to draw meaningful conclusions about how school culture influences ICT utilization in teaching. (See more details in Chapter 4).

3.7. Trustworthiness

Trustworthiness was ensured in this study in order to maintain the reliability and rigor of the findings. This study used four critical criteria to ensure that the data was trustworthy, credibility; transferability; dependability; and confirmability (Chakma and Li, 2025). To establish credibility, and the findings' accuracy was verified through member checking and triangulation. Data from both principal interviews and teacher surveys were cross-referenced for consistency. Transferability was addressed by providing thorough descriptions of the two schools and participants, allowing readers to determine whether the findings were applicable to other similar schools. Dependability was ensured by keeping a trail that documented the whole research

process, including data collecting and analysis methods, resulting in consistent and replicable conclusions. Confirmability was established by ensuring that the findings were entirely based on the data collected, with no undue influence from the researcher's personal biases. Reflexivity was used throughout the study, and peer debriefing was used to validate perceptions and improve objectivity. These measures, taken together, ensured the trustworthiness of the study's findings.

3.8. Ethical considerations

As for the participants' rights and welfare, ethical considerations were necessary for this study. Questionnaires and interviews required the participants' consent if they agreed to participate. Because of that, informed consent was important as it ensured that participants knew everything there is to know about the study, including the what, how, and maybes so that they could decide whether or not to participate. All the necessary information about the purpose of the study was provided to the participants. The length of the study was estimated, and then names were replaced with pseudonyms in order to ensure anonymity and data security. I emphasized that participation was completely voluntary.

3.8.1. Permission from GDE

I applied for permission from the Gauteng Department of Education (GDE), (see appendix attached on page 138). This was essential to gain access to schools and collect data.

3.8.2. Ethical Clearance

I have also applied for ethical clearance from the Ethics Committee of the University of the Witwatersrand which underscores my commitment to conduct research ethically (see appendix attached on page 137). The teachers and principals were informed and assured that my study will not disturb their classroom and daily routine in any way.

3.8.3. Consent Forms

I provided teachers and principals with consent forms before data collection, which was crucial for obtaining informed consent. This ensured that participants were fully aware of the research aims, procedures, and potential risks and could voluntarily consent to participate. Before administering the questionnaire, I ensured the selected teachers were willing participants. I provided clear information about the research purpose, confidentiality measures, and their right to withdraw from the study at any time.

3.8.4. Anonymity and Confidentiality

Maintaining anonymity and confidentiality protected participants' privacy and ensured that sensitive information was safeguarded. Using pseudonyms and encrypted data storage on a password-protected Google Drive were effective measures to uphold confidentiality and prevent unauthorized access to the data.

3.8.5. Data Storage and Protection

Storing data in an encrypted computer and making it accessible to myself only is a conscious effort of ensuring that the integrity and security of the collected data is maintained. This helped to avoid data breaches and disclosure of sensitive information to unauthorized persons. Therefore, I developed a good framework for ethical research in this study in order to meet legal and institutional requirements. This approach guaranteed that the rights and welfare of the participants were well protected during the research process to ensure that the credibility and validity of the study was enhanced.

The researcher ensured that the interviews and questionnaires would not interfere with the school's classroom schedule and would be conducted after school hours, which showed the consideration of how the study could affect the school environment. This showed a willingness to ensure that the participants and the school were not unduly disturbed or inconvenienced in any way. In general, the ethical concerns identified in the study showed a considerate and ethical way of conducting the study, with a view of protecting the rights, autonomy and well-being of the participants and the school.

3.9. Chapter Summary

In this chapter, I have discussed the research methodology, research design, research approach, population and sampling of participants, data collection, data collection instruments, data organization and analysis, and ethical considerations.

CHAPTER FOUR

DATA ANALYSIS AND PRESENTATION OF FINDINGS

4.1. Introduction

This study investigated the influence of school culture on the utilization of ICTs by teachers at two Gauteng schools. The following forms of data were collected: semi-structured interviews and questionnaires conducted in schools A and B. (See appendices on page 57 and 68). The interviews were conducted with Principal A and Principal B, both of whom gave their consent to participate. The questionnaires were conducted with teachers from school A and B, who gave their consent to participate. The purpose of the interviews was to gather both principals' views on how the schools operate. The purpose of the questionnaires was to explore how the school culture in each school influences the utilization of ICTs by teachers. These interviews and questionnaires were designed to address the following main question and sub-questions.

Main research question

How does school culture influence the utilization of ICTs in teaching and learning?

Sub-research questions

1. What ICTs are available for teaching and learning programs?
2. What is the principal's role in the utilization of ICTs in schools?
3. How do teachers view the utilization of ICTs that are available at their school for teaching and learning?

The interviews and questionnaires that were conducted were examined separately.

4.2. Analysis of interviews

The following steps were followed:

Step 1: I transcribed the two interviews conducted with the principals.

Step 2: Guided by my conceptual framework as presented in chapter two, I utilized deductive coding to code the transcript from principal's A interview.

Below is an example of a coded interview excerpt:

Principal A: *First, we are an engineering school of specialization (**SOS**), and we are a full ICT School (**type of school**). At this moment as a school, we have 21 smartboards*

(RP) and 21 classes full functional smartboards that are connected to the internet (RP). The school has 35 internet connectivity devices meaning that a learner can connect to any corner of the school. All 1567 learners have tablets (RP) from GDE from grade 8-12. Those network points (RP) have learners meaning that wherever a learner is situated can connect. As a school, since we are a fully functional ICT school, learners are also allowed to come to school with their cell phones. I have more than 20 projectors (RP) and I have 3 computer labs (RP) where learners are doing digital technology from grade 8&9. Those are the new subjects and CAT in grade 10-12.

Principal A: *The learner gadgets, remember I said 1567, all of them have gadgets (RP) from the department with eBooks (RP and ICTKU) that have been installed in them and there are videos (RP). Whatever is in the gadgets (RP) is related to the curriculum.* Step 3: member checking. An uncoded transcript was given to a friend who was briefed on the coding process. After she had coded, we compared our coding for validation. The green highlight shows what the friend coded what was missing on my coded transcript. We discussed all differences until we had ironed all differences.

Step 4: I coded transcript from school B principal

4.3. Analysis of questionnaires

Below are the steps that were followed to analyse the questionnaires, including both digital responses from Google Forms and paper-based responses.

Step 1: The responses from both Google Forms and paper-based questionnaires were collected and compiled.

Step 2: All the responses were transferred into a Word document for easy analysis. This ensured that all data was in one format, making it more manageable and structured.

Step 3: The responses were grouped based on each question and categorized according to the two schools (School A and School B). This grouping allowed for easier comparison and clearer analysis across schools. Responses from Google Forms and paper-based responses.

Step 4: I read through all the responses carefully to gain an understanding of the overall trends and insights, ensuring a comprehensive overview before starting the coding process.

Step 5: The coding process was guided by the conceptual framework that underpinned the study. I utilized deductive coding, which meant I identified predefined codes based on existing theory and research.

Step 6: I started coding the responses by assigning the predetermined codes to the appropriate sections of the responses. The coding was based on specific questions and themes in the conceptual framework.

Step 7: The responses from School A were coded first. I applied the codes consistently across the data, ensuring that each answer was categorized according to the themes that emerged from the conceptual framework.

Step 8: Once I completed the initial coding, I selected a portion of the uncoded transcript (responses from both schools) and provided it to a friend. The friend was briefed on the coding process and the conceptual framework to ensure they understood the coding method. After she had coded the responses, we compared the coded transcripts. The green highlights were utilized to indicate the areas where our coding differed.

Below is an example of a coded transcript of the questionnaire and shows the green highlighted area. The responses are bulleted as they are a collation of responses from different teachers.

3.What motivates you to utilize ICTs in your teaching practices?

- *To make the lesson interesting and appeal (ICTS), (ICTKU), (BICT), to the Gen Z generation (PAICT), (MT)*
- *It's simplified the teaching and learning. (ICTS), (ICTKU), (BICT), (PAICT), (MT)*
- *Saves time (BICT), (PAICT), (MT)*
- *It is very easy to utilize (ICTS), (ICTKU), (BICT), (PAICT), (MT)*
- *It makes teaching convenient as it allows for the utilization of visuals and audio, (PAICT), (MT) in teaching to accommodate a variety of learning styles (ICTS), (ICTKU), (BICT). Moreover, it saves time.*
- *It enhances the teaching and learning (BICT), (PAICT), (MT) and it makes it more effective since it saves time and shows diagrams clearly. (ICTS), (ICTKU),*
- *The school does not have enough resources (RP) for all the departments to access ICTs in teaching and learning. (MT)*
- *It saves time since some of the learner's support material (RP) can be accessed from the smartboard (RP). (ICTS), (ICTKU), (BICT), (PAICT), (MT),*
- *It makes it easy to engage the learners (BICT), (PAICT), (MT), it also allows learners to learn knowing and seeing the real thing. (ICTS), (ICTKU)*

After completing the analysis for School A, I applied the same steps to the data from School B.

4.4. Results

I utilized the various components of my conceptual framework-the Model of Influences on ICT Implementation in the case study school by Tearle (2004) to structure the presentation of my results.

4.4.1. Resource Provision: ICTs for teaching and learning programs at the two schools

Resource provision falls under the component ICT implementation process. From the interviews conducted, principals highlighted a wide range of ICT resources that are provided in the school for utilization by teachers and learners. Table 1 below shows the ICTs that principals indicated are available at their schools.

Table 4: ICTs available at the two schools

ICT tool	School A	School B
Smartboards	√	√
Projectors	√	√
Learner tablets	√	×
Teacher laptops	√	√
Internet connectivity devices	√	√
eBooks	√	×
Computer lab	√	×
GDE content	√	×
Siyavula platform	√	×

Table 4 shows that both schools have access to essential ICTs such as smartboards, projectors, teacher laptops, and internet connectivity devices, indicating a foundational level of ICT utilization in teaching and learning. This is from the analysis of the interviews conducted with the principals from the two schools and the analysis of questionnaires conducted with the teachers; these are the ICTs that are available. These shared ICTs enable teachers to utilize them in their teaching.

4.4.2 Comparison of ICT resource provision at the two schools

4.4.2.1 Comparison in terms of quantity

The also interviews with the two principals highlighted the differences in the quantity of ICTs available at the two schools. School A has more smartboards, projectors, and teacher laptops, allowing for broader ICT utilization across various classrooms. The principal of School A describes the school as a “*fully functional ICT school*”. This excerpt highlights what the principal said: “*We have 21 smartboards (RP) and 21 classes of fully functional smartboards that are connected to the internet. The school has 35 internet connectivity devices, meaning a learner can connect to any corner of the school. All 1567 learners have tablets from GDE from grades 8-12. Those network points have learners, meaning that wherever a learner is situated can connect*”. This widespread availability of ICTs enables teachers to integrate digital resources seamlessly into their lessons, supporting a more interactive and technology-driven learning environment. Research indicates that where teachers and learners are provided with adequate ICT resources, teaching and learning processes are enhanced (Haleem et al., 2022). Haleem et al. (2022) also pointed out that teachers can incorporate digital tools into their lessons to make lesson delivery more effective. Access to ICT enhances teacher confidence in utilizing ICTs, resulting in improved instructional techniques and increased efficiency in classroom management (Tondeur et al., 2017). Hardianti et al. (2024) state that ICT enhances students’ interest, effort, and individual learning. Digital platforms enable the learner to interact with the content of the course at his/her own pace, thus enhancing learning and retention, as pointed out by Hardianti et al. (2024).

In contrast, School B has fewer smartboards and projectors, which may limit the number of teachers and learners who can actively engage with digital content simultaneously. The principal acknowledged that while smartboards, overhead projectors, and teacher laptops are available, the school does not provide tablets for students. This means that students at School B still rely heavily on traditional learning materials rather than digital platforms. The principal confirmed this limitation, stating, “*We have smartboards, overhead projectors, and laptops. We do not have tablets for learners. We are not much of an ICT school*”. Research has shown that the limited access to ICT resources is a factor that hinders effective teaching and learning, and thus the utilization of technology in education (Munje and Jita, 2020). As stated by AlSadrani et al. (2020), it also increases the digital divide between the students of the rich schools and the students of the poor schools. When the ICT tools are scarce, then the teachers are unable to incorporate digital learning strategies into their teaching and thus the students are exposed to traditional teaching

methods which may not be very interesting to them (Akram et al., 2021). Lack of ICT also demotivate and decrease the self-efficacy of teachers in the utilization of technology, which in turn affects their development of digital competence (Tondeur et al., 2017). The absence of learner tablets reduces opportunities for self-directed digital learning and makes it more difficult for teachers to implement technology-enhanced lesson plans. According to Guri-Rosenblit (2018), ICT tools like smartboards enable teachers to utilize videos, animations, and visual aids in lessons, making learning more interactive and practical. This aligns with the teachers' experiences at School B, who rely on smartboards to present digital content and enhance classroom participation. This is supported by the excerpt from teacher Thabiso, *“It makes teaching convenient as it allows for the utilization of visuals and audio in teaching to accommodate a variety of learning styles. Moreover, it saves time”* Teacher Keamogetswe from school B mentioned that *“It makes it easy to engage the learners, it also allows learners to learn knowing and seeing the real thing.”*

4.4.2.2 Comparison in terms of emerging ICTs

One of the most significant differences between the two schools is the presence of emerging ICTs at School A, which are largely absent at School B. School A provides students and teachers with access to eBooks, Siyavula platforms, and GDE digital content, replacing traditional hardcopy textbooks. This shift has made ICT utilization mandatory for teachers, as all instructional materials are now digital. The principal of School A reinforced this point by explaining, *“We no longer have hardcopy textbooks. All the books we utilized as hard copies are now in the learner gadgets... Even if the teacher tries to shy away from using ICT, how will they teach?”*. This structured approach ensures that ICTs are consistently utilized in lessons, enhancing student engagement and exposure to modern digital learning tools. Receiving eBooks, Siyavula platforms, and GDE digital content at School A positively impact the implementation of ICT, the participation of teachers and the utilization of ICT in teaching. From the view of ICT implementation, digital resources give students and teachers access to up-to-date learning materials (Abedi, 2024). Nevertheless, the successful application is possible only if teachers are trained and supported, and there are clear strategies for integrating ICT into the curriculum (Blau and Shamir-Inbal, 2017). As (Abedi, 2024) explained, for teachers as individuals, successful adoption of ICT depends on their capabilities, disposition and perceptions towards technology. A positive school climate that promotes continuing development and the utilization of ICT enhances the efficacy of the teachers (Hennessy et al., 2022). In terms of teaching and learning, digital content is more interesting. It provides the flexibility of learning at the student's own pace while

enabling new approaches, such as blended learning (Alammary, 2024). However, these benefits will not be realised entirely without teacher willingness and continuing support.

Conversely, School B lacks these emerging ICTs, making it difficult for students to engage with digital learning beyond smartboard presentations. While teachers utilize smartboards and projectors, their effectiveness is often compromised due to infrastructural issues. The principal mentioned that “*vandalism and stolen OPCs and HDMI cables*” frequently hinder ICT utilization. Teachers at School B also noted that some smartboards are dysfunctional, leading to disruptions in lesson delivery. Teacher Tumi explained, “*Some of the smartboards are not functional, which delays progress in covering the syllabus*”. These challenges suggest that while School B has basic ICT infrastructure, its maintenance and accessibility issues limit its overall impact on teaching and learning.

4.4.2.3 Comparison in terms of internet connectivity

Another crucial factor influencing ICT utilization is internet connectivity. School A has a strong internet infrastructure, ensuring students and teachers can easily access online learning platforms, stream educational content, and interact with digital materials. This gives students at School A an advantage in accessing digital learning materials, such as GDE content, YouTube, eBooks, and Siyavula platforms, both inside and outside the classroom. The principal of School A emphasized this advantage, stating, “*Those network points have learners, meaning that wherever a learner is situated, they can connect*”. In contrast, School B has fewer internet connection points, making online resource utilization more challenging. The absence of learner tablets at School B suggests that students may rely more on traditional learning methods, which could affect their engagement with ICTs in learning. Teachers at School B reported that unreliable Wi-Fi connectivity and power outages frequently disrupt their ability to utilize ICTs effectively. Teacher Millilani noted, “*When there is no electricity and School Wi-Fi is not working... I revert to the classical way of teaching, the utilization of chalkboard*”. These limitations suggest that even when ICT tools are available, their impact is significantly affected by infrastructural challenges.

4.4.2.4 Insights from the comparison of resource provision at the two schools

The differences in ICT availability between the two schools align with findings from research on ICT utilization in education. According to Sroyprapai et al. (2025), smartboards, laptops, and collaborative platforms significantly enhance student engagement and participation. This is reflected in the experiences of teachers at School A, who emphasized how these tools make lessons more interactive and engaging. The excerpts from teacher Buhle support this: “*It makes*

it interesting to learners and gets them to engage and be visible in the lesson” and *“It keeps the lesson interesting and gets learners to engage and be involved in the subject”*. The teachers' responses in School A emphasise these tools' positive impact in fostering interactive and dynamic lessons. Puentedura (2019) also highlights that eBooks and digital platforms facilitate personalized learning experiences, reinforcing the benefits of School A's structured ICT utilization. This is consistent with findings from Tondeur et al. (2017), who emphasize that digital tools help teachers create engaging lessons that enhance student understanding and retention.

Furthermore, Torous et al. (2019) argue that ICT availability, including internet access, smartboards, and tablets, supports teachers in designing student-centred learning environments. This corresponds with the structured ICT utilization at School A, where learners rely on digital resources instead of hardcopy textbooks. Hanaysha et al. (2023) found that schools with comprehensive ICT infrastructure, like School A, experience improved lesson delivery, learner engagement, and academic performance.

In contrast, Haleem et al. (2022) argue that dysfunctional ICT infrastructure and unreliable electricity can hinder effective ICT utilization, which is consistent with the struggles faced by teachers at School B. From the perspective of Principal B, *“No, the only thing that we utilized to have been the problem of load shedding where we prepared the lesson, but since then, the most challenge faced is vandalism, and stolen OPCs and HDMI cables are being stolen.”*

Despite these challenges, teachers at both schools recognize the benefits of ICT in improving teaching and learning outcomes. Teachers at School A frequently utilize ICTs, with teacher Harry stating, *“ICTs make teaching and learning easy and more productive in less time”*. At School B, teachers also appreciate the role of smartboards and laptops in lesson delivery, even though external challenges sometimes limit their utilization. They recognize that smartboards and laptops improve lesson delivery, student engagement, and syllabus coverage, echoing findings from Mohale (2024) that ICT tools enhance teaching effectiveness when adequately maintained.

Teacher Kelvin noted, *“It enhances teaching and learning and makes it more effective since it saves time and shows diagrams clearly”*. This highlights that while teachers at both school's value ICT utilization, their ability to utilize it effectively depends on resource availability and infrastructural support.

4.4.3. The principal's role in the utilization of ICTs in schools

According to Banoğlu et al. (2023), the role of the principal in utilizing ICTs in schools is crucial in fostering a technology-driven learning environment. From the interviews conducted with the principals of both School A and School B, as well as the responses from teachers' questionnaires, it is evident that both school leaders actively promote the utilization of ICTs in teaching and learning. However, there are notable differences in their approaches, levels of support, and the extent of ICTs available at each school.

4.4.3.1 Proactive leadership

School A's principal demonstrates proactive leadership in integrating ICTs into daily teaching and learning. One key strategy is making ICT utilization mandatory by replacing traditional textbooks with eBooks on learner tablets, compelling teachers to utilize ICTs in their lessons. He indicated that *"ICT utilization is emphasized every Monday in the morning briefings and during SMT meetings"* and that an *"ICT committee of eight teachers"* monitors technology implementation in lessons. This aligns with research by Tondeur et al. (2016), highlighting that strong leadership fosters a positive ICT culture through structured planning, regular evaluation, and continuous reinforcement of ICT-based teaching practices. Additionally, administrative tasks such as teacher attendance tracking have been digitized using Google Forms, showcasing the principal's commitment to streamlining operations through ICTs. This excerpt supports this: *"The wonderful thing about Google Forms is that it indicates the time that was signed compared to a physical signature, and teachers must manually write when they got to work. They can easily write an incorrect time. This is an advantage part of ICT because you can track teachers' attendance and the time they signed the Google form, and you can hold them accountable. You can also take the statistics and put it in the form of a graph, and teachers can see what they are doing in terms of keeping time"*. Conversely, in School B, the principal acknowledges ICT's role but does not enforce its utilization as vigorously as in School A. He states, *"I am the one who has to say that these people are using the gadgets... but I must make sure that the curriculum is being delivered"*, suggesting a more hands-off approach to ICT utilization. This is consistent with research by Blau and Shamir-Inbal (2017), which argues that passive leadership often results in inconsistent ICT implementation due to the lack of vigorous enforcement.

4.4.3.2 Resource provision

Resource provision is critical in ICT utilization (Suleiman et al., 2020). In School A, the principal ensures that *“all 1567 students have tablets from the Gauteng Department of Education (GDE)”*, and there are *“21 smartboards, 35 internet connectivity points, and three computer labs”*. The structured ICT environment enables interactive and multimedia-based learning, reinforcing Puente Dura's (2019) ICT utilization model, which emphasises digital tools' transformative role in student engagement. However, School B faces significant resource constraints. The principal reports that *“we have smartboards, overhead projectors, and laptops...we do not have tablets for learners”* and that *“vandalism is the biggest problem”* with *stolen OPCs and HDMI cables*. Research by Kibuku et al. (2020) underscores that infrastructure security challenges hinder effective ICT utilization, particularly in under-resourced schools.

4.4.3.3 Emphasis on professional development

A significant aspect of School A's ICT utilization is the strong emphasis on training and professional development. The principal ensures that teachers receive continuous ICT training through workshops facilitated by the ICT committee, the Department of Education, and external partners like Bongani Rainmaker. From the principal's excerpt, he mentioned that *“We even have some ICT workshops as a school through the ICT committee. And there are those trainings that the Department of Education offers”*, and the teacher Blessing included that *“We have workshops from Bongani Rainmaker, and this helps teachers to learn how to utilize their devices”*. A well-functioning ICT committee and computer labs further support teachers and learners in effectively using ICTs. This is supported by the excerpt from teacher Kim response in school A: *“Ask for assistance from the ICT coordinator”*. The principal also acknowledges that some teachers, especially older ones, may resist ICT utilization, emphasizing the need for leadership in guiding them through this transition. The principal's responses support this, *“the maths teacher still enjoys doing the sums on the chalkboard, whereas there is a smartboard and a whiteboard in the classroom. He is complaining about the lack of a chalkboard in class, but he is old, so I guess that is why he still wishes to utilize a chalkboard”*. This leadership is reflected in encouraging a collaborative and respectful school culture, where ICT utilization is a shared responsibility among teachers and the school's leadership.

The principal of School A actively promotes teacher training and professional development. He highlights that the school has ICT workshops, external training from the Department of Education, and a designated ICT committee to assist teachers. This aligns with findings from

Jadhav et al. (2022), which emphasize that professional development is critical in ensuring ICT effectiveness in schools. In contrast, professional development in School B is limited. The principal acknowledges the importance of training, stating, *“It is important for educators to attend workshops,”* but also notes that *“we rely on the GDE facilities like laptops they provide to teachers”*, suggesting a dependence on external initiatives rather than school-driven training. This reflects research by Omar and Ismail (2021), which found that schools relying solely on government-driven ICT training often lag in implementation due to irregular training schedules and lack of internal reinforcement. At School B, the principal also prioritizes ICTs in education, ensuring that teachers receive continuous training through an ICT trainer who visits the school weekly and through programs such as Matthew Goniwe’s ICT training. This is evident in the teacher Keano’s responses that *“There is an ICT trainer who comes to school once a week to upskill teachers on the utilization of ICT”*, and teacher Femmy mentioned that *“Matthew Goniwe continually trains teachers”*. Additionally, the school has an ICT committee to assist teachers facing ICT-related challenges, demonstrating a structured approach to ICT support. Teachers are also trained in modern Microsoft tools, internet navigation, and electronic presentations, helping them utilize ICTs in their teaching methods. One of the teachers mentioned *“Internet navigation skills, typing skills and electronic presentation skills”*.

4.4.3.4 ICT utilization monitoring

The principal of School A actively monitors ICT utilization among teachers, stating that *“there must be something in the lesson plan that is related to ICT”*, ensuring that ICT utilization is embedded in teaching practices. He also acknowledges the challenge of resistance among older teachers, emphasizing the need for ongoing training and enforcement. This aligns with findings from Blau et al. (2020), who argue that sustained monitoring and structured implementation strategies are necessary to overcome resistance to ICT utilization.

However, there are notable differences in ICT accessibility and utilization between the two schools. While teachers at School B have access to smartboards, projectors, and preloaded textbooks, there is a concern that ICT training is insufficient, as many teachers still struggle with technology.

The principal of School B, while recognizing ICT's potential, does not enforce its utilization as strongly. He states, *“teachers are using them effectively... but vandalism is the biggest problem”*, suggesting that external challenges are prioritized over internal enforcement. According to Khan

et al. (2021), schools with passive leadership in ICT tend to experience slow utilization rates, as teachers lack strong institutional incentives to integrate digital tools.

4.4.3.5. Inclusivity

Inclusivity is a critical component of ICT utilization (Lai et al., 2022). School A ensures all students have tablets, and the principal emphasizes that *“fortunately, all learners have access to ICT”*. This aligns with research by Paje et al. (2021), which highlights that equitable access to digital tools enhances student engagement and reduces the digital divide. However, in School B, ICT access is more limited. The principal acknowledges that *“everyone is allowed to utilize ICT if the class has a smartboard or projector”*, but since some smartboards are broken, not all students can access digital learning tools. This reflects findings from Verma (2021), which suggest that disparities in ICT availability within schools can limit student engagement and reinforce educational inequalities.

4.4.3.6 School culture at school A and how it influences ICT utilization at the school

School A has a positive culture that is embraced correctly in using the ICTs in the learning process. The culture at School A is positive and encourages creativity, change, and a good spirit of using ICT in teaching and learning. In this case, School A principal is proactive in providing the necessary technologies and encouraging their utilization. The principal at School A has been very proactive in this case because he has been closely watching how ICT is utilized, offered professional learning opportunities and provided equal funding. This aligns with Mbune et al. (2024), who stated that leadership is important in innovation and ensuring teachers are comfortable using the ICTs. The principal also supported using the ICT at School A, which is good leadership, as Wiyono et al. (2024) mentioned. It also ensures that teachers are competent in the skills required to utilize ICT in teaching and learning. As a result, School A's culture supports the utilization of ICT, and teachers are more likely to adopt innovative teaching and learning strategies such as blended learning. This is because leadership in ICT-driven schools should ensure that teachers have the right resources and support to utilize technology confidently, as Arikawe et al. (2024) suggested.

The culture of School A is based on the staff's professional development. The principal supports the professional development of teachers, something that Wiyono et al. (2024) have identified as crucial for the effective utilization of ICTs. How the utilization of ICTs is promoted at school A is also backed by Arikawe et al. (2024), who stated that principals should be involved in the

strategic and operational aspects of the implementation of ICTs in schools. This is because leadership in ICT-driven schools should ensure that teachers have the right resources and support to confidently utilize technology, as Arikawe et al. (2024) suggested. The culture of School A is based on the staff's professional development. The principal supports the professional development of teachers, something that Wiyono et al. (2024) have identified as crucial for the effective utilization of ICTs.

4.4.3.7 School culture at school B and how it influences ICT utilization at the school

At School B, the principal also prioritizes ICTs in education, ensuring that teachers receive continuous training through an ICT trainer who visits the school weekly and through programs such as Matthew Goniwe's ICT training. This is evident in the teacher Keano's response that *"There is an ICT trainer who comes to school once a week to upskill teachers on the utilization of ICT"*, and another teacher mentioned that *"Matthew Goniwe continually trains teachers"*. Additionally, the school has an ICT committee to assist teachers facing ICT-related challenges, demonstrating a structured approach to ICT support. Teachers are also trained in modern Microsoft tools, internet navigation, and electronic presentations, helping them utilize ICTs in their teaching methods. Teacher Zano mentioned *"Internet navigation skills, typing skills and electronic presentation skills"*. While teachers at School B have access to smartboards, projectors, and preloaded textbooks, there is a concern that ICT training is insufficient, as many teachers still struggle with technology. The principal of School B, while recognizing ICT's potential, does not enforce its utilization as strongly. He states, *"teachers are using them effectively... but vandalism is the biggest problem"*, suggesting that external challenges are prioritized over internal enforcement. According to Khan et al. (2021), schools with passive leadership in ICT tend to experience slow utilization rates, as teachers lack strong institutional incentives to integrate digital tools.

4.4.3.8. Similarities

Regarding similarities, both principals recognize the importance of teacher training and continuous professional development. They both encourage ICT utilization in teaching and learning, ensuring teachers can access smartboards, projectors, and laptops to enhance their lessons. Additionally, both schools have an ICT committee that supports teachers in navigating technological challenges. According to Kozma and Isaacs (2011), the ICT committee can also ensure that necessary infrastructure is in place, address any challenges related to equipment and connectivity, and promote collaboration among educators to share best practices.

4.4.3.9 Differences

The key difference lies in the extent of ICT utilization and infrastructure. School A has a more structured and enforced approach to ICT utilization, ensuring that ICTs are embedded into daily teaching practices. In contrast, School B has a more flexible approach, allowing teachers to utilize ICTs at their own pace, not due to a lack of willingness but rather because of the limitations in ICT availability. Additionally, School A provides students with more direct access to ICTs, such as tablets and online platforms. The principal also mentioned that teachers receive laptops and tablets to support their ICT utilization, illustrating the school's commitment to providing resources to enhance ICT proficiency. Whereas School B mainly equips teachers with ICT tools but does not extend the same resources to learners. Principal B similarly highlighted the role of the ICT coordinator in supporting teachers, with weekly upskilling sessions provided to help teachers stay updated on ICTs and best practices. While these efforts are appreciated, Principal B also acknowledged that some teachers are still struggling with the ICTs, suggesting that there is room for improvement in the depth and scope of professional development. As highlighted by Ofosu-Asare (2024), ongoing professional development is critical to ensuring that teachers are equipped with the skills necessary for effective ICT utilization in the classroom. Providing access to resources like laptops and consistent training is essential for empowering teachers to fully embrace the potential of ICTs in education.

4.4.3.10 Influence of school culture on the utilization of ICTs

The influence of school culture on the utilization of ICTs in teaching and learning is significant because it sets the tone for or against utilizing ICTs in teaching and learning. At School A, the positive school culture, initiated by strong leadership, enables using ICTs. The principal has an active approach of frequent observation, financing, training, and professional development to support the development of a positive culture of using ICTs effectively. In School A, where teachers are challenged to incorporate technology into their teaching, Blau and Shamir-Inbal (2017) pointed out that establishing a culture that appreciates and promotes the utilization of ICT is important for its effectiveness. This is in line with the findings made by Mbune et al. (2024) in their study on leadership for creating a creative culture, which provides training and ensures equal access to ICT resources as the principal. Therefore, one of the significant factors in encouraging teachers to incorporate ICT into their teaching strategies is the culture of School A, which is based on leadership and support.

4.4.4. Teachers' views on the utilization of ICTs that are available at their school for teaching and learning

School A and School B teachers generally recognize the value of ICTs in enhancing teaching and learning. However, their experiences differ due to differences in ICT availability, infrastructure, and support.

4.4.4.1. Enforced ICT utilization of teacher engagement at School A

Teachers at School A must utilize ICTs in their lessons as an essential part of the school's teaching ethos. The excerpt from Principal A supports this, *"There must be something in the lesson plan related to ICT. We monitor the entire system"*. The school mandates using eBooks instead of physical textbooks, meaning teachers must utilize learner tablets and other available ICTs for teaching and learning. One teacher mentioned, *"We do not have a choice; ICT must be utilized in every lesson."* This enforced utilization ensures that ICTs are deeply embedded in daily teaching. Additionally, teachers utilize smartboards, YouTube videos, and the Siyavula platform to create engaging lessons. WhatsApp groups are also common for communication, allowing teachers to send homework and share lesson materials. *"...for example, in maths whereby we, as a school give homework via the class or subject WhatsApp groups"*. However, managing these groups can be challenging due to students posting off-topic content. At School A, teachers frequently integrate ICT tools into their teaching, indicating high confidence and motivation in utilizing digital resources. Many teachers reported using ICTs in every lesson, highlighting how digital tools enhance engagement and improve learning outcomes. Teacher Craig noted, *"Very regularly. All periods and after school."* At the same time, teacher Harry emphasized, *"It makes teaching and learning easy and more productive in less time."* The availability of multiple smartboards, projectors, and learner tablets at School A allows for seamless ICT utilization, aligning with Tondeur et al. (2017), who argue that well-equipped schools foster higher ICT engagement among teachers.

4.4.4.2. Challenges in Adopting ICT Utilization Among Experienced Teachers at School A

Despite the abundance of ICTs, not all teachers fully embrace ICT utilization. Older teachers, in particular, tend to prefer traditional methods, such as chalkboards and whiteboards. Principal A acknowledged this challenge, noting, *"Some teachers still struggle to shift from their usual way of teaching to ICT-based methods."* This is supported by Hargreaves and Fullan (2015), who state that many teachers have spent years perfecting their teaching techniques using traditional

teaching methods and may feel uncertain or overwhelmed by the rapid advancement of technology. However, ongoing workshops and ICT training sessions are provided to support teachers in adapting to the technological shift.

4.4.4.3 Teacher Attitudes Toward ICT Utilization

Teachers at School A are positive in their perception towards the use of ICT in learning. They opined that using ICTs in lessons is beneficial as it helps in teaching, learning and assessing students, and making concepts easy to understand. Nevertheless, the smoothness of the lessons is at times interrupted by Wi-Fi connectivity issues and the teachers are conscious that there is need to upgrade their professional skills to include the current technologies.

The positive responses of the teachers go with the findings of the research conducted by Daniel et al. (2024) who established that the use of ICTs increase students' interest and participation in the learning process which in turn results in improved learning achievements. Anastasopoulou et al. (2024) agreed with the proposition that ICTs support modified teaching as teachers are able to adapt lessons to the needs of each child. These findings indicate that those teachers who embrace the use of ICTs in teaching make the learning environment more productive and engaging for the students and offer them more chances to be active participants in the learning process.

However, the reluctance of some teachers, mainly those who are not conversant with ICTs, is in conformity with Aremo et al. (2024) who pointed out that teachers' perceptions on the use of ICTs are a key driver of effective implementation. As pointed out by Dahri et al. (2024), it is the teachers' willingness to incorporate ICTs into teaching and learning that greatly influences the effectiveness of using these tools to enhance learning.

4.4.4.4 Challenges in ICT Utilization at School B

At School B, teachers also recognize the benefits of ICTs in making lessons more interactive and engaging. Many appreciate how smartboards, projectors, and laptops improve lesson delivery, allowing for more efficient syllabus coverage and access to digital resources. One teacher stated, *"ICTs help make learning more exciting and relatable for students."* Unlike School A, where ICT utilization is mandatory, teachers at School B have more flexibility in choosing when and how to utilize ICTs. This is not due to reluctance but due to the limited number of resources available. The school lacks learner tablets, a computer lab, and eBooks, making ICT utilization less consistent. Teachers often improvise by using personal devices or sharing available resources. While weekly ICT training sessions are offered, some teachers feel the support is insufficient, as

not all teachers are ICT-savvy. One teacher expressed concerns about the functionality of smartboards and the need for better maintenance, stating, *"When the smartboards work, they are great, but sometimes they malfunction, and we have to switch back to traditional methods."* Challenges such as load shedding, vandalism, and poor internet connectivity limit effective ICT utilization. Some teachers reported using ICT tools only once weekly, while others admitted rarely incorporating them into lessons due to dysfunctional equipment. Teacher Tumi stated, *"Once a week, in some of the classes, smartboards are not working, and hence, learners are rotated to some classes."* Teacher Keano remarked, *"Hardly,"* indicating a lower ICT utilization frequency than School A. These limitations align with Hanaysha et al. (2023), who found that the availability of ICT resources significantly impacts teacher motivation to utilize ICTs in teaching and learning.

4.4.4.5 Insufficient ICT training and support at school B: A barrier to effective ICT utilization

Teachers at School B expressed concerns about the lack of sufficient training and technical support. While some training is provided, many teachers still struggle with ICT skills. Teacher Thabiso admitted, *"Training is provided, though not enough, as a significant number of educators are not ICT-savvy."* Another stated, *"We have an ICT trainer who comes to school once a week to upskill teachers, but it is not enough."* These findings reflect Puentedura (2019), who stresses that insufficient ICT training limits the effectiveness of digital tools in the classroom. Without sufficient training, teachers at School B are less likely to utilize ICTs effectively in their lessons.

4.4.4.6 Infrastructure and support needs at school B

At School B, teacher utilization of ICTs is not consistent, partly due to the lack of sufficient resources and technical support. The principal at School B mentioned that while teachers utilize smartboards and laptops, some still prefer traditional methods, reflecting the challenges associated with adapting to new ICTs. Hanaysha et al. (2023) argue that teacher training and support are crucial to maximizing the impact of ICTs. Without adequate support and professional development, teachers at School B may find it challenging to leverage ICTs for enhanced teaching fully. Despite these challenges, teachers at School B generally view ICTs as a valuable tool that aligns with the demands of the 4th Industrial Revolution. Teacher Kelvin mentioned this: *"It has made teaching more fun, has made teaching and learning more effective. It is in line with the fourth industrial revolution"*. They appreciate that ICTs prepare students for the digital world

and improve lesson engagement. However, teachers at School B express a greater need for better ICT infrastructure and maintenance to realize the full potential of ICTs in teaching and learning.

The disparity in ICT training and skills development between the two schools also influences teachers' perceptions of ICT utilization. At School A, teachers receive frequent training sessions organized by the School and the Department of Education, enabling them to enhance their digital skills. One teacher stated, *"We have workshops from Bongani Rainmaker, which helps teachers learn how to utilize their devices."* Another added, *"Trainings that we attend for ICT make it easier for us to integrate technology into our lessons."* These responses align with Jadhav et al. (2022), who emphasizes that teachers who receive ongoing ICT training are more confident and effective in integrating digital tools into their pedagogy.

4.4.4.7 Similarities and differences in teachers' views

School A and B teachers acknowledge that ICTs enhance teaching and learning, making lessons more engaging, interactive, and efficient. They recognize the role of ICTs in improving learner participation and preparing students for a digital future. Additionally, while teachers at both schools recognize challenges such as Wi-Fi issues and ICT maintenance, School B teachers experience more obstacles, including vandalism, power outages, and insufficient resources. Consequently, teachers at School B often must adapt their teaching strategies, whereas teachers at School A have more consistent access to digital tools. Both principals identified several challenges related to ICT utilization in their schools. Principal A mentioned issues such as *"poor Wi-Fi at times"* and *"load shedding,"* which are common obstacles in many schools in South Africa. These challenges reflect the broader issue of infrastructure reliability, which is crucial for effectively using ICTs in education. For instance, studies by Ofosu-Asare (2024) confirm that poor infrastructure, including unreliable internet connections, remains a significant barrier to the successful utilization of ICTs in schools, particularly in developing countries.

4.4.4.8. ICT accessibility, training, and infrastructure challenges at schools A and B

However, the key difference lies in ICT accessibility and structured utilization. ICT utilization is enforced at School A, with compulsory eBook utilization and structured ICT training. In contrast, School B teachers have more flexibility but face more significant limitations in ICT availability. Another key difference between the two schools is the availability of emerging ICTs such as learner tablets, Siyavula platforms, and eBooks. At School A, these resources allow for self-directed and interactive learning, improving student engagement and academic performance. One teacher noted, *"Learners do not have hardcopy textbooks; they utilize eBooks and YouTube videos*

to enhance their learning." This supports findings from Torous et al. (2019), who argue that schools with comprehensive ICT infrastructures foster better student engagement and personalized learning experiences. However, the absence of learner tablets and digital platforms at School B limits students' exposure to interactive learning. One teacher remarked, *"We rely on textbooks because our learners do not have tablets or access to digital resources."* This gap aligns with Haleem et al. (2022), who found that students in under-resourced schools are less likely to benefit from modern digital learning tools. Principal B also highlighted some teachers' lack of sufficient training, noting that many educators are not *"ICT savvy."* A study by Hanaysha et al. (2023) found that teachers' confidence and competence with ICTs are essential for successful utilization, and schools need to provide targeted professional development to address these gaps.

Despite the positive views of ICTs in both schools, teachers highlighted several challenges in their utilization. School A's recurring challenge is the digital divide. Teacher Sbonga pointed out that *"the digital divide"* hinder the effective utilisation of ICTs in teaching. Teacher Blessing noted that *"load shedding"* and issues with *"device charging"* posed significant barriers. These challenges are consistent with the findings of Oshowole (2024), who emphasizes that unreliable infrastructure, such as intermittent power supply and slow Internet, is a significant barrier to ICT utilization in schools. At School B, similar challenges were identified, particularly concerning network connectivity. A teacher mentioned that ICT utilization was initially successful. However, now, *"it is unavailable,"* suggesting that infrastructural problems such as inconsistent access to the Internet might be affecting the sustainability of ICT utilization. (ICT skills), (ICT knowledge and understanding), (belief in ICT), (positive attitude to ICT)

These challenges align with research that points to the need for adequate infrastructure and reliable technical support for ICT utilization in schools (Bolaji and Onikoyi, 2024). For ICTs to be effective, a school must ensure consistent access to technology and a stable internet connection.

4.5. Comparison of School Culture and ICT Utilization in School A and B.

Below is a comparative analysis of the school culture and ICT utilization in School A and School B, highlighting similarities and differences based on key aspects:

Aspect	School A	School B
School Culture	A collaborative, ICT-centric culture with high value placed on ICT's role in learning.	A moderately ICT-oriented culture with limited ICTs and challenges impacting the utilization of ICTs.
Availability of ICTs	Advanced ICTs: smartboards, laptops, projectors, and tablets for learners.	Basic ICTs: smartboards, laptops, and projectors; no tablets for learners.
Utilization into Curriculum	Strong alignment with the curriculum, supported by a structured digital content strategy.	Moderate utilization; dependent on teacher initiative and departmental resources.
Principal's Role	Proactive leadership in encouraging ICT utilization and fostering a supportive culture.	Acts as a curriculum driver but faces challenges in ensuring consistent ICT utilization due to infrastructure issues.
Teacher Proficiency	Teachers are highly proficient and regularly trained, fostering innovative ICTs utilization.	Most teachers are proficient, but some lag behind due to limited workshop participation.
Challenges	Load shedding and occasional technical issues.	Vandalism, theft, load shedding, and lack of external sponsorship for resources.
Inclusivity	Strong emphasis on equitable access, supported by adequate functional ICTs in all classrooms.	Efforts are made to include all learners, but disparities exist due to nonfunctional or limited ICTs in some classrooms.
Professional Development	Teachers receive ongoing training, supported by both internal and external initiatives.	Professional development is reliant on workshops provided by the Department of Education; not all teachers attend.
Future Vision	Expansion of ICT utilization to cover emerging technologies and 21st-century skills for all students.	Aspires to include all students in ICT utilization and introduce Computer Applications Technology (CAT).

Table 5 showing comparative analysis of the school culture and ICT utilization in School A and School B.

This table compares school culture and ICT utilization between School A and School B and discusses the similarities and differences between the two schools. School A has a more coherent and systematic integration of ICT based on collaborative leadership, proactive leadership and a well-articulated curriculum. It has more ICT tools and offers in-service training for teachers. On the other hand, School B has some challenges, such as poor infrastructure, irregular ICT access,

and teacher training in departmental workshops. However, both schools face challenges such as load shedding, vandalism and lack of external sponsorship. Despite the differences, both institutions seek to improve the use of ICT and inclusiveness; School A is integrating new technologies, while School B plans to introduce Computer Applications Technology.

4.6. Summary of the Chapter

In this chapter, I analysed the two sets of data: from the interviews and questionnaires answered the three research questions with data from the findings.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

In this chapter, I discussed the study's findings in relation to the research questions mentioned in Chapter One. I then examined the significance of the study concerning the influence of school culture on the utilization of ICTs in teaching and learning, particularly in Gauteng schools. Following this, I addressed the study's limitations and provided recommendations for future research, emphasizing the need for a school culture that supported the effective utilization of ICTs in education. Lastly, I presented the conclusion of the study.

5.1. Introduction

The purpose of the study was to explore the school culture and its influence on the utilization of ICTs by teachers at two Gauteng schools in South Africa. The study sought to understand how culture is influencing the utilization of ICTs according to the principals and teachers at school A and B. Considering the main research question of the study has been, “How does school culture influence the utilization of ICTs in teaching and learning?”. To address this question, the study focused on the following sub-research questions:

- a) What ICTs are available for teaching and learning programs at the two schools?
- b) What is the principal's role in the utilization of ICTs in schools?
- c) How do teachers perceive the use of ICTs available at their school for teaching and learning?

Chapter 1 presented the study, which looked at how school culture influences teachers' utilization of ICTs in two schools in Gauteng, South Africa. School culture was defined as the shared values, traditions, and behaviours that contributed to a school's identity (Demirhan, 2023). ICTs have a substantial impact on education by improving teaching and learning through interactive and

engaging experiences (Ghavifekr et al., 2016; Paje et al., 2021). However, despite its advantages, utilization of ICT might be inconsistent due to leadership, teacher attitudes, and resource availability (Aruleba & Jere, 2022). The study aimed to explore the impact of school culture on ICT utilization and identify factors that either supported or hindered its practical utilization. The research sought to understand how school culture influences ICT utilization in teaching and learning. Sub-questions examined available ICTs, the role of principals, and teachers' perceptions (Tshelane, 2015). The study was significant as it contributes to the gap in South African literature and provides practical recommendations for fostering a school culture that supports ICT utilization (Ahmad et al., 2019; Blau et al., 2020). The chapter concluded by outlining the study structure.

Chapter 2 reviewed literature on the relationship between school culture and ICT utilization. School culture was described as the norms and leadership approaches shaping learning environments (Torres, 2019). ICTs can improve student engagement and self-directed learning, but factors such as resistance to change and inadequate training can hinder their utilization (Eickelmann and Vennemann, 2017; Hennessy et al., 2022). Leadership is critical in fostering ICT utilization through policies, training, and resource allocation (Lee & Louis, 2019; Sun & Gao, 2019). The chapter also explored how school cultures influenced ICT utilization, with progressive cultures supporting utilization while rigid ones resisted change (Lai et al., 2022; Verma, 2021). Financial constraints, insufficient training, and lack of technical support can be significant barriers (Kibuku et al., 2020; Spiteri & Chang Rundgren, 2020). Leadership can be crucial in driving ICT utilization, with principals playing a key role in motivating teachers and providing resources (Bozkurt et al., 2021; Gacicio et al., 2021).

Chapter 3 gave a detailed account of the study's methodology, including the research design, approach, data collection methods, and ethical issues. To understand how school culture impacts the utilization of ICTs by teachers, the study utilized a qualitative case study approach in two schools in Gauteng. Purposive sampling was employed to identify two principals and 18 teachers to ensure that the data collected was rich and diverse about ICT utilization. Data collection involved semi-structured interviews with the principals and questionnaires for teachers. This chapter also included the arrangement and analysis of the data, which were coded deductively and analysed thematically. Triangulation and member verification were applied to increase reliability and confirm confirmability and trustworthiness. The ethical aspects were important for the present research and data protection, confidentiality, and informed consent were observed. It is possible to proceed with the study only with the approval of the University's Ethics

Committee and the Gauteng Department of Education (GDE). The chapter provided the basis for a systematic and ethical investigation of the school culture about the utilization of ICTs.

In Chapter 4, the study presented the data analysis and findings from semi-structured interviews conducted with principals and teacher-completed questionnaires. The analysis was deductive, and the study's conceptual framework was utilized to code the data. Differences were found regarding ICT availability, leadership support and teacher utilization between School A, a specialized ICT school, and School B, a regular school. On the one hand, School A had a more sophisticated ICT infrastructure, smartboards, learner tablets and digital content. On the other hand, School B had limited resources, infrastructure problems and insufficient and irregular ICT training.

In this study, ICT utilization was found to be significantly influenced by leadership. The principal of School A ensured that ICTs were utilized frequently, offered regular training and professional development, and incorporated ICTs into lesson plans. On the other hand, the principal of School B was confronted with problems such as vandalism, inadequate ICT resources, and a lack of coherent professional staff development, which hindered the utilization of ICT into teaching and learning processes.

The results also revealed that teachers' attitudes towards the utilization of ICT were different. This was the case because at School A, ICT utilization was compulsory, and professional development was offered on a continuous basis to support the utilization of ICT. On the other hand, teachers in School B understood the importance of ICT, but they were confronted with problems such as poor network connections, cases of vandalism, and lack of training. Some problems encountered included load shedding, old and defective facilities, and irregular and inadequate ICT policies. The comparison showed that school culture is a key driver of using ICTs in learning and teaching and that leadership, resources, and a good ICT culture are important for effectively using ICTs in learning and teaching.

5.2. Summary of findings

This study revealed that school leadership is the key factor and influencer of ICT utilization at a school. The leader who in this case is the principal promotes or hinders ICT utilization at the school. School culture which was significantly influenced by the school principals influenced the utilization of ICTs in teaching and learning at the two schools in Gauteng. While both schools had access to essential ICTs, such as smartboards, projectors, teacher laptops, and internet connectivity, there were notable differences in the culture of the two schools which led to differences in the availability and utilization of these technologies. I highlight the difference in

school culture of the two schools in terms of school ethos, leadership, internal processes and external links and influences. Analysis of the interview and questionnaire from school A, reflected a principal who is a strong leader. For example, the principal spoke with confidence and authority describing the school as a *"fully functional ICT school,"* emphasizing that ICT utilization was mandatory. He knows the ICT infrastructure at his school by type and quantity. School A had a well-developed ICT infrastructure, including 21 smartboards, 35 internet connectivity points, and tablets for students, ensuring that teachers had no choice but to integrate digital resources into their lessons. In contrast, School B has fewer ICT resources, and students rely primarily on traditional textbooks due to the lack of digital devices. The principal of school B acknowledged that *"We are not much of an ICT school"*, and infrastructural challenges such as stolen HDMI cables and vandalized smartboards further hindered ICT utilization (Haleem et al., 2022). There was no indication from the leadership that he had plans as a leader to do something about the situation. School A principal's approach of making sure that there is adequate provision of ICT resources (Siyavula platforms, eBooks, and internet access for YouTube videos) and that ICT utilization is mandatory, encouraged teachers to utilise ICTs: Hence, one teacher emphasized, *"We do not have a choice; ICT must be utilized in every lesson"*.

At School B, teachers value ICTs but face significant challenges that limit their motivation and attitudes towards ICT utilization. Eight out of the nine teachers noted that smartboards and laptops made teaching more engaging, but inconsistent internet connectivity, load shedding, and broken ICT equipment often forced them to revert to traditional teaching methods. Some teachers admitted using ICTs only occasionally due to these infrastructural challenges. Therefore, when looking at the whole school, leadership plays a critical part in shaping ICT utilization. The principal of School A actively enforced ICT utilization by ensuring that all lesson plans included a digital component. ICT training workshops were conducted regularly, and a dedicated ICT committee provided ongoing support to teachers. He emphasized that the school monitored ICT utilization closely, stating, *"There must be something in the lesson plan related to ICT"*. In contrast, the principal at School B supported ICT utilization but took a more flexible approach. While teachers were encouraged to utilize technology, it was not strictly enforced. The principal noted that vandalism and power outages were significant challenges preventing the consistent utilize of ICTs. This lack of vigorous enforcement led to inconsistent ICT utilization among teachers, with some incorporating it regularly and others avoiding it due to technical difficulties (Blau & Shamir-Inbal, 2017). While the principal's encouragement is important, it cannot entirely address these difficulties in the absence of the resources required to enable reliable access and

ongoing usage of ICT in the classroom. As a result, given limitations on resources, Principal B would have struggled to maximize ICT utilization in the school.

While principals provided leadership-level insights about ICT utilization, teacher questionnaires provided valuable classroom perspectives. Teachers at School A were generally happy about the utilization of ICTs, stating that the availability of learner tablets, interactive whiteboards, and regular support enabled them to use ICTs more confidently in their classrooms. Teachers at School B, on the other hand, noted that, while they valued the potential benefits of ICTs, a lack of reliable resources, vandalism, and regular power outages made it difficult to utilize ICTs in teaching on a regular basis. These perspectives indicate that, while leadership support is crucial, teachers' daily circumstances have a considerable impact on the actual utilization of ICTs in the classroom.

A notable finding of this study was the significant contextual difference between the two schools. School A, as a School of Specialisation, benefited from improved ICT resources, organized professional development, and sponsorship, all of which contributed to a culture that promotes the utilization of ICTs in teaching and learning. In comparison, School B, a typical public school, had fewer resources and faced regular issues such as equipment vandalism and an unstable power supply. These disparities resulted in unequal chances for teachers to utilize ICTs into their teaching, highlighting the importance of school context in determining ICT utilization.

The findings show that understanding ICT adoption in schools requires taking into account both teacher perspectives and contextual differences. While leadership encouragement was available in both circumstances, teachers' perspectives indicated the practical challenges they experienced in incorporating this support into their regular classroom practice. The substantial contrasts in funding between a School of Specialisation and a typical public school demonstrate that utilization of ICT is influenced by contextual factors such as infrastructure and resource availability, rather than just leadership or teacher attitudes.

5.3. Significance of the study

This study is significant as it provides valuable insights into how school culture influences the utilization of ICTs in teaching and learning, particularly in the South African context. As highlighted in Chapter 1, ICTs play a crucial role in enhancing student engagement, improving lesson delivery, and supporting digital literacy (Ghavifekr et al., 2016; Paje et al., 2021). However, their successful utilization depends on first and foremost, the kind of leadership that a school has. A strong leader is one who is confident and knowledgeable when it comes to ICT

infrastructure and utilization. It is the leader that ensures that appropriate school ethos is established as well as internal processes and external links that influence ICT utilization. motivate staff and establish adequate resources, and continuous teacher training (Demirhan, 2023).

The findings reinforced the significance of school culture in shaping ICT utilization. At School A, an ICT-driven culture ensured the mandatory utilization of technology into teaching. The principal actively promoted ICT utilization by enforcing digital lesson plans, providing ongoing teacher training, and ensuring resource availability. As a result, teachers and students fully embraced ICTs, using smartboards, Siyavula platforms, and learner tablets. This demonstrated that a structured and proactive school culture leads to effective ICT implementation (Tondeur et al., 2016).

In contrast, a more flexible school culture at School B resulted in inconsistent ICT utilization. Although teachers valued ICTs, challenges like vandalism, limited resources, and lack of enforcement prevented widespread utilization. The principal supported ICT utilization but did not strictly monitor or mandate its utilization, leading to varied levels of utilization among teachers (Blau & Shamir-Inbal, 2017). These findings highlight the need for strong leadership and a structured ICT policy to drive school digital transformation.

The study is also significant because it provides practical implications for educational institutions and policymakers. It highlights the importance of investing in infrastructure, securing ICT equipment, providing continuous teacher training, and fostering a digital learning culture. Schools with well-developed ICT strategies can enhance student learning experiences, bridge the digital divide, and prepare learners for the Fourth Industrial Revolution (Hanaysha et al., 2023).

Furthermore, this study contributes to existing research by demonstrating that school culture is a significant determinant of ICT utilization. It reinforces findings from global studies that suggest schools with strong leadership, adequate resources, and a culture of innovation experience higher levels of ICT utilization (Puentedura, 2019; Tondeur et al., 2017). The study also underscores the need for context-specific strategies, as infrastructural challenges such as power outages and theft significantly impact ICT implementation in South African schools.

The study results clearly show that leadership is the most important cultural factor that influences the utilization of ICTs in teaching and learning. The principal of School A shows how active leadership creates a positive context for using ICTs in schools. On the other hand, because of inadequate infrastructure and a lack of oversight, the principal of School B is troubled by the inability to check whether the instructors and pupils are using the ICTs as much as he desires. It

is clear from this discrepancy how leadership in schools is decisive in determining how the culture of using ICTs is developed. The principal of School A has also ensured that the utilization of ICT is built into the school's fabric in the following ways: The principal has ensured that the utilization of ICTs is compulsory in all lessons. He has gone further to ensure that he has brought in external sponsors to enhance the infrastructure, has ensured that there are frequent ICT training sessions and has not only depended on the Gauteng Department of Education (GDE) for the training of teachers in the utilization of ICTs. His management style ensures that using ICTs is not voluntary but an essential part of lesson delivery. He said, *"There has to be something related to ICT in the lesson plan. We monitor the entire system."* "This kind of enforcement conforms with Tondeur et al. (2016), who stated that leadership is a key factor in ensuring a well-coordinated and utilization of digital technology, providing training and ensuring that teachers utilize the technology as required. The principal of School A also makes the teachers accountable for using the ICTs in the classroom. He backed this up by saying, *"We check every month to see the application of ICT in teaching and learning."* "This means that technology is applied regularly through the proactive tracking of the utilization of ICTs in teaching, so teachers may not have a reason to avoid using ICTs. The eight-member ICT committee of teachers plays an important role in sustaining the school's ICT culture, assisting teachers who need technology and ensuring that ICT utilization is maintained.

However, at School B, teachers complained that since the utilization of ICT was minimal, this was due to inadequate infrastructure and leadership enforcement. In response to the first argument, teachers agreed that ICT is important but argued that adequate support and training is lacking. Teacher Tumi said: *"Smartboards are good when they work, but sometimes they break, and we must utilize conventional methods"*. Another teacher also shared concern over the lack of training, saying: *"One of the issues with training is that it is done, but it is not enough as many educators are not ICT literate."*

Schools of Specialisation (SoS) in South Africa differ from traditional public schools in that they are designed to focus on key learning areas such as mathematics, science, ICT, engineering, commerce, and the arts. According to the Regulations on Minimum Uniform Norms and Standards for Public School Infrastructure (Government Gazette No. 37081, 29 November 2013, as amended), schools designated with specialist functions are expected to have appropriate specialist classrooms and infrastructure, such as computer laboratories and technical workshops,

to support their field of study. This means that a school certified as a School of Specialisation is eligible for additional resources and facilities related to its expertise.

This extensive ICT infrastructure ensures that teachers and learners have the right digital tools for learning and teaching. At School B, lack of resources is a real challenge that limits the utilization of ICT in teaching and learning. The principal said: *"We do not have tablets for learners. We are not much of an ICT school."*

Further, problems like vandalism and the theft of HDMI cables and other ICT facilities also pose a significant challenge in integrating ICT in School B. The gap in resource provision and ICT utilization can be attributed to the leadership styles of the two schools, as School A's leadership incorporates ICT utilization as a critical component of instruction. However, B School also faces challenges in implementation and sustainability. Professional development and training are other important aspects of leadership in implementing ICT utilization. At School A, the principal makes sure that training is provided through external sponsorships, departmental workshops and the ICT committee. He said: *"We even have some ICT workshops as a school through the ICT committee, and there are those trainings that the Department of Education provides."*

This way, resistance from the older teachers who may prefer the traditional teaching method is overcome since training is frequent. On the other hand, at School B, professional development is not regular. An ICT trainer is hired to visit the school once every week to train the teachers, but the teacher said that the training is not sufficient. This is the view of one of the teachers, as highlighted below: *"This is because an ICT trainer comes to school once every week to train the teachers, but this is not enough."*

This is in concurrence with the study by Blau and Shamir-Inbal (2017), which posited that schools which depend on external training for the utilization of ICT are likely to have slow implementation due to infrequent training and lack of internal follow-up. Leadership's management of the utilization of ICT also plays a key role in determining how the ICTs are utilized in schools. At School A, the principal ensures that the ICTs are incorporated into the teachers' lesson plans, assessments and administrative duties. He said: *"We have to make sure that every month we check the utilization of ICT in teaching and learning."* However, in School B, the principal is somewhat more passive and states that: *"I am the only one who says these people are using the gadgets... but I must make sure that the curriculum is being delivered."* This statement indicates that the principal recognizes the importance of ICTs but does not require their application as tightly as the leadership of School A. This concurs with the study by Blau and

Shamir-Inbal (2017), which stated that passive leadership results in irregular implementation of ICTs because of the absence of strong institutional reinforcement.

To answer the main research question of the study has been, “How does school culture influence the utilization of ICTs in teaching and learning?”

The study showed that leadership is the most important cultural factor affecting ICT utilization. Leadership in School A is proactive in establishing a structured ICT culture where technology is compulsory, funding is well-chased, professional development is regular, and teachers are evaluated. On the other hand, School B’s leadership cannot enforce the utilization of ICT because of poor infrastructure, lack of strict supervision, and irregular training. Ultimately, school culture is driven by leadership choices, and the leaders are central to how the members of staff embrace, utilize and support the utilization of ICTs in teaching and learning. Notwithstanding the limitations outlined in section 5.5. below, Figure 2 below represents what I gleaned from this study.

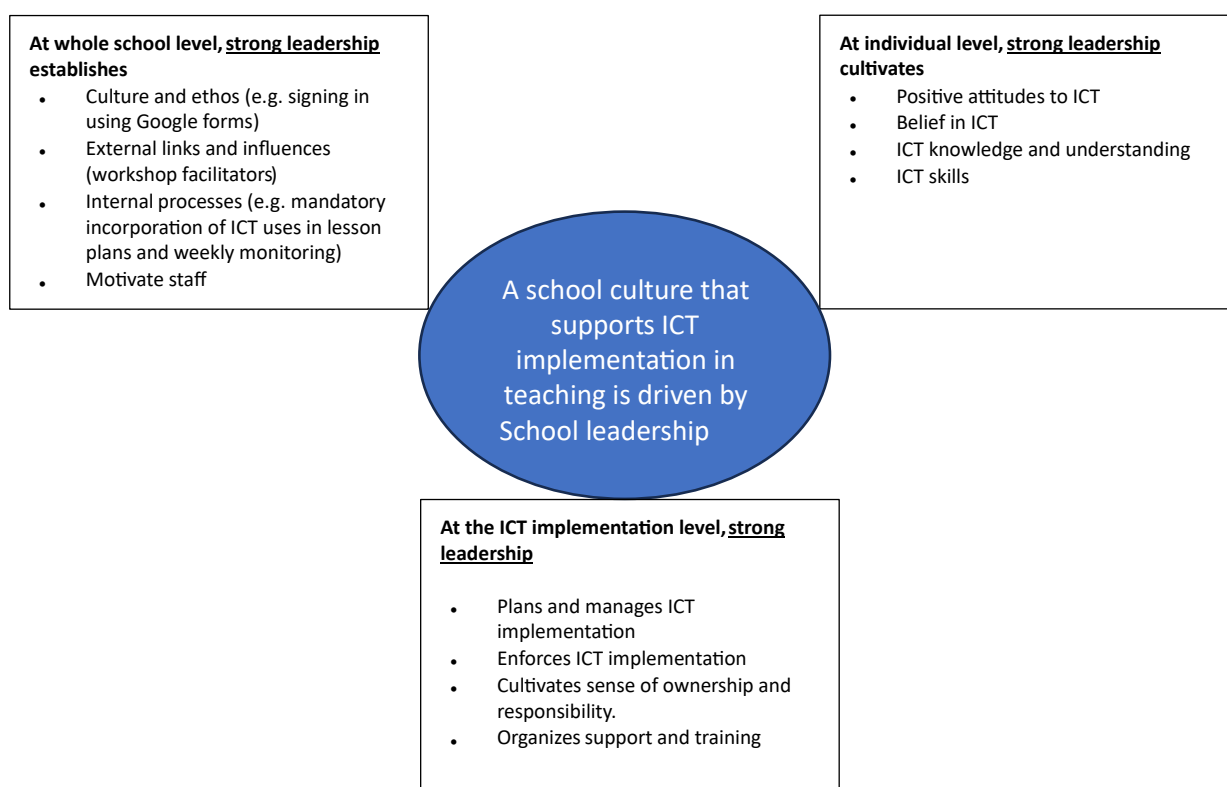


Figure 2: Model showing influence of school leadership on ICT utilization at schools

To answer the sub research questions of the study:

a) **What ICTs are available for teaching and learning programs at the two schools?**

The data from principal interviews and teacher questionnaires were analysed to determine the availability and types of ICTs used in each school. The findings revealed that School A, as a School of Specialization, had a more diverse set of ICT tools, such as learner tablets and interactive whiteboards. In contrast, School B has limited access to advanced ICTs, depending primarily on teacher laptops and simple projectors. This gap has been attributed to resource allocation and leadership priorities in each school, with School A receiving more institutional support for ICT utilization.

b) What is the principal's role in the utilization of ICTs in schools?

The interviews with the principals shed light on the leadership role in ICT utilization. Principals from both schools underlined the need of providing a supportive school environment for ICT utilization. The principal from School A discussed proactive leadership techniques, such as frequent ICT training workshops for teachers and strategic resource allocation. The principal from School B, on the other hand, acknowledged the limitations in fostering ICT utilization due to limited resources and less structured professional development programs. This highlighted the essential role of school leadership in promoting or hindering the use of ICTs.

c) How do teachers perceive the use of ICTs available at their school for teaching and learning?

Teacher questionnaire responses offered a thorough picture of teachers' attitudes toward ICT utilization. Teachers at School A had a positive attitude toward ICTs, noting the availability of appropriate resources and leadership support as major motivators for utilizing ICTs into their teaching. Teachers at School B, on the other hand, stated that despite the potential benefits of ICT, inconsistent access to resources and insufficient training resulted in lower levels of confidence and utilization. These findings demonstrated the importance of resources and support for teacher's willingness and capacity to effectively utilize ICTs in their lessons.

5.4. Limitations of the study

First, the study is limited to two schools in the Gauteng province of South Africa and may not have captured the full impact of school culture on ICT utilization in other provinces. School cultures differ from region to region, and the factors that affect the utilization of ICT in these two schools may not be generalizable to the rest of South African schools. Hence, the findings cannot be extended to all the schools in the country. Second, the study included only two principals and 18 teachers who completed the questionnaire. A bigger sample size from several schools would have given a better impression of the relationship between school leadership, the culture of a school and the utilization of ICT in teaching. Lastly, the study depended entirely on what the two

principals and the 18 teachers said. The small scope of the research project did not allow for direct observations by the researcher at the two schools. This limitation was, however, mitigated by using a bigger sample of teachers (9 from each school). This way, what principals said was triangulated with what teachers said thereby increasing the trustworthiness of the research. As can be seen in principals and teachers' responses attached as appendices, there were no contradictions.

While I may not have directly observed principals, teachers and learners' use of ICTs at the two schools, strong leadership seemed to have been a crucial aspect that should be included at the centre of the conceptual framework as shown in Figure 2 above. While leadership is undoubtedly important, the significance of resource availability and GDE support should not be overlooked. These components can provide the basic support required for teachers as well as learners to effectively use ICTs into teaching and learning. Resources such as computers, internet connectivity, and training programs, as well as ongoing assistance from educational authorities, are critical for overcoming obstacles and utilizing the potential of ICTs in schools. This additional support can ensure that leadership is not isolated, but rather backed by a larger network, allowing the vision for ICT utilization to come true.

5.5. Recommendations for future research

Based on the findings of this study, which explored the influence of school culture on the utilization of ICTs by teachers in two Gauteng schools, several key recommendations are made to enhance the effectiveness of ICT utilization in teaching and learning.

First, regular and comprehensive professional development for teachers is critical. While both schools acknowledge the importance of ICT training, there were inconsistencies in its delivery. Schools should ensure that all teachers receive ongoing, structured training on both the technical utilization of ICTs and pedagogical strategies for utilizing these ICTs effectively in their teaching practices. As Hennessy et al. (2015) suggest, professional development should be continuously aligned with the evolving technological landscape to support teachers in successfully utilizing ICTs in their teaching. Additionally, peer mentoring programs allow more experienced teachers to support their colleagues, fostering a culture of collaboration and learning within the school.

A second crucial recommendation is to strengthen the school culture surrounding ICT utilization. Both schools demonstrated varying levels of engagement with ICTs, and school leadership must play a proactive role in promoting ICT utilization as a critical component of modern teaching and learning. Principals should lead, by example, using ICTs in their administrative work and

encouraging teachers to experiment with and embrace these technologies. Leaders can also create opportunities for teachers to share successful practices, highlighting the benefits of ICT in fostering student engagement and improving learning outcomes (Tondeur et al., 2017). Schools should also emphasize the importance of ICT in creating an environment that supports the development of 21st-century skills for teachers and students.

The third recommendation involves enhancing the ICTs. Both schools identified challenges related to the availability and functionality of ICTs. To maximize ICT utilization, both the school and the department must take an active role. While schools should prioritize regular maintenance along with effective use of available ICTs, the department should continue to provide schools with up-to-date, dependable technology, as well as technical assistance and financing for infrastructure enhancements. This collaborative approach will ensure that ICT utilization is sustainable and effective in the long run. Research by PuenteDura (2013) emphasizes that a solid technological infrastructure is foundational to successfully utilizing ICTs in the classroom. The department of Education should also invest in technical support to address issues swiftly and minimize disruptions, ensuring that teachers and students can rely on these tools during lessons.

Another recommendation is the establishment of clear ICT policies and guidelines. Given some of the challenges related to the misuse of ICTs, such as inappropriate behaviour in WhatsApp groups, schools need to create and enforce clear policies regarding the acceptable utilization of ICT. These policies should outline expectations for teachers and students, helping promote responsible and respectful utilization of technology. According to Glover et al. (2017), clear policies are essential to ensure that ICT utilization is effective and respectful. Schools should also provide guidance on addressing issues such as cyberbullying and ensure that there are mechanisms for monitoring and responding to misuse

5.6. Conclusion

In conclusion, having access to ICTs alone is insufficient for effective ICT utilization in teaching and learning. It requires a strong leadership that is able to drive ICT infrastructure, ongoing teacher development, a supportive school culture, and explicit policies to direct the appropriate utilization of ICTs. To prepare teachers and students to handle the challenges of the digital age, schools must accept ICTs as an essential component of the educational process.

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Appendix 1- interview with the principal

SCHOOL A

1. Can you provide an overview of the ICTs available for teaching and learning in the school?

First, we are an engineering school SOS, and we are a full ICT School (RP). At this moment as a school, we have 21 smartboards (RP) and 21 classes full functional smartboards that are connected to the internet (RP). The school has 35 internet connectivity devices (RP) meaning that a learner can connect to any corner of the school. All 1567 learners have tablets (RP) from GDE from grade 8-12. Those network points have learners meaning that wherever a learner is situated can connect. As a school, since we are a fully functional ICT school, learners are also allowed to come to school with their cellphones (RP). I have more than 20 projectors (RP) and I have 3 computer labs (RP) where learners are doing digital technology from grade 8&9. Those are the new subjects and CAT in grade 10-12.

2. How are these ICTs selected and utilized into the curriculum?

The learner gadgets (RP), remember I said 1567, all of them have gadgets from the department with eBooks (RP) that have been installed in them and there are videos. whatever is in the gadgets is related to the curriculum.

3. As the principal, what strategies or initiatives do you implement to support the utilization of ICTs among teachers and learners?

So, first, as I have already mentioned, 21 classes have smartboards (RP), and the rest of the classes we are using projectors (RP). So, in their lesson plans, there must be ICT related (SL)(ST). So, our periods are one hour long each and 15 minutes is normal teaching where you explain but via the smartboards (RP) or whatever they are having and after they watch a YouTube video (RP). This means they have 2 teachers, a teacher, and a YouTube video (RP). So, in a lesson, a learner will be taught by 2 people, meaning a YouTube video (RP) or whatever is from the smartboard (RP), and the normal teaching and learning by a teacher. That is what we are encouraging (SL)(ST). So, in your lesson plan, you are encouraged to have ICT usage (SL)(ST) in your lesson.

4. How do you perceive your role in ensuring utilization of ICTs in teaching and learning?

So ICT is emphasized every Monday(SL)(ST) in the morning briefings and during the SMT meetings so those teachers that are in the ICT committee which is formed by 8 teachers make sure that it is being emphasized even the classwork and homework(SL)(ST) we lead them to ICT because if we are not going to use ICT as part of teaching and learning and assessment, especially the old teachers, they will end up saying there is no use for ICT(ICTS), (ICTKU), (BICT), (PAICT), (MT) because they still believe in the usage of hard copies (PAICT), (MT). We must make sure that Every month we monitor (SL)(ST) to check the use of ICT in teaching and learning (SL)(ST). There must be something in the lesson plan that is related to ICT. We monitor the entire system.

5. In your observation, how do teachers at your school utilize the ICTs available for teaching and learning?

That is why I mentioned the issue of old teachers (PAICT), (MT), we still have those people who do not want to use ICT(ICTS), (ICTKU), (BICT), (PAICT), (MT). They are shying away from using ICT(ICTS), (ICTKU), (BICT), (PAICT), (MT) and if you do not hold them, show them, they will keep on going back to the old system. So, we make sure that in our departmental meetings, we make sure that we emphasize the usage of ICT(SL)(ST). We even have some ICT workshops (SL)(ST) as a school through the ICT committee (SL)(ST). And there are those trainings that are offered by the department of Education (SL)(ST). Also, I did not mention that we no longer have hard copy textbooks. All the books that we used as hard copies are now in the learner gadgets (RP) so this means that the teacher will be obliged to use ICT(SL)(ST) because the learners are not allowed to have hard copies. We do not give them hard copies anymore; we use the eBooks (RP). Even if the teacher tries to shy away from using ICT, how are they going to teach because all materials (ICTS), (ICTKU), (BICT), are in the gadgets. So, you are forced to use the ICT(SL)(ST).

6. Are there any notable practices or challenges they encounter in their utilization?

Yes for example, in maths whereby we as a school we give homework's via the class or subject WhatsApp groups (RP) and remember if you're using a WhatsApp group(RP), somewhere somehow, only an administrator can post but sometimes when you block the

learners, what if learners and parents are struggling at home and you open the comments to everyone and learners are taking advantage of that and one learner would just post something that is not relevant and it now a disadvantage. If you are saying you are the only person that will post on the group, but the learner is at home now and struggling, they do not understand it how will they communicate with you? And sometimes if the learners are going to talk to you directly, it's a problem because one question from a learner can help other learners so some of the teachers in their class or subject group allow anyone to comment and then some naughty learners just take a picture that is not even relevant and post it and it is very difficult to monitor it. These learners know how to challenge us. The issue here is not that the ICT is not working, but what type of people are using ICT, which mechanisms you are having, what does the policy say, because sometimes we even say we will take the gadget but the policy still says since there are no textbooks, they still need to use the gadgets. Those are the challenges, and our law is not rigid as the way we would like it to be. This is a new system but unfortunately learners are taking advantage. So, what are you going to do? Are you going to close the WhatsApp group (RP)? what about those learners who would benefit? Some teachers prefer to have a WhatsApp group (RP) as a class teacher it is a parents WhatsApp group, not learners WhatsApp group (RP) whereby if there is a homework, even if they gave learners a homework in class, the same question will be posted to the parents WhatsApp group (RP) to show that your child should answer questions. Some parents will say you are wasting their time, and they exit the group and other will call you in the late hours of the night because they have your number. They are now invading your privacy because the sole intention was to help learners. They do not have boundaries and time limits. Those are some of the challenges of ICT because people can say whatever they want and when you start to block them it becomes unfair. A day before yesterday a boy was smoking and then we gave the boy the letter and through ICT, the class teacher informed the parent, and they did not respond. They only responded around 1.am. in the morning shouting the teacher. Now the ICT is no longer in a good practice because the intention was to let the parents know that their child will come with a letter from school. There are many Bac locks of ICT because some people do not have boundaries.

7. From your perspective, how do learners engage with the ICTs provided in the school?

As I have already mentioned, its compulsory for learners to use ICT(SL)(ST) because all the textbooks are in the gadgets (RP). For the learner to learn, they must open their gadget. And what is good about the eBooks (RP) is that eBooks (RP) are not like normal textbooks, because a hardcopy textbook can be the same as the eBook (RP), but an eBook (RP) has a link (RP) where you can just click and a video play (RP). This is advantageous because you do not need an internet (RP) to access the links in the eBooks (RP) but learner who does not have the gadget will only use a hardcopy and will not get full access of other representations of the content. The disadvantage is that stealing, loss because learners are allowed to take the gadgets (RP) home. It is hard to manage it because some of these gadgets get stolen at home by family members. You find that the brother who is into drugs steal the gadgets (RP), and you find that some family members owe mashonisa and they say that they need their money so they will keep the gadget till the dept is paid off. You must be able to manage ICT because some people see it as something they can use to make money. ICT is good but it also comes with challenges.

8. Could you describe any patterns or trends in their utilization?

Let me start with the bad one, after you have explained a teacher and you tell the learners to use the gadgets (RP), they turn to watch some things that are not related to your lesson if you are not moving around. What they do is, they have apps that they have installed so they can easily open the apps and when you pass around them, they close it and open the one you have asked them to open. So, it is now forcing a teacher to move around and check if the learners are doing the right thing. Another pattern is, especially with the smartboards, since they have internet connectivity, what they do is they open a folder for GDE content (RP) for example or a folder that has school content, they would download a movie. So as ICT committee when we check (SL)(ST) the smartboards (RP), for instance you will only see a folder written life sciences reproduction but when you click on the folder you find that it has other sub folders and when you open it, it is a different video. So, you need to monitor and let teachers know about these patterns. This is because if you are not mildly monitoring the gadgets (RP), you will find that there are other videos that are not school related. But the department says the gadgets (RP) are locked, meaning you cannot download an application or a movie, but it is not like that. Learners have ways,

and they are more advanced in ICT, and they will trick you into seeing it because they use the existing folders to download their stuff. Also, the space of the gadget is limited, so there is only a small space to download and when they realize that the space is not enough, they will go to advanced technicians to delete the eBooks, videos (RP) etc. so that they can have enough space. And when you say let us open the GDE content (RP), you find that a learner has deleted it. These are some of the negative patterns. On the positive side Learners are using ICT because there are no hard copies of textbooks. They are compelled to use ICT. It is an advantage because all the eBooks are inside.

9. How do you gauge the effectiveness of ICTs' utilization in enhancing teaching and learning outcomes within our school?

It is helping a lot. I cannot put on percentage but its helping because even if the teacher is not there, a learner can still learn. There are two types of learners, those that are willing to learn and they are no longer come back to teachers and ask the questions because everything is there. They can go to google (RP) or even YouTube (RP) and it helps a lot because you can see the performance of those learners because even when you are explaining in class they will say "sir, google (RP) says this..." and what about those learners who are using it for their own benefit. It reduces their performance because most of the time they will be on their gadgets (RP) not doing what is good. And sometimes when parents realize that their results are dropping, they plead with us that they can take the gadgets because what they are doing at school, they are also doing it at home in their rooms. Parents are complaining about that. The positive way is that it improves the performance of the school but at the same time those learners that are not willing affects the performance because parents will come with the gadgets (RP) and say they don't want to see the gadgets anymore because their kids lock themselves in the rooms pretending to be studying while they are playing games or even watching movies. But when we look at the results, they are something different. So, we have the positives and negatives on the performance of the school. But, as a school since we started using ICT, our performance is much better even if you can look at our matric results. The other thing, the absenteeism rate is low because of the gadgets, so they enjoy interacting with the gadgets. you see it is not like whereby when we were growing, and kids are now different you know they prefer using technology. their life is just centred around

technology that is what I can say about the how this thing happened with the performance.

10. Are there any specific metrics or indicators you rely on to assess the impact of ICTs' utilization on student achievement and engagement?

As a school we have Siyavula and GDE content (RP), so you can check the performance (SL)(ST). Every Monday as a school we get reports (SL)(ST) about the usage and performance (SL)(ST). So last month we were number 1 in physical sciences (SL)(ST) and number 17 for mathematics which was a problem (ICTS), (ICTKU), (BICT), (PAICT), (MT). So, there is an enormous difference in physical sciences. What we have realized is that the physical sciences teacher teaches for 15 minutes and Siyavula platform (RP) for 15 minutes and they do this every day. I think it is because physical science is more practical because you need to observe a lot. Whereas the maths teacher still enjoys doing the sums on the chalkboard (PAICT), (MT) whereas there is a smartboard and a whiteboard in the classroom. He is complaining about the lack of a chalkboard in class (ICTS), (ICTKU), (BICT), (PAICT), (MT), but he is old (BICT), (PAICT), (MT), so I guess that's why he still wishes to use a chalkboard (BICT), (PAICT), (MT). Now let us go to the question, with Siyavula (RP) you can see who is logging in (SL)(ST) and we find that learners that are frequently on Siyavula (RP) are performing much better than those who do not.

11. What steps does the school take to ensure equitable access to ICTs and opportunities for all students, regardless of their backgrounds or abilities?

Fortunately, all learners have gadgets (RP), and all classrooms have smartboards (RP), and our school is fully ICT school, so it is not like this group of learners are limited, all learners have access to ICT in our school.

12. How does inclusivity factor into the school's approach to the utilization of ICTs? All my teachers have laptops (RP), all teachers have laptops (RP) from GDE and HODs were also provided with laptops (RP) and all teachers were given tablets (RP) from one of our sponsors. So, a teacher has two gadgets (RP). We are no longer using physical registers (SL)(ST) in our morning briefings; we use google form (RP). The google form (RP) has a disadvantage as well because we had two 2 scenarios whereby a teacher was not in a meeting and young teachers sent the link to a teacher who was not in the

meeting and the teacher signed as if they were present. So, in other words, we are trying to make things easier, and they are taking advantage of that. We noticed this when we checked the attendance immediately after the meeting who attended the meeting. Surprisingly, I received a WhatsApp (RP) message from the teacher who was not at school informing me that they will not make it to school, but they have already signed the google form (RP). The wonderful thing about google form (RP) is that it indicates the actual time which was signed as compared to a physical signature and a teacher having to manually write the time they got to work. They can easily write an incorrect time. This is an advantage part of ICT because you can track teachers' attendance and the time, they signed the google form (SL)(ST) and you can hold them accountable (SL)(ST). You can also take the statistics and put it in a form of a graph (SL)(ST) and teachers can see who they are doing in terms of keeping time. Most people who run away from using ICT are those who are afraid of accountability because they know that their progress will be tracked of the ICT usage. Here in our school, since its exam time, we are using ICT for timetables (RP). We do not have physical copies for invigilation timetable in our school, we post it on the staff WhatsApp group (RP), and everyone can access it from there.

13. In your opinion, what role does professional development play in supporting teachers' proficiency and confidence in utilizing ICTs for teaching purposes? *As an experienced teacher, I cannot blame the government if teachers for teachers who cannot use ICT(ICTS), (ICTKU), (BICT), (PAICT), (MT). Went through the training (SL)(ST) and we were given gadgets. Based on my experience it is not the system, but it is because of the individual (ICTS), (ICTKU), (BICT), (PAICT), (MT) because the Department of Education has provided us with everything (ICTS), (ICTKU), (BICT), (PAICT), (MT), we need to have access to ICT. Also, it is important that the management is willing to use ICT(SL)(ST) because they are the ones that should instil the culture of ICT utilization to teachers as well (SL)(ST). If the management is not willing, everyone will suffer (ICTS), (ICTKU), (BICT), (PAICT), (MT)*

14. How does the school support ongoing learning and skill development in this area?

The willingness of the management to accept partnerships (SL)(ST) when sponsors approach them also contributes on the culture of the school either in a good or bad way. We do not go look for sponsors, but they approach us as a school (SL)(ST) and if you

serve one partner well, they are going to tell more partners to approach you (SL)(ST). It is the willingness to serve (SL)(ST) that makes sponsors to be attracted to you and bring about positive change (SL)(ST) in the school. We have replaced other schools((BICT), (PAICT), (MT) in terms of getting sponsorship (SL)(ST) because other schools have withdrawn from the offers (ICTS), (ICTKU), (BICT), (PAICT), (MT), and some did not even be available to meet with the sponsors (BICT), (PAICT), (MT). For example, we will attend scheduled meetings by the sponsors, and we find that we were the only school available in the meeting (SL)(ST) and that how we get most opportunities of being sponsored (SL)(ST). The culture of the school is important. Having to respond effectively to the invitations, emails, memorandum released (SL)(ST), when there is an ICT training meeting, responding positively is important. You cannot tell me that I am privileged to have so many sponsors in our school when we were given equal opportunities as schools (SL)(ST). I've got 2 Internet connections and this is how we managed to get this sponsored, they were looking for other schools they had a meeting with the principals of the school that you're going to come to the school 9:00am Saturday to propose this to principals since there are network towers in schools and they were willing to give each school free internet and they were nowhere to be found. Only our school was present (SL)(ST). the culture starts from above, you must delegate (SL)(ST). There should be people responsible for every aspect of the school (SL)(ST). Culture is about respect, working in harmony with all members of the school. Having a functional ICT committee, management plan of meeting different committees (SL)(ST). in our normal SMT meeting every week, the agenda must include ICT(SL)(ST). Assessment as well must be part of the agenda (SL)(ST) for our weekly meetings. So, if you do not have that culture, what are you doing because that is the routine as a teacher. All the project in school, there are committees that are responsible for each role. if we can allow committees to run with all the members that are there, then everything will run smoothly in the school (SL)(ST). Remember that the principal should be in all these committees (SL)(ST) but that does not mean they do the job alone (SL)(ST), they need to delegate (SL)(ST). Another thing that I nearly forgot to mention is security (SL)(ST). Partners want to know how secure the school is, what is the relationship between you and the community (SL)(ST). The community around the school must have respect towards the school premises and they will protect the school if you have a good relationship. The community must own the school in terms of protecting the school.

15. How do you envision the future trajectory of the utilization of ICTs in teaching and learning within your school?

There is a future for ICT usage in schools and we cannot run away from it (ICTS), (ICTKU), (BICT), (PAICT), (MT) whether we like it or not. The problem is not from the learners but the teachers (PAICT), (MT). If teachers have a negative mindset towards ICT (BICT), (PAICT), (MT), then it is a problem. ICT is here to stay, and we need to always motivate teachers to implement it in their teaching (ICTS), (SL) (ICTKU), (BICT), (PAICT), (MT). if system community we are taking care of our schools protect our schools from criminals. ICT attracts criminals because they can see there is something tangible. so, as a school we must make sure that for us to face this future, we are inclined, we are well equipped academically in relation to the usage of ICT(ICTS), (ICTKU), (BICT), (PAICT), (MT).

16. Finally, what strategies or initiatives do you anticipate implementing to further enhance the effectiveness and accessibility of ICTs for educational purposes? Is this question we need to generalize. I think as a department we need to have a strong office where they emphasize the usage of ICT(ICTS), (ICTKU), (BICT) because the department has provided us with the gadgets (RP) and everything, we need to use ICT. It must be legislated that it is compulsory for you to use ICT in teaching and learning (SL)(ST). During COVID, we had online meetings and suddenly, they want us to go back to the old way of having meetings in person.

Appendix 2-interview with the principal SCHOOL B

1. Can you provide an overview of the ICTs available for teaching and learning in the school?

We have smartboards (RP), overhead projectors (RP), laptops (RP). We do not have tablets for learners. We are not much of an ICT school.

2. How are these ICTs selected and utilized into the curriculum?

We are using them (ICTS), (ICTKU), (BICT), (PAICT), (MT) though we have a situation of vandalism, but we are using them effectively to interact or to teach

depending (ICTS), (ICTKU), (BICT), (PAICT), (MT) on the subjects that are loaded there.

3. As the principal, what strategies or initiatives do you implement to support the utilization of ICTs among teachers and learners?

For the teachers, most of them know how to use technology (ICTS), (ICTKU), (BICT), so they use it and even put their USBs (RP) to access the lessons they have prepared (ICTS), (ICTKU), (BICT), (PAICT), (MT). The learners are enjoying the lessons. If it is a PowerPoint (RP), it is easy to see the text or pictures and if it is a video (RP), it is easy for one to relate and especially during exams they can recall it (BICT, ICTKU).

4. How do you perceive your role in ensuring utilization of ICTs in teaching and learning?

As a curriculum driver, I am the one who have to say that these people are using (SL)(ST) the gadgets (RP) or anything or any material that they think will help them, but I must make sure that curriculum is being delivered (SL)(ST) according to the requirements of the department of Education.

5. In your observation, how do teachers at your school utilize the ICTs available for teaching and learning?

They are using them effectively (ICTS), (ICTKU), (BICT), (PAICT), (MT) and it is helping them according to me but like I said to you when we started vandalism is the biggest problem that we face. You wake up and find that something is not there.

6. Are there any notable practices or challenges they encounter in their utilization?

No, the only thing that we used to have the problem of load shedding where prepare the lesson but since then the most challenge faced is vandalism and stolen OPCs and HDMI cables are being stolen (MT, PAICT).

7. From your perspective, how do learners engage with the ICTs provided in the school?

They sometimes use it to watch especially the novels (RP) and lessons that are in a form of a video (RP).

8. Could you describe any patterns or trends in their utilization?

Remember there are some of the programs that are coming from the department of Education, we open the programs so they can access them (SL)(ST). The utilization of a smartboard (RP) is good especially for those that are working but the smartboards (RP) that are not working and are hindering the process of utilization in teaching and learning. You find that in other classes the smart boards (RP) are working and in other classes, they do not.

9. How do you gauge the effectiveness of ICTs' utilization in enhancing teaching and learning outcomes within our school?

I think using ICT, learners are getting more involved than using textbook because they can visualize what you are teaching them (ICTS), (ICTKU), (BICT), than just listening to what you are saying.

10. Are there any specific metrics or indicators you rely on to assess the impact of ICTs' utilization on student achievement and engagement?

I cannot be specific but at most times, as the learners are using the smartboards (RP) they get other resources, and they are able to watch. Even subjects like physical sciences and mathematics become easier for them than to use textbooks. At some point learners bring their USB(RP) and they use the information in the USB.

11. What steps does the school take to ensure equitable access to ICTs and opportunities for all students, regardless of their backgrounds or abilities?

Everyone is allowed to use ICT(SL)(ST) if the class has a smartboard or a projector, (RP) so it is accessible to everyone (ICTS), (ICTKU), (BICT), (PAICT), (MT), but it is not accessible until they break it, with the measures that are in place, it is accessible to everyone.

12. How does inclusivity factor into the school's approach to the utilization of

ICTs? *The learners that are here are of the same mentality. We include all learners in teaching and learning (SL)(ST).*

13. In your opinion, what role does professional development play in supporting teachers' proficiency and confidence in utilizing ICTs for teaching purposes?

It is important for educators to attend workshops (SL)(ST) where they are being developed in their teaching strategies (SL)(ST) as they get new things as they attend the workshops, and you get to learn how to incorporate technology into their teaching (SL)(ST). It becomes easy for a teacher who attends workshops (MT). but for a teacher who does not it is difficult to teach with ICT and they are likely to be left behind (ICTS), (ICTKU), (BICT), (PAICT), (MT).

14. How does the school support ongoing learning and skill development in this area?

We are under the department of Education, we do not have any sponsors or companies knocking at our doors to sponsor us with the gadgets, but we rely on the GDE facilities (SL)(ST) like the laptops (RP) they provide to the teachers (ICTS), (ICTKU), (BICT) and the fewer smartboards (RP) we have in our classrooms.

15. How do you envision the future trajectory of the utilization of ICTs in teaching and learning within your school?

We are living in the fourth industrial revolution, and this will help our learners to have skills before they go to the workspace since ICT is used in many places now.

16. Finally, what strategies or initiatives do you anticipate implementing to further enhance the effectiveness and accessibility of ICTs for educational purposes?

I would like all the learners to be included in ICT, the usage of smartboards, projectors and then we introduce subjects like CAT. If we can introduce that, it will help us reach our target of having each learner in our school being given a chance to access ICT.

School A questionnaires

Teacher Buhle

Questionnaire

Research Title: Exploring the Influence of School Culture on the Utilization of ICTs in Teaching and Learning: A case of two Gauteng schools.

Email *

snelsonphakathi@gmail.com

1. Which ICTs do you use in your teaching and students' learning? *

Smart board, Gamma devices.
, Projector.

2. How often do you use the ICTs you have indicated in the above question? *

Very often

3. What motivates you to use ICTs in your teaching practices? *

Easy to present, gather, research and do administration

4. What impact your utilization of ICTs in teaching and learning? *

Learners improve their marks regularly

5. What are the challenges that you face in your use of ICTs in teaching and learning? *

The lack of ICT knowledge

Lack of devices

6. What do you do when you face such challenges? *

Ask for help to ICT coordinator

7. What are the benefits of using ICTs in teaching and learning? *

Effective in class.

Easily accessible

Make learners gain more by doing more research

8. What kind of support is provided to teachers and learners for effective utilization of ICTs? *

Trainings that we attend for ICT

9. How would you describe your experiences of using ICTs in teaching and learning? *

Moderate

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Questionnaire

Research Title: Exploring the Influence of School Culture on the Utilization of ICTs in Teaching and Learning: A case of two Gauteng schools.

Email *

vunenengwenya@gmail.com

1. Which ICTs do you use in your teaching and students' learning? *

Smart board(PowerPoint slides)

2. How often do you use the ICTs you have indicated in the above question? *

Most often(applicable to classes with smart boards)

3. What motivates you to use ICTs in your teaching practices? *

It makes teaching and learning easy and more productive in less time.

4. What impact your utilization of ICTs in teaching and learning? *

Helps to cover topics easily and more effective. I can include pictures and diagrams in my lesson plan.

5. What are the challenges that you face in your use of ICTs in teaching and learning? *

The smart board can take time to load. Loadshedding use to be a problem.

6. What do you do when you face such challenges? *

I improvise by sending the slide to their phone so the lesson can continue.

7. What are the benefits of using ICTs in teaching and learning? *

It helps learners to see what talking about, you can include, videos, pictures and diagrams.

8. What kind of support is provided to teachers and learners for effective utilization of ICTs? *

We have had workshops and we received laptops.

9. How would you describe your experiences of using ICTs in teaching and learning? *

It's been the best experience, making teaching easy and effective.

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Teacher Blessing

Questionnaire

Research Title: Exploring the Influence of School Culture on the Utilization of ICTs in Teaching and Learning: A case of two Gauteng schools.

Email *

Toto.Seeta@GDESCHOOLS.GOV.ZA

1. Which ICTs do you use in your teaching and students' learning? *

LED boards
Learner and teachers laptops
Microsoft Teams platform
GDE learning resources online

2. How often do you use the ICTs you have indicated in the above question? *

Weekly

3. What motivates you to use ICTs in your teaching practices? *

Visual aid and assessment

4. What impact your utilization of ICTs in teaching and learning? *

Poor WiFi of internet connectivity

5. What are the challenges that you face in your use of ICTs in teaching and learning? *

Most learner devices don't have chargers, some textbooks are not profiled correctly in their laptops

6. What do you do when you face such challenges? *

Learners share their devices in case there's a need and we rely on the use of LED boards

7. What are the benefits of using ICTs in teaching and learning? *

Access to online resources is very helpful

8. What kind of support is provided to teachers and learners for effective utilization of ICTs? *

We have workshops from Bongani Rainmaker and this helps teachers to learn how to use their devices

9. How would you describe your experiences of using ICTs in teaching and learning? *

So far it is good but there's a good chance we can improve

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Questionnaire

Research Title: Exploring the Influence of School Culture on the Utilization of ICTs in Teaching and Learning: A case of two Gauteng schools.

Email *

kwezimasondo22@gmail.com

1. Which ICTs do you use in your teaching and students' learning? *

Tablet

2. How often do you use the ICTs you have indicated in the above question? *

In my normal teaching and learning

3. What motivates you to use ICTs in your teaching practices? *

User friendly

4. What impact your utilization of ICTs in teaching and learning? *

Its user friendly and learner's use it for research

5. What are the challenges that you face in your use of ICTs in teaching and learning? *

Connectivity

6. What do you do when you face such challenges? *

We move around

7. What are the benefits of using ICTs in teaching and learning? *

Research and versatility

8. What kind of support is provided to teachers and learners for effective utilization of ICTs? *

Wi-Fi and laptops for teachers and tablets for kids

9. How would you describe your experiences of using ICTs in teaching and learning? *

More productive

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Questionnaire

**Research Title: Exploring the
Influence of School Culture on the Utilization of ICTs in Teaching and
Learning: A case of two Gauteng schools.**

Email *

sibonelomfubesi04@gmail.com

1. Which ICTs do you use in your teaching and students' learning? *

PC, Projector, smartboard

2. How often do you use the ICTs you have indicated in the above question? *

Very

3. What motivates you to use ICTs in your teaching practices? *

Easy info presentation

4. What impact your utilization of ICTs in teaching and learning? *

Enhance teaching and learning

5. What are the challenges that you face in your use of ICTs in teaching and learning? *

Loadshedding and digital divide

6. What do you do when you face such challenges? *

Ask for assistance

7. What are the benefits of using ICTs in teaching and learning? *

Easy research

8. What kind of support is provided to teachers and learners for effective utilization of ICTs? *

Training

9. How would you describe your experiences of using ICTs in teaching and learning? *

Good experience

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Questionnaire

Research Title: Exploring the Influence of School Culture on the Utilization of ICTs in Teaching and Learning: A case of two Gauteng schools.

Email *

banelesibeko74@gmail.com

1. Which ICTs do you use in your teaching and students' learning? *

I use outlook

2. How often do you use the ICTs you have indicated in the above question? *

Every lessons

3. What motivates you to use ICTs in your teaching practices? *

Because learner like it more in the lesson

4. What impact your utilization of ICTs in teaching and learning? *

Learners engage more

5. What are the challenges that you face in your use of ICTs in teaching and learning? *

Network connectivity

6. What do you do when you face such challenges? *

I the for go back to the traditional way of teaching

7. What are the benefits of using ICTs in teaching and learning? *

Learner pass

8. What kind of support is provided to teachers and learners for effective utilization of ICTs? *

Everything is easy with ict because if the don't understand the lesson you quickly go to video

9. How would you describe your experiences of using ICTs in teaching and learning? *

Learner engag more in class

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Questionnaire

**Research Title: Exploring the
Influence of School Culture on the Utilization of ICTs in Teaching and
Learning: A case of two Gauteng schools.**

Email *

zwanep403@gmail.com

1. Which ICTs do you use in your teaching and students' learning? *

Smartboard
Laptop

2. How often do you use the ICTs you have indicated in the above question? *

During lessons, which is almost everyday

3. What motivates you to use ICTs in your teaching practices? *

It makes it interesting to learners and gets them to engage and be visible in the lesson

4. What impact your utilization of ICTs in teaching and learning? *

It keeps the lesson interesting and gets learners to engage and be involved in the subject

5. What are the challenges that you face in your use of ICTs in teaching and learning? *

None as yet,especially ones that hinder the use of ICTs in class,

6. What do you do when you face such challenges? *

Not applicable

7. What are the benefits of using ICTs in teaching and learning? *

It makes teaching a learning interesting and it triggers excitement and longing to learners

8. What kind of support is provided to teachers and learners for effective utilization of ICTs? *

They are trained by DBE with Matthew agonize on the use of ICTs in classes and the importance thereof of using such in class. They are also provided with GDE laptops to facilitate the use of ICTs in classrooms

9. How would you describe your experiences of using ICTs in teaching and learning? *

It's been exciting and at times a bit challenging because technology is forever evolving,but it's been an exciting one.

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Teacher Kim

Questionnaire

Research Title: Exploring the
Influence of School Culture on the Utilization of ICTs in Teaching and
Learning: A case of two Gauteng schools.

Email *

zwelihlemlambo@gmail.com

1. Which ICTs do you use in your teaching and students' learning? *

Projector and laptop

2. How often do you use the ICTs you have indicated in the above question? *

Very often

3. What motivates you to use ICTs in your teaching practices? *

Convenient info presentation and research

4. What impact your utilization of ICTs in teaching and learning? *

Enhanced lessons

5. What are the challenges that you face in your use of ICTs in teaching and learning? *

Digital divide and lack of knowledge

6. What do you do when you face such challenges? *

Ask for assisting from ICT coordinator

7. What are the benefits of using ICTs in teaching and learning? *

Better lesson presentation

8. What kind of support is provided to teachers and learners for effective utilization of ICTs? *

Training

9. How would you describe your experiences of using ICTs in teaching and learning? *

Good

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Questionnaire

**Research Title: Exploring the
Influence of School Culture on the Utilization of ICTs in Teaching and
Learning: A case of two Gauteng schools.**

Email *

wrightcarlo9@gmail.com

1. Which ICTs do you use in your teaching and students' learning? *

Smartboard as a teaching tool

Personal laptop myself

Desktops for learners with internet connection

WhstsApp groups to send activities, notes and exam papers

2. How often do you use the ICTs you have indicated in the above question? *

Very regularly

All periods and after school

3. What motivates you to use ICTs in your teaching practices? *

Accessibility

Time saving

Efficient

Less reliance on paper and printing

4. What impact your utilization of ICTs in teaching and learning? *

Great dependence on it as a teaching tool
Makes teaching much easier for myself and learners

5. What are the challenges that you face in your use of ICTs in teaching and learning? *

Breakdown of hardware like Desktops
Not all learners have smartphones, internet or computers at home

6. What do you do when you face such challenges? *

Extra focus on learners who have a lack of exposure to computers and finding ways to make sure all learners have access to resources

7. What are the benefits of using ICTs in teaching and learning? *

Preparing learners for this current 4th and 5th industrial technological revolution and ensuring they are well prepared for their tertiary studies

8. What kind of support is provided to teachers and learners for effective utilization of ICTs? *

There are well functioning labs and learners were given laptops

9. How would you describe your experiences of using ICTs in teaching and learning? *

Is fundamental in teaching and learning and must be continually developed and promoted

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School B questionnaires

Teacher Keano

Questionnaire

Research Title: Exploring the Influence of School Culture on the Utilization of ICTs in Teaching and Learning: A case of two Gauteng schools.

Email *

luula.maxwell@gmail.com

1. Which ICTs do you use in your teaching and students' learning? *

Smart board

2. How often do you use the ICTs you have indicated in the above question? *

Hardly

3. What motivates you to use ICTs in your teaching practices? *

To make the lesson interesting and appeal to the Gen Z generation

4. What impact your utilization of ICTs in teaching and learning? *

ITC resources dysfunctionality

5. What are the challenges that you face in your use of ICTs in teaching and learning? *

Unreliability due to power outages, broken and freezing smartboards

6. What do you do when you face such challenges? *

It can be instant, liven the class, bring reality to class

7. What are the benefits of using ICTs in teaching and learning? *

I opt for the traditional whiteboard or chalkboard use for teaching

8. What kind of support is provided to teachers and learners for effective utilization of ICTs? *

There is an ICT trainer who comes to school once a week to upskill teachers on the use of ICT

9. How would you describe your experiences of using ICTs in teaching and learning? *

It started fairly well but now it is horribly unavailable.

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Questionnaire

Research Title: Exploring the Influence of School Culture on the Utilization of ICTs in Teaching and Learning: A case of two Gauteng schools.

Email *

fkey2017@gmail.com

1. Which ICTs do you use in your teaching and students' learning? *

Smart board and laptop

2. How often do you use the ICTs you have indicated in the above question? *

Four times a week

3. What motivates you to use ICTs in your teaching practices? *

It's simplified the teaching and learning.

4. What impact your utilization of ICTs in teaching and learning? *

Learners are more exposed to previous question papers.

5. What are the challenges that you face in your use of ICTs in teaching and learning? *

OPS being stolen by our learners.

6. What do you do when you face such challenges? *

We report to principal and GDE E-learning.

7. What are the benefits of using ICTs in teaching and learning? *

It enhances teaching and learning. Learners performance improves.

8. What kind of support is provided to teachers and learners for effective utilization of ICTs? *

Teachers are continually trained by Mettew Goniwe

9. How would you describe your experiences of using ICTs in teaching and learning? *

It's user friendly and makes lesson interesting. Learners focus more when they see things.

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Questionnaire

Research Title: Exploring the Influence of School Culture on the Utilization of ICTs in Teaching and Learning: A case of two Gauteng schools.

Email *

mulokwerendani@yahoo.com

1. Which ICTs do you use in your teaching and students' learning? *

Smart board and smart skap

2. How often do you use the ICTs you have indicated in the above question? *

Daily

3. What motivates you to use ICTs in your teaching practices? *

Saves time

4. What impact your utilization of ICTs in teaching and learning? *

Learners learn better through visualization

5. What are the challenges that you face in your use of ICTs in teaching and learning? *

When there is no electricity and when school WiFi not working

6. What do you do when you face such challenges? *

Use my projector

7. What are the benefits of using ICTs in teaching and learning? *

It makes learning interesting

8. What kind of support is provided to teachers and learners for effective utilization of ICTs? *

More informal Google test

9. How would you describe your experiences of using ICTs in teaching and learning? *

Not perfect but getting there

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Questionnaire

Research Title: Exploring the Influence of School Culture on the Utilization of ICTs in Teaching and Learning: A case of two Gauteng schools.

Email *

sthe.jiyane17@gmail.com

1. Which ICTs do you use in your teaching and students' learning? *

Smart boards and laptops

2. How often do you use the ICTs you have indicated in the above question? *

With the smart board the are textbooks in it that we use in class and use laptops to set class tests

3. What motivates you to use ICTs in your teaching practices? *

It is very easy to use

4. What impact your utilization of ICTs in teaching and learning? *

Loadshading and criminals from the surroundings of the school

5. What are the challenges that you face in your use of ICTs in teaching and learning? *

None. Cause the texts books are already downloaded so network is not even a problem

6. What do you do when you face such challenges? *

At school if i cant open a file i usually ask for assistance from the ICT committee mamber

7. What are the benefits of using ICTs in teaching and learning? *

It saves time for writing homeworks, class works and notes on the board. So that you finish the lesson in time

8. What kind of support is provided to teachers and learners for effective utilization of ICTs? *

We have ICT committee that helps with difficulties.

9. How would you describe your experiences of using ICTs in teaching and learning? *

It is very beneficial cause the learners are already exposed to to much technology so using it is not that hard they even help sometimes

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Questionnaire

Research Title: Exploring the Influence of School Culture on the Utilization of ICTs in Teaching and Learning: A case of two Gauteng schools.

Email *

potsaneleballo@gmail.com

1. Which ICTs do you use in your teaching and students' learning? *

The smart board

2. How often do you use the ICTs you have indicated in the above question? *

Almost daily

3. What motivates you to use ICTs in your teaching practices? *

It makes teaching convenient as it allows for the integration of visuals and audio in teaching to accommodate a variety of learning styles. Moreover, it saves time.

4. What impact your utilization of ICTs in teaching and learning? *

Keeping up with the times. To make learning fun and modern.

5. What are the challenges that you face in your use of ICTs in teaching and learning? *

Load shedding. And vandalization of infrastructure.

6. What do you do when you face such challenges? *

I just revert back to the classical way of teaching, the use of chalkboard and chalk or a whiteboard and marker.

7. What are the benefits of using ICTs in teaching and learning? *

It allows for a faster and effective way of covering the syllabus content.

8. What kind of support is provided to teachers and learners for effective utilization of ICTs? *

Wi-Fi around the institution even though the Wi-Fi is fast. Training is provided to educators though not enough as some educators, a significant number of educators is not ICT savvy.

9. How would you describe your experiences of using ICTs in teaching and learning? *

It has not been as smooth as it should be.

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Research Title: Exploring the Influence of School Culture on the Utilization of ICTs in Teaching and Learning: A case of two Gauteng schools.

1. Which ICTs do you use in your teaching and students' learning?

Smart board

2. How often do you use the ICTs you have indicated in above question?

Mostly; every display I do I do it on the smart board and every question is displayed on the board; including videos.

3. What motivates you to use ICTs in your teaching practices?

It enhances the teaching and learning and it make it more effective since it saves time and shows diagrams clearly.

4. What impact your utilization of ICTs in teaching and learning?

With clear display, and playing videos to elaborate further; learners become more interested in the topic and they work more effectively.

5. What are the challenges that you face in your use of ICTs in teaching and learning?

1. Loadshedding
2. Broken Smartboard
3. Learners stealing harddrives

6. What do you do when you face such challenges?

1. We still hoping that our school get supplementary power
2. Broken smartboards are noted down for repairs.
3. Smartboards are locked and keys given to teachers for that class.

7. What are the benefits of using ICTs in teaching and learning?

1. It save time
2. It keep the Information for future use
3. It makes teaching more effective.

8. What kind of support is provided to teachers and learners for effective utilization of ICTs?

1. Teachers are trained by the ICT facilitator for the use of ICT.
2. The ICT facilitator train the teachers for modern methods of Microsoft.

9. How would you describe your experiences of using ICTs in teaching and learning?

1. It has made teaching more fun.
2. It has made teaching and learning more effective.
3. It is inline with the 4th industrial revolution.



Research Title: Exploring the Influence of School Culture on the Utilization of ICTs in Teaching and Learning: A case of two Gauteng schools.

1. Which ICTs do you use in your teaching and students' learning?

Smart boards -

2. How often do you use the ICTs you have indicated in above question?

One a week.

3. What motivates you to use ICTs in your teaching practices?

It makes it easy to engage ^{with} learners, it also allow learners to learn knowing and seeing the real thing.

4. What impact your utilization of ICTs in teaching and learning?

It gives a better realising of things, it also upgraded the system of learning

5. What are the challenges that you face in your use of ICTs in teaching and learning?

Stealing OF equipment, upgrading the system
time to time, power cut, virus affected

6. What do you do when you face such challenges?

Go back to initial board, and text books

7. What are the benefits of using ICTs in teaching and learning?

Taking learners to an updated system of
nowadays. better learning system.

8. What kind of support is provided to teachers and learners for effective utilization of ICTs?

Training, upgraded system, extra power source for
back up.

9. How would you describe your experiences of using ICTs in teaching and learning?

well experience and a better one, though some
~~changes~~ challenges but it makes things simple
and easier.

Teacher Tumi

UNIVERSITY OF THE
WITWATERSRAND,
JOHANNESBURG



Research Title: Exploring the Influence of School Culture on the Utilization of ICTs in Teaching and Learning: A case of two Gauteng schools.

1. Which ICTs do you use in your teaching and students' learning?

I use a Smartboard.

2. How often do you use the ICTs you have indicated in above question?

once a week, In some of the classes, Smartboards are not working and hence learners are rotated in one class.

3. What motivates you to use ICTs in your teaching practices?

It saves time since some of the learner support materials like textbooks can be accessed from the smartboard.

4. What impact your utilization of ICTs in teaching and learning?

All the learners are able to view the textbook and transfer information to their workbooks or notes books

5. What are the challenges that you face in your use of ICTs in teaching and learning?

- Some of the smart boards are not functional which delays progress in as far as coverage of ATP
- Problems with electricity break out

6. What do you do when you face such challenges?

Extra-classes are done to ensure that the lesson has been taught to all the learners.

7. What are the benefits of using ICTs in teaching and learning?

- ICT saves time when all the smart boards are functional
- Information is saved on smart boards and will be always available in teachers absence

8. What kind of support is provided to teachers and learners for effective utilization of ICTs?

- Various textbooks are loaded in the smartboards which can be used by learners for referencing.
- New information is always included

9. How would you describe your experiences of using ICTs in teaching and learning?

- Good, ICT develops an interest on learners to actively participate in lessons
- It is the quickest way of sharing information with learners.



Research Title: Exploring the Influence of School Culture on the Utilization of ICTs in Teaching and Learning: A case of two Gauteng schools.

1. Which ICTs do you use in your teaching and students' learning?

None

2. How often do you use the ICTs you have indicated in above question?

None

3. What motivates you to use ICTs in your teaching practices?

The School does not have enough resources for all the department to access ICTs in teaching and learning.

4. What impact your utilization of ICTs in teaching and learning?

With the use of ICTs makes teaching and learning interesting and it's easy to deliver lessons.

5. What are the challenges that you face in your use of ICTs in teaching and learning?

Network connectivity and lack of enough resources.

6. What do you do when you face such challenges?

Request for resources to the D.H.

7. What are the benefits of using ICTs in teaching and learning?

Demonstration of lessons and increased classroom productivity.

8. What kind of support is provided to teachers and learners for effective utilization of ICTs?

Internet Navigation Skills
Typing Skills
Electronic presentation Skills.

9. How would you describe your experiences of using ICTs in teaching and learning?

None.

Appendix 3: Responses from school A questionnaire

1. Which ICTs do you use in your teaching and students' learning?

- *"Smart board, Gamma devices, Projector." (RP)*
- *Smart board (PowerPoint slides) (RP)*
- *"LED boards, Learner and teachers' laptops, Microsoft Teams platform and GDE learning resources online " (RP)*
- *Tablet (RP)*
- *PC, Projector, smartboard (RP)*
- *I use outlook (RP)*
- *Projector and laptop (RP)*
- *"Smartboard (RP) as a teaching tool. Personal laptop (RP) myself. Desktops (RP) for learners with internet connection. WhatsApp groups (RP) to send activities, notes and exam papers (ICTS, ICTKU, MT)"*

2. How often do you use the ICTs you have indicated in the above question?

- *Very often (BICT), (PAICT), (MT)*
- *Most often(applicable to classes with smart boards) (BICT), (PAICT), (MT)*
- *Weekly (BICT), (PAICT), (MT)*
- *In my normal teaching and learning*
- *Every lesson (BICT), (PAICT), (MT)*
- *During lessons, which is almost every day (BICT), (PAICT), (MT)*
- *Very often (BICT), (PAICT), (MT)*
- *"Very regularly .All periods and after school" (ICTS), (ICTKU), (BICT), (PAICT), (MT)*

3. What motivates you to use ICTs in your teaching practices?

- *"Easy to present, gather, research and do administration" (ICTS), (ICTKU), (BICT), (PAICT), (MT)*
- *It makes teaching and learning easy and more productive in less time. (ICTS), (ICTKU), (BICT), (PAICT), (MT)*
- *Visual aid and assessment (ICTS), (ICTKU), (BICT)*
- *User friendly (ICTS), (ICTKU), (BICT), (PAICT), (MT)*
- *Easy info presentation (ICTS), (ICTKU), (BICT), (PAICT), (MT)*
- *Because learner like it more in the lesson (ICTS), (ICTKU), (BICT), (PAICT), (MT)*
- *It makes it interesting to learners and gets them to engage and be visible in the lesson (ICTS), (ICTKU), (BICT), (PAICT), (MT)*
- *Convenient info presentation and research (ICTS), (ICTKU), (BICT), (PAICT), (MT)*
- *"Accessibility, Time saving and Efficient and Less reliance on paper and printing" (ICTS), (ICTKU), (BICT), (PAICT), (MT)*

4. What impact your utilization of ICTs in teaching and learning?

- *Learners improve their marks regularly (PAICT, ICTS, ICTKU)*
- *Helps to cover topics easily and more effective. I can include pictures and diagrams in my lesson plan (ICTS, BICT, ICTKU, MT, PAICT).*
- *Poor Wi-Fi of internet connectivity (MT, BICT)*
- *Its user friendly and learner's use it for research (ICTS)*
- *Enhance teaching and learning (MT, BICT, PAICT, ICTKU)*
- *Learners engage more (MT, BICT, PAICT, ICTKU)*
- *It keeps the lesson interesting and gets learners to engage and be involved in the subject (MT, BICT, PAICT, ICTKU)*
- *Enhanced lessons (MT, BICT, PAICT, ICTKU)*

- *"Great dependence on it as a teaching tool. Makes teaching much easier for myself and learners"* (ICTS, BICT, ICTKU, MT, PAICT).

5. What are the challenges that you face in your use of ICTs in teaching and learning?

- *"The lack of ICT knowledge Lack of devices "* (ICTS)
- *The smart board can take time to load. Load shedding use to be a problem.* (BICT, MT, PAICT, ICTS, ICTKU)
- *Most learner devices don't have chargers, some textbooks are not profiled correctly in their laptops* (ICTKU)
- *Connectivity* (RP)
- *Load shedding and digital divide* (ICTKU)
- *Network connectivity* (RP)
- *None as yet, especially ones that hinder the use of ICTs in class,* (BICT, PAICT,
- *Digital divide and lack of knowledge* (ICTS, ICTKU, PAICT, BICT, MT)
- *"Breakdown of hardware like Desktops. Not all learners have smartphones, internet or computers at home"* (MT)

6. What do you do when you face such challenges?

- *Ask for help to ICT coordinator* (ICTS), (ICTKU), (BICT), (PAICT), (MT)
- *I improvise by sending the slide to their phone so the lesson can continue.* (ICTS), (ICTKU), (BICT),
- *Learners share their devices in case there's a need and we rely on the use of LED boards* (ICTS), (ICTKU), (BICT), (PAICT), (MT)
- *We move around* (PAICT, MT)
- *Ask for assistance* (PAICT, MT, ICTS, ICTKU, BICT)
- *I the for go back to the traditional way of teaching* (MT, PAICT, BICT)

- *Not applicable (MT)*
- *Ask for assisting from ICT coordinator (ICTS), (ICTKU), (BICT), (PAICT), (MT)*
- *Extra focus on learners who have a lack of exposure to computers and finding ways to make sure all learners have access to resources (ICTS), (ICTKU), (BICT)*

7. What are the benefits of using ICTs in teaching and learning?

- *"Effective in class. Easily accessible. Make learners gain more by doing more research" (ICTS, BICT, ICTKU, MT, PAICT).*
- *It helps learners to see what talking about, you can include, videos, pictures and diagrams. (ICTS, PAICT, MT)*
- *Access to online resources is very helpful (RP)*
- *Research and versatility (ICTKU)*
- *Easy research (ICTKU)*
- *Learner pass (PAICT, BICT, ICTDS, ICTKU, MT)*
- *It makes teaching a learning interesting and it triggers excitement and longing to learners (PAICT, BICT, ICTDS, ICTKU, MT)*
- *Better lesson presentation (PAICT, BICT, ICTDS, ICTKU, MT)*
- *Preparing learners for this current 4th and 5th industrial technological revolution and ensuring they are well prepared for their tertiary studies (PAICT, BICT, ICTDS, ICTKU)*

8. What kind of support is provided to teachers and learners for effective utilization of ICTs?

- *Trainings that we attend for ICT(SL)(ST)*
- *We have hard workshops and we received laptops. (SL)(ST)*

- *We have workshops from Bongani Rainmaker and this helps teachers to learn how to use their devices(SL)(ST)*
- *Wi-Fi and laptops for teachers and tablets for kids (RP)*
- *Training (SL)(ST)*
- *Everything is easy with ICT because if they don't understand the lesson you quickly go to video (ICTS, ICTKU, BICT, PAICT)*
- *They are trained by DBE with Matthew(SL)(ST) agonize on the use of ICTs in classes and the importance thereof of using such in class. They are also provided with GDE laptops to facilitate the use of ICTs in classrooms*
- *Training(SL)(ST)*
- *There are well functioning labs and learners were given laptops (PAICT, BICT, ICTDS, ICTK)*

9. How would you describe your experiences of using ICTs in teaching and learning?

- *Moderate (PAICT, MT, BICT, ICTS, ICTKU)*
- *It's been the best experience, making teaching easy and effective. (ICTS), (ICTKU), (BICT), (PAICT), (MT)*
- *So far it is good but there's a good chance we can improve (ICTS), (ICTKU),(BICT), (PAICT), (MT)*
- *More productive (ICTS), (ICTKU), (BICT), (PAICT), (MT)*
- *Good experience (ICTS), (ICTKU), (BICT), (PAICT), (MT)*
- *Learner engages more in class (ICTS), (ICTKU), (BICT), (PAICT), (MT)*
- *It's been exciting and at times a bit challenging because technology is forever evolving, but it's been an exciting one. (ICTS), (ICTKU), (BICT), (PAICT), (MT)*
- *Good (ICTS), (ICTKU), (BICT), (PAICT), (MT)*
- *Is fundamental in teaching and learning and must be continually developed and promoted (ICTS), (ICTKU), (BICT), (PAICT), (MT)*

Appendix 4: Responses from school B questionnaire

1. Which ICTs do you use in your teaching and students' learning?

- *Smart board(RP)*
- *Smart board and laptop (RP)*
- *Smart board and smart skap(RP)*
- *Smart boards and laptops(RP)*
- *The smart board(RP)*
- *Smart board(RP)*
- *None (MT, RP)*
- *I use a smartboard(RP)*
- *Smartboard(RP)*

2. How often do you use the ICTs you have indicated in the above question?

- *Hardly (BICT), (PAICT), (MT)*
- *Four times a week (ICTS), (ICTKU), (BICT), (PAICT), (MT)*
- *Daily (ICTS), (ICTKU), (BICT), (PAICT), (MT)*
- *With the smart board the are textbooks in it that we use in class and use laptops to set class tests(ICTS), (ICTKU), (BICT), (PAICT), (MT)*
- *Almost daily (ICTS), (ICTKU), (BICT), (PAICT), (MT)*
- *Mostly, every display I do, I do it on the smart board. With every question displayed on the smartboard including videos. (ICTS), (ICTKU), (BICT), (PAICT), (MT)*
- *Not applicable(MT)*
- *Once a week (BICT), (PAICT), (MT), in some of the classes, smartboards are not working and hence, learners are rotated to some classes.*
- *Once a week. (ICTS), (ICTKU), (BICT), (PAICT), (MT)*

3. What motivates you to use ICTs in your teaching practices?

- *To make the lesson interesting and appeal (ICTS), (ICTKU), (BICT), to the Gen Z generation (PAICT), (MT)*
- *It's simplified the teaching and learning. (ICTS), (ICTKU), (BICT), (PAICT), (MT)*
- *Saves time (BICT), (PAICT), (MT)*
- *It is very easy to use (ICTS), (ICTKU), (BICT), (PAICT), (MT)*
- *It makes teaching convenient as it allows for the utilization of visuals and audio, (PAICT), (MT) in teaching to accommodate a variety of learning styles (ICTS), (ICTKU), (BICT). Moreover, it saves time.*
- *It enhances the teaching and learning (BICT), (PAICT), (MT) and it makes it more effective since it saves time and shows diagrams clearly. (ICTS), (ICTKU),*
- *The school does not have enough resources (RP) for all the departments to access ICTs in teaching and learning. (MT)*
- *It saves time since some of the learner's support material (RP) can be accessed from the smartboard (RP). (ICTS), (ICTKU), (BICT), (PAICT), (MT). It makes it easy to engage the learners (BICT), (PAICT), (MT), it also allows learners to learn knowing and seeing the real thing. (ICTS), (ICTKU)*

4. What impact your utilization of ICTs in teaching and learning?

- *ITC resources dysfunctionality*
- *Learners are more exposed to previous question papers.*
- *Learners learn better through visualization (ICTS), (ICTKU), (BICT), (PAICT), (MT)*
- *Load shedding and criminals from the surroundings of the school*
- *Keeping up with the times (ICTS), (ICTKU), (BICT), (PAICT), (MT). To make learning fun and modern.*
- *With clear display and playing videos (ICTS), (ICTKU), (BICT), (PAICT), (MT) to elaborate further, learners become more interested in the topic and they work more effectively. (ICTS), (ICTKU), (BICT),*

- *With the use of ICTs, it makes teaching and learning interesting and easy to deliver lessons. (ICTS), (ICTKU), (BICT), (PAICT), (MT)*
- *All the learners are able to view the textbook and transfer information to their workbooks or note books. (ICTS), (ICTKU), (BICT), (PAICT)*
- *It gives a better realistic of things (ICTS), (ICTKU), (BICT), (PAICT), (MT), it also upgraded the system for learning.*

5. What are the challenges that you face in your use of ICTs in teaching and learning?

- *Unreliability due to power outages, broken and freezing smartboards (RP)*
- *OPS being stolen by our learners. (MT, PAICT)*
- *When there is no electricity and when school Wi-Fi not working (MT, PAICT)*
- *None. Cause the texts books are already downloaded so network is not even a problem (MT, PAICT)*
- *Load shedding. And vandalization of infrastructure. (MT, PAICT)*
- *Load shedding, broken smartboards, learners stealing hard drives(MT, PAICT)*
- *Network connectivity and lack of enough resources.(RP)*
- *Some of the smartboards are not functional which delays the progress in as far as the coverage of ATP. Also, problems with electricity breakout.(RP, MT)*
- *Stealing of equipment, power cut, virus affected(MT, PAICT)*

6. What do you do when you face such challenges?

- *It can be instant, liven the class, bring reality to class*
- *We report to principal and GDE E-learning. (ICTS), (ICTKU), (BICT), (PAICT), (MT)*
- *Use my projector (ICTS), (ICTKU), (BICT), (PAICT), (MT)*
- *At school if I can't open a file I usually ask for assistance from the ICT committee(ICTS), (ICTKU), (BICT), (PAICT), (MT) member*
- *I just revert back to the classical way of teaching, the use of chalkboard and chalk or a whiteboard and marker. (BICT, MT, PAICT)*
- *We still hoping that our school get supplementary power, broken smartboards are noted down for repairs, and smartboards are locked and keys given to teachers for that class (BICT), (PAICT), (MT)*
- *Request for resources from the departmental head.(RP)*
- *Extra classes are done to ensure that the lesson has been taught to all the learners (MT)*

Go back to chalkboards and textbooks (MT, RP)

7. What are the benefits of using ICTs in teaching and learning?

- *I opt for the traditional whiteboard or chalkboard(ICTS), (ICTKU), (BICT), (PAICT), (MT) use for teaching*
- *It enhances teaching and learning. Learner's performance improves. (ICTS), (ICTKU), (BICT), (PAICT), (MT)*
- *It makes learning interesting (ICTS), (ICTKU), (BICT), (PAICT), (MT)*
- *It saves time for writing homework; class works and notes on the board. So that you finish the lesson in time(ICTS), (ICTKU), (BICT), (PAICT), (MT)*
- *It allows for a faster and effective way of covering the syllabus content. (ICTS), (ICTKU), (BICT), (PAICT), (MT)*
- *It saves time, it keeps the information for future use(ICTS), (ICTKU), (BICT), (PAICT), (MT) and it makes teaching more effective*
- *Demonstration of lessons(ICTS), (ICTKU), (BICT), (PAICT), (MT) and increased classroom productivity.*
- *ICT saves time when all the smartboards are functional. Information is saved on smartboard and will always be available for the teacher. (ICTS), (ICTKU), (BICT), (PAICT), (MT)*
- *Taking learners to an upgraded system of nowadays, better learning system(ICTS), (ICTKU), (BICT), (PAICT), (MT)*

8. What kind of support is provided to teachers and learners for effective utilization of ICTs?

- *There is an ICT trainer who comes to school once a week(SL)(ST)(RP) to upskill teachers on the use of ICT*
- *Teachers are continually trained by Matthew Goniwe(SL)(ST) (RP)*
- *More informal Google test (SL)(ST) (ICTS), (ICTKU), (BICT), (PAICT), (MT)*
- *We have ICT committee that helps with difficulties. (SL)(ST) (ICTS), (ICTKU), (BICT), (PAICT), (MT)*
- *Wi-Fi around the institution even though the Wi-Fi is fast. Training is provided to educators though not enough as some educators, a significant number of educators is not ICT savvy. (SL)(ST)*

Teachers are trained by the ICT facilitators for the use of ICT. The ICT facilitator train the teachers for modern methods of Microsoft. (SL)(ST)

- *Internet navigation skills, typing skills and electronic presentation skills(SL)(ST)*
- *Various textbooks are loaded in the smartboards which can be used by learners for referencing. New information is always included(SL)(ST) (ICTS), (ICTKU), (BICT), (PAICT), (MT)*
- *Training, upgraded system, extra power source for back up. (SL)(ST)*

9. How would you describe your experiences of using ICTs in teaching and learning?

- *It started fairly well but now it is horribly unavailable. (BICT), (PAICT), (MT)*
 - *It's user friendly and makes lesson interesting(ICTS), (ICTKU), (BICT), (PAICT), (MT). Learners focus more when they see things.*
- *Not perfect but getting there(ICTS), (ICTKU), (BICT), (PAICT), (MT)*
- *It is very beneficial cause the learners are already exposed to much technology so using it is not that hard they even help sometimes(SL)(ST) (ICTS), (ICTKU), (BICT), (PAICT), (MT)*
- *It has not been as smooth as it should be. (SL)(ST) (ICTS), (ICTKU), (BICT), (PAICT), (MT)*
- *It has made teaching more fun. Has made teaching and learning more effective. It is in line with the 4th industrial revolution(ICTS), (ICTKU), (BICT), (PAICT), (MT).*
- *Not applicable(ICTS), (ICTKU), (BICT), (PAICT), (MT)*
- *Good, ICT develops an interest in learners to actively participate(ICTS), (ICTKU), (BICT), (PAICT), (MT) in lessons. It is the quickest way of sharing information with learners.*
- *Well experienced and a better one(ICTS), (ICTKU), (BICT), (PAICT), (MT), though some challenges but it makes things simple and easier.*

PARTICIPANT INFORMATION LETTER FOR THE PRINCIPAL

Good day,

My name is Promise Makhanza, I am a master's student at the University of the Witwatersrand, Johannesburg. My supervisor is Professor Eunice Nyamupangedengu. I am conducting a study titled "Exploring the Influence of School Culture on the Utilization of ICTs in Teaching and Learning: A case of two Gauteng schools".

The purpose of this research is to explore the influence of school culture in shaping the utilization of ICTs in teaching and learning. I believe that Katlehong Engineering School of Specialisation would be an ideal setting for this study due to its esteemed reputation and commitment to educational excellence.

I am seeking your approval to include you as a participant in this research by conducting a semi-structured interview with you. The interview will last approximately twenty minutes and will be audio-recorded for accuracy. Your insights and experiences as the principal are crucial to understanding the dynamics of the utilization of ICTs within the school environment.

Your participation in this study is entirely voluntary, and all responses will be kept strictly confidential. Your identity will remain anonymous in any reports or publications resulting from this research. Additionally, all research data will be securely stored and may be used by other researchers for academic purposes.

I propose to conduct the interview at a convenient time after school hours, ensuring minimal disruption to the daily activities of the school. I will also provide copies of the research report upon completion of the study upon request.

Your cooperation and support in facilitating this research would be appreciated. Your participation in this study will contribute to a deeper understanding of the factors influencing the effective utilization of ICTs in teaching and learning. The findings of this research may inform future strategies and policies aimed at enhancing the utilization of ICTs in teaching and learning.

Please feel free to contact me using the information provided below if you have any questions at any point during or after this research. A research report on this study will be written from this investigation. The report can be accessed at the university library's webpage.

If you have any 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 hrecnon-medical@wits.ac.za

Yours sincerely,

SIGNATURE



RESEARCHER: Promise Makhanza

EMAIL: 1514176@students.wits.ac.za.

CONTACT NUMBER: 063 958 4691

SUPERVISOR: Professor Eunice Nyamupangedengu

EMAIL: Eunice.nyamupangedengu@wits.ac.za

CONTACT NUMBER: 011 717 3752



PARTICIPANT INFORMATION LETTER FOR THE TEACHER

Good day,

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I am seeking your approval to include you as a participant in this research by conducting a questionnaire. The completion of the questionnaire will require a maximum of fifteen minutes of each participant's time. Your insights and experiences as a teacher are crucial to understanding the dynamics of the utilization of ICTs within the school environment.

Your participation in this study is entirely voluntary, and all responses will be kept strictly confidential. Your identity will remain anonymous in any reports or publications resulting from this research. Additionally, all research data will be securely stored and may be used by other researchers for academic purposes.

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University of the Witwatersrand,
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309 Khumalo St,
Goba,
Katlehong,
1434,
South Africa.
Katlehong Engineering School of Specialisation
May 2024

Dear Sir/Madam,

Re: Permission to conduct research at Katlehong Engineering School of Specialisation

My name is Promise Makhanza, and I am an Education Masters candidate at the University of the Witwatersrand. I am writing to seek permission to conduct a research study titled "Exploring the Influence of School Culture on the Utilization of ICTs in Teaching and Learning: A case of two Gauteng schools" at Katlehong Engineering School of Specialisation.

The purpose of this research is to explore the influence of school culture in shaping the utilization of ICTs in teaching and learning. As part of this study, I am interested in exploring the perspectives of both the principal and teachers regarding the utilization of ICTs in teaching and learning.

I would be highly grateful if you could grant me permission to carry out the following activities at Katlehong Engineering School of Specialisation:

1. Conducting a semi-structured interview with the principal, to gather insights into the school's policies, strategies, and overall approach towards ICT utilization. This interview is estimated to take twenty minutes and will be voice-recorded for accuracy in data analysis.
2. Distributing questionnaires to the teachers to collect their opinions, experiences, and perceptions regarding the utilization of ICT in their teaching practices. The completion of the questionnaire will require a maximum of fifteen minutes of each participant's time.

These activities will be conducted after school hours to minimize disruption to the daily operations of the school. I assure you that all data collected will be handled with utmost confidentiality and will be used solely for academic research purposes.

Participants will be asked to give their written or verbal consent before the research begins. Their responses will be treated confidentially, and identities (their names and the name of the organization) will be anonymous unless otherwise expressly indicated. Individual privacy will be maintained in all published and written data resulting from the study.

The results of this study will be communicated through my dissertation, and I am committed to sharing any relevant findings with Katlehong Engineering School of Specialisation for your reference and consideration.

The research participants will not be advantaged or disadvantaged in any way. They will be reassured that they can withdraw their permission at any time during this project without any penalty. There are no foreseeable risks in participating in this study. The participants will not be paid for this study.

All research data will only be used for academic purposes and be stored securely in a password encrypted google drive and will be destroyed three years after the study has been completed.

I therefore request permission in writing to conduct my research at your organization. The permission letter should be on your organization's headed paper, signed and dated, and specifically referring to myself by name and the title of my study.

Please let me know if you require any further information. I look forward to your response as soon as is convenient.

All research data will be kept in a password encrypted google drive and will be destroyed three years after the study has been completed.

Yours sincerely,

Promise Makhanza

Promise Makhanza

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1431
May 2024

Dear Sir/Madam,

Re: Permission to conduct research at Mpontsheng Secondary School

My name is Promise Makhanza, and I am an Education Masters candidate at the University of the Witwatersrand. I am writing to seek permission to conduct a research study titled "Exploring the Influence of School Culture on the Utilization of ICTs in Teaching and Learning: A case of two Gauteng schools" at Mpontsheng Secondary School

The purpose of this research is to explore the influence of school culture in shaping the utilization of ICTs in teaching and learning. As part of this study, I am interested in exploring the perspectives of both the principal and teachers regarding the utilization of ICTs in teaching and learning.

I would be highly grateful if you could grant me permission to carry out the following activities at Mpontsheng Secondary School:

1. Conducting a semi-structured interview with the principal, to gather insights into the school's policies, strategies, and overall approach towards ICT utilization. This interview is estimated to take twenty minutes and will be voice-recorded for accuracy in data analysis.
2. Distributing questionnaires to the teachers to collect their opinions, experiences, and perceptions regarding the utilization of ICT in their teaching practices. The completion of the questionnaire will require a maximum of fifteen minutes of each participant's time.

These activities will be conducted after school hours to minimize disruption to the daily operations of the school. I assure you that all data collected will be handled with utmost confidentiality and will be used solely for academic research purposes.

Participants will be asked to give their written or verbal consent before the research begins. Their responses will be treated confidentially, and identities (their names and the name of the organization) will be anonymous unless otherwise expressly indicated. Individual privacy will be maintained in all published and written data resulting from the study.

The results of this study will be communicated through my dissertation, and I am committed to sharing any relevant findings with Mpontsheng Secondary School for your reference and consideration.

The research participants will not be advantaged or disadvantaged in any way. They will be reassured that they can withdraw their permission at any time during this project without any penalty. There are no foreseeable risks in participating in this study. The participants will not be paid for this study.

All research data will only be used for academic purposes and be stored securely in a password encrypted google drive and will be destroyed three years after the study has been completed.

I therefore request permission in writing to conduct my research at your organization. The permission letter should be on your organization's headed paper, signed and dated, and specifically referring to myself by name and the title of my study.

Please let me know if you require any further information. I look forward to your response as soon as is convenient.

All research data will be kept in a password encrypted google drive and will be destroyed three years after the study has been completed.

Yours sincerely,

Promise Makhanza

Promise Makhanza

063 958 4691

1514176@students.wits.ac.za

Professor Eunice Nyamupangedengu

011 717 3752

eunice.nyamupangedengu@wits.ac.za



Principal's Consent Form for Participation in Research Study

Title of the Study: Exploring the Influence of School Culture on the Utilization of ICT in Teaching and Learning: A case of two Gauteng schools.

Researcher: Promise Makhanza

I-----, hereby consent to participate in the research project titled "Exploring the Influence of School Culture on the Utilization of ICT in Teaching and Learning: A case of two Gauteng schools" conducted by Promise Makhanza. By signing this form, I acknowledge that I have been provided with information regarding the study and agree to the following terms:

Please circle the relevant options below

1. I confirm that the research study has been adequately explained to me, and I understand its purpose and scope. YES / NO
2. I acknowledge that my participation in this study is voluntary, and I have the option to withdraw at any time without facing any consequences. YES / NO
3. I consent to the possibility of audio recording during the interview conducted as part of this research. YES / NO
4. I agree that direct quotations from my interview may be utilized by the researcher in their research report. YES / NO
5. I understand and agree that my participation in this study will remain anonymous. My name or any other identifying information will not be disclosed in the research report. YES / NO
6. I consent to the use of the information provided by me in the interview by other researchers, provided they obtain their own ethics clearance.

However, my name and any personal information will not be disclosed or passed on.

YES / NO

7. I understand that my participation in this study is valuable and will contribute to the advancement of knowledge in the field of education and I have been given the opportunity to ask questions and seek clarification regarding any aspect of this study.

YES / NO

Participant's name: _____

Participant's signature: _____

Date: _____

Researcher's name: Promise Makhanza

Researcher's Signature:



Date: _____



Teacher's Consent Form for Participation in Research Study

Title of the Study: Exploring the Influence of School Culture on the Utilization of ICT in Teaching and Learning: A case of two Gauteng schools.

Researcher: Promise Makhanza

I-----, hereby consent to participate in the research project titled "Exploring the Influence of School Culture on the Utilization of ICT in Teaching and Learning: A case of two Gauteng schools" conducted by Promise Makhanza. By signing this form, I acknowledge that I have been provided with information regarding the study and agree to the following terms:

Please circle the relevant options below:

2. I confirm that the research study has been adequately explained to me, and I understand its purpose and scope. YES / NO
3. I acknowledge that my participation in this study is voluntary, and I have the option to withdraw at any time without facing any consequences. YES / NO
4. I agree that the questionnaire may be used by the researcher in their research. YES / NO
5. I agree that direct quotations from my questionnaire responses may be used by the researcher in their research report. YES / NO
6. I understand and agree that my participation in this study will remain anonymous. My name or any other identifying information will not be disclosed in the research report. YES / NO
7. I consent to the use of the information provided by me in the interview by other researchers, provided they obtain their own ethics clearance. However, my name and any personal information will not be disclosed or passed on. YES / NO

8. I understand that my participation in this study is valuable and will contribute to the advancement of knowledge in the field of education and I have been given the opportunity to ask questions and seek clarification regarding any aspect of this study.

YES / NO

Participant's name: _____

Participant's signature: _____

Date: _____

Researcher's name: Promise Makhanza

Researcher's Signature:



Date: _____

Questionnaire for teachers:

1. Which ICTs do you use in your teaching and students' learning?
2. How often do you use the ICTs you have indicated in above question?
3. What motivates you to use ICTs in your teaching practices?
4. What are the things (if any) that impact your utilization of ICTs in teaching and learning?
5. What are the challenges that you face in your use of ICTs in teaching and learning?
6. What do you do when you face such challenges?
7. What do you see as benefits of using ICTs in teaching and learning?
8. What kind of support is provided to teachers and learners for effective utilization of ICTs.
9. How would you describe your experiences of using ICTs in teaching and learning?

Interview questions for principals.

1. Can you provide an overview of the ICT tools available for teaching and learning in the school?
2. How are these tools selected and utilized into the curriculum?
3. As the principal, what strategies or initiatives do you implement to support the utilization of ICTs among teachers and learners?
4. How do you perceive your role in ensuring utilization of ICTs in teaching and learning?
5. In your observation, how do teachers at your school utilize the ICTs available for teaching and learning?
6. Are there any notable practices or challenges they encounter in their utilization?
7. From your perspective, how do learners engage with the ICTs provided in the school?
8. Could you describe any patterns or trends in their utilization?
9. How do you gauge the effectiveness of ICT utilization in enhancing teaching and learning outcomes within our school?
10. Are there any specific metrics or indicators you rely on to assess the impact of ICT utilization on student achievement and engagement?
11. What steps does the school take to ensure equitable access to ICTs and opportunities for all students, regardless of their backgrounds or abilities?
12. How does inclusivity factor into the school's approach to the utilization of ICTs?
13. In your opinion, what role does professional development play in supporting teachers' proficiency and confidence in utilizing ICT tools for teaching purposes?
14. How does the school support ongoing learning and skill development in this area?

15. Finally, how do you envision the future trajectory of the utilization of ICTs in teaching and learning within your school?
16. What strategies or initiatives do you anticipate implementing to further enhance the effectiveness and accessibility of ICTs for educational purposes?



SCHOOL OF EDUCATION ETHICS COMMITTEE

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

CLEARANCE CERTIFICATE

PROTOCOL NUMBER: 2024ECE028M

PROJECT TITLE

Exploring the Influence of School Culture on the Utilization of ICTs in Teaching and Learning: A case of two Gauteng schools.

INVESTIGATOR

Promise Mthabiseng Makhanza

SCHOOL/DEPARTMENT OF INVESTIGATOR

WSoE

DATE CONSIDERED

10 June 2024

DECISION OF THE COMMITTEE

Approved unconditionally

RISK LEVEL

Minimal Risk

EXPIRY DATE

Date of submission of the Research Report

ISSUE DATE OF CERTIFICATE

28 August 2024

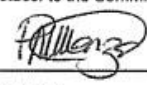
CHAIRPERSON


Dr. Lawan Abdulhamid

cc: supervisor: Prof Eunice Nyamupangedengu

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 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

06, 09, 2024
Date



GAUTENG PROVINCE

Department: Education
REPUBLIC OF SOUTH AFRICA

8/4/4/1/2

GDE RESEARCH APPROVAL LETTER

Date:	26 August 2024
Validity of Research Approval:	08 February 2024– 30 September 2024 2024/309
Name of Researcher:	Makhanza P.M
Address of Researcher:	8488 Angers Street Plamridge
Telephone Number:	0639584691
Email address:	promisemakhanza@gmail.com
Research Topic:	Exploring the Influence of School Culture on the Utilization of ICTs in Teaching and Learning: A case of two Gauteng schools.
Name of University:	Wits
Type of qualification	Masters
Number and type of schools:	Secondary Schools
District/s/HO	Ekurhuleni 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 the relaxation of COVID 19 regulations researchers can collect data online, telephonically, physically access schools 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.**
4. **The Researchers are advised to wear a mask at all times, Social distance at all times, Provide a vaccination certificate or negative COVID-19 test, not older than 72 hours, and Sanitise frequently.**
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. David Bapela
CES: Education Research and Knowledge Management

DATE: 26/08/2021

School A



Principal's Consent Form for Participation in Research Study

Title of the Study: Exploring the Influence of School Culture on the Utilization of ICT in Teaching and Learning: A case of two Gauteng schools.

Researcher: Promise Makhanza

PANTHANE MOSONE BEGON, hereby consent to participate in the research project titled "Exploring the Influence of School Culture on the Utilization of ICT in Teaching and Learning: A case of two Gauteng schools" conducted by Promise Makhanza. By signing this form, I acknowledge that I have been provided with information regarding the study and agree to the following terms:

Please circle the relevant options below

1. I confirm that the research study has been adequately explained to me, and I understand its purpose and scope. ☒ YES / ☐ NO
2. I acknowledge that my participation in this study is voluntary, and I have the option to withdraw at any time without facing any consequences. ☒ YES / ☐ NO
3. I consent to the possibility of audio recording during the interview conducted as part of this research. ☒ YES / ☐ NO
4. I agree that direct quotations from my interview may be utilized by the researcher in their research report. ☒ YES / ☐ NO
5. I understand and agree that my participation in this study will remain anonymous. My name or any other identifying information will not be disclosed in the research report. ☒ YES / ☐ NO
6. I consent to the use of the information provided by me in the interview by other researchers, provided they obtain their own ethics clearance.
However, my name and any personal information will not be disclosed or passed on. ☒ YES / ☐ NO

7. I understand that my participation in this study is valuable and will contribute to the advancement of knowledge in the field of education and I have been given the opportunity to ask questions and seek clarification regarding any aspect of this study.

☒ YES / ☐ NO

Participant's name: Bogopa KANTHANE Mosour

Participant's signature: [Signature]

Date: 2024/09/13

Researcher's name: Promise Makhanza

Researcher's Signature:

[Signature]

Date: 13/09/2024



Teacher's Consent Form for Participation in Research Study

Title of the Study: Exploring the Influence of School Culture on the Utilization of ICT in Teaching and Learning: A case of two Gauteng schools.

Researcher: Promise Makhanza

I, ZWELIHLA MLAMBO, hereby consent to participate in the research project titled "Exploring the Influence of School Culture on the Utilization of ICT in Teaching and Learning: A case of two Gauteng schools" conducted by Promise Makhanza. By signing this form, I acknowledge that I have been provided with information regarding the study and agree to the following terms:

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3. I acknowledge that my participation in this study is voluntary, and I have the option to withdraw at any time without facing any consequences. YES / NO
4. I agree that the questionnaire may be used by the researcher in their research. YES / NO
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8. I understand that my participation in this study is valuable and will contribute to the advancement of knowledge in the field of education and I have been given the opportunity to ask questions and seek clarification regarding any aspect of this study.

YES / NO

Participant's name: ZWELITHE MUAMBO

Participant's signature: [Signature]

Date: 13/09/2024

Researcher's name: Promise Makhanza

Researcher's Signature:

[Signature]

Date: 13/09/2024



Teacher's Consent Form for Participation in Research Study

Title of the Study: Exploring the Influence of School Culture on the Utilization of ICT in Teaching and Learning: A case of two Gauteng schools.

Researcher: Promise Makhanza

I, SIPHO PHAKATHI, hereby consent to participate in the research project titled "Exploring the Influence of School Culture on the Utilization of ICT in Teaching and Learning: A case of two Gauteng schools" conducted by Promise Makhanza. By signing this form, I acknowledge that I have been provided with information regarding the study and agree to the following terms:

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8. I understand that my participation in this study is valuable and will contribute to the advancement of knowledge in the field of education and I have been given the opportunity to ask questions and seek clarification regarding any aspect of this study.

☒ YES ☐ NO

Participant's name: Sipho Phakathi

Participant's signature: [Signature]

Date: 13/09/2024

Researcher's name: Promise Makhanza

Researcher's Signature:

[Signature]

Date: 13/09/2024

UNIVERSITY OF THE
WITWATERSRAND,
JOHANNESBURG



Teacher's Consent Form for Participation in Research Study

Title of the Study: Exploring the Influence of School Culture on the Utilization of ICT in Teaching and Learning: A case of two Gauteng schools.

Researcher: Promise Makhanza

Sibonelo Mfubesi, hereby consent to participate in the research project titled "Exploring the Influence of School Culture on the Utilization of ICT in Teaching and Learning: A case of two Gauteng schools" conducted by Promise Makhanza. By signing this form, I acknowledge that I have been provided with information regarding the study and agree to the following terms:

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8. I understand that my participation in this study is valuable and will contribute to the advancement of knowledge in the field of education and I have been given the opportunity to ask questions and seek clarification regarding any aspect of this study.

YES / NO

Participant's name: Mfubesi Sibonelo

Participant's signature: [Signature]

Date: 13 September 2024

Researcher's name: Promise Makhanza

Researcher's Signature:

[Signature]

Date: 13/09/2024



Teacher's Consent Form for Participation in Research Study

Title of the Study: Exploring the Influence of School Culture on the Utilization of ICT in Teaching and Learning: A case of two Gauteng schools.

Researcher: Promise Makhanza

I, TOTO SEETA, hereby consent to participate in the research project titled "Exploring the Influence of School Culture on the Utilization of ICT in Teaching and Learning: A case of two Gauteng schools" conducted by Promise Makhanza. By signing this form, I acknowledge that I have been provided with information regarding the study and agree to the following terms:

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8. I understand that my participation in this study is valuable and will contribute to the advancement of knowledge in the field of education and I have been given the opportunity to ask questions and seek clarification regarding any aspect of this study.

~~YES~~ / NO

Participant's name: TOTO SEETA

Participant's signature: 

Date: 13/09/2024

Researcher's name: Promise Makhanza

Researcher's Signature:



Date: 13/09/2024



Teacher's Consent Form for Participation in Research Study

Title of the Study: Exploring the Influence of School Culture on the Utilization of ICT in Teaching and Learning: A case of two Gauteng schools.

Researcher: Promise Makhanza

I, Vunene Ngwenya, hereby consent to participate in the research project titled "Exploring the Influence of School Culture on the Utilization of ICT in Teaching and Learning: A case of two Gauteng schools" conducted by Promise Makhanza. By signing this form, I acknowledge that I have been provided with information regarding the study and agree to the following terms:

Please circle the relevant options below:

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5. I agree that direct quotations from my questionnaire responses may be used by the researcher in their research report. YES / NO
6. I understand and agree that my participation in this study will remain anonymous. My name or any other identifying information will not be disclosed in the research report. YES / NO
7. I consent to the use of the information provided by me in the interview by other researchers, provided they obtain their own ethics clearance. However, my name and any personal information will not be disclosed or passed on. YES / NO

8. I understand that my participation in this study is valuable and will contribute to the advancement of knowledge in the field of education and I have been given the opportunity to ask questions and seek clarification regarding any aspect of this study.

YES / NO

Participant's name: Vunene Ngwenya

Participant's signature: [Signature]

Date: 13/09/2024

Researcher's name: Promise Makhanza

Researcher's Signature:

[Signature]

Date: 13/09/2024

UNIVERSITY OF THE
WITWATERSRAND,
JOHANNESBURG



Teacher's Consent Form for Participation in Research Study

Title of the Study: Exploring the Influence of School Culture on the Utilization of ICT in Teaching and Learning: A case of two Gauteng schools.

Researcher: Promise Makhanza

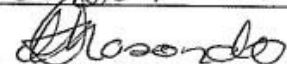
Kenneth M. Masondo, hereby consent to participate in the research project titled "Exploring the Influence of School Culture on the Utilization of ICT in Teaching and Learning: A case of two Gauteng schools" conducted by Promise Makhanza. By signing this form, I acknowledge that I have been provided with information regarding the study and agree to the following terms:

Please circle the relevant options below:

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8. I understand that my participation in this study is valuable and will contribute to the advancement of knowledge in the field of education and I have been given the opportunity to ask questions and seek clarification regarding any aspect of this study. YES / NO

Participant's name: Kenzo Th. M. Masondo

Participant's signature: 

Date: 13/09/2024

Researcher's name: Promise Makhanza

Researcher's Signature:



Date: 13/09/2024



Teacher's Consent Form for Participation in Research Study

Title of the Study: Exploring the Influence of School Culture on the Utilization of ICT in Teaching and Learning: A case of two Gauteng schools.

Researcher: Promise Makhanza

I, Banala Sibeko, hereby consent to participate in the research project titled "Exploring the Influence of School Culture on the Utilization of ICT in Teaching and Learning: A case of two Gauteng schools" conducted by Promise Makhanza. By signing this form, I acknowledge that I have been provided with information regarding the study and agree to the following terms:

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8. I understand that my participation in this study is valuable and will contribute to the advancement of knowledge in the field of education and I have been given the opportunity to ask questions and seek clarification regarding any aspect of this study.

☒ YES ☐ NO

Participant's name: Bancho Sibeko

Participant's signature: 

Date: 13/09/2024

Researcher's name: Promise Makhanza

Researcher's Signature:



Date: 13/09/2024



Teacher's Consent Form for Participation in Research Study

Title of the Study: Exploring the Influence of School Culture on the Utilization of ICT in Teaching and Learning: A case of two Gauteng schools.

Researcher: Promise Makhanza

Sipheisile Zwane, hereby consent to participate in the research project titled "Exploring the Influence of School Culture on the Utilization of ICT in Teaching and Learning: A case of two Gauteng schools" conducted by Promise Makhanza. By signing this form, I acknowledge that I have been provided with information regarding the study and agree to the following terms:

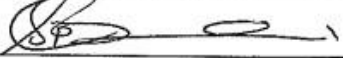
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4. I agree that the questionnaire may be used by the researcher in their research. YES / NO
5. I agree that direct quotations from my questionnaire responses may be used by the researcher in their research report. YES / NO
6. I understand and agree that my participation in this study will remain anonymous. My name or any other identifying information will not be disclosed in the research report. YES / NO
7. I consent to the use of the information provided by me in the interview by other researchers, provided they obtain their own ethics clearance. However, my name and any personal information will not be disclosed or passed on. YES / NO

8. I understand that my participation in this study is valuable and will contribute to the advancement of knowledge in the field of education and I have been given the opportunity to ask questions and seek clarification regarding any aspect of this study.

☒ YES / ☐ NO

Participant's name: Siphesihle Zwane

Participant's signature: 

Date: 13-09-2024

Researcher's name: Promise Makhanza

Researcher's Signature:



Date: 13/09/2024

UNIVERSITY OF THE
WITWATERSRAND,
JOHANNESBURG



Principal's Consent Form for Participation in Research Study

Title of the Study: Exploring the Influence of School Culture on the Utilization of ICT in Teaching and Learning: A case of two Gauteng schools.

Researcher: Promise Makhanza

I, HELENGANI JULI RIKHO ISO, hereby consent to participate in the research project titled "Exploring the Influence of School Culture on the Utilization of ICT in Teaching and Learning: A case of two Gauteng schools" conducted by Promise Makhanza. By signing this form, I acknowledge that I have been provided with information regarding the study and agree to the following terms:

Please circle the relevant options below

1. I confirm that the research study has been adequately explained to me, and I understand its purpose and scope. YES / NO
2. I acknowledge that my participation in this study is voluntary, and I have the option to withdraw at any time without facing any consequences. YES / NO
3. I consent to the possibility of audio recording during the interview conducted as part of this research. YES / NO
4. I agree that direct quotations from my interview may be utilized by the researcher in their research report. YES / NO
5. I understand and agree that my participation in this study will remain anonymous. My name or any other identifying information will not be disclosed in the research report. YES / NO
6. I consent to the use of the information provided by me in the interview by other researchers, provided they obtain their own ethics clearance.

However, my name and any personal information will not be disclosed or passed on. YES / NO

7. I understand that my participation in this study is valuable and will contribute to the advancement of knowledge in the field of education and I have been given the opportunity to ask questions and seek clarification regarding any aspect of this study.

☒ YES / ☐ NO

Participant's name: HJ BIKHOTSO

Participant's signature: [Signature]

Date: 13/09/2024

Researcher's name: Promise Makhanza

Researcher's Signature:

[Signature]

Date: 13/09/2024



Teacher's Consent Form for Participation in Research Study

Title of the Study: Exploring the Influence of School Culture on the Utilization of ICT in Teaching and Learning: A case of two Gauteng schools.

Researcher: Promise Makhanza

Baloyi Gabriel, hereby consent to participate in the research project titled "Exploring the Influence of School Culture on the Utilization of ICT in Teaching and Learning: A case of two Gauteng schools" conducted by Promise Makhanza. By signing this form, I acknowledge that I have been provided with information regarding the study and agree to the following terms:

Please circle the relevant options below:

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5. I agree that direct quotations from my questionnaire responses may be used by the researcher in their research report. YES / NO
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8. I understand that my participation in this study is valuable and will contribute to the advancement of knowledge in the field of education and I have been given the opportunity to ask questions and seek clarification regarding any aspect of this study.

☒ YES ☐ NO

Participant's name: Balogi Gabriel

Participant's signature: 

Date: 13/09/2024

Researcher's name: Promise Makhanza

Researcher's Signature:



Date: 13/09/2024



Teacher's Consent Form for Participation in Research Study

Title of the Study: Exploring the Influence of School Culture on the Utilization of ICT in Teaching and Learning: A case of two Gauteng schools.

Researcher: Promise Makhanza

Xolani Cosmos Thikazi, hereby consent to participate in the research project titled "Exploring the Influence of School Culture on the Utilization of ICT in Teaching and Learning: A case of two Gauteng schools" conducted by Promise Makhanza. By signing this form, I acknowledge that I have been provided with information regarding the study and agree to the following terms:

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8. I understand that my participation in this study is valuable and will contribute to the advancement of knowledge in the field of education and I have been given the opportunity to ask questions and seek clarification regarding any aspect of this study.

YES / NO

Participant's name: Xolani Thikazi

Participant's signature: [Signature]

Date: 13/09/2024

Researcher's name: Promise Makhanza

Researcher's Signature:

[Signature]

Date: 13/09/2024



Teacher's Consent Form for Participation in Research Study

Title of the Study: Exploring the Influence of School Culture on the Utilization of ICT in Teaching and Learning: A case of two Gauteng schools.

Researcher: Promise Makhanza

Mpho Micoles Mafahle

_____, hereby consent to participate in the research project titled "Exploring the Influence of School Culture on the Utilization of ICT in Teaching and Learning: A case of two Gauteng schools" conducted by Promise Makhanza. By signing this form, I acknowledge that I have been provided with information regarding the study and agree to the following terms:

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YES / NO

Participant's name: _____

Participant's signature: _____

Date: 13/09/2024

Researcher's name: Promise Makhanza

Researcher's Signature: _____

Date: 13/09/2024

UNIVERSITY OF THE
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JOHANNESBURG



Teacher's Consent Form for Participation in Research Study

Title of the Study: Exploring the Influence of School Culture on the Utilization of ICT in Teaching and Learning: A case of two Gauteng schools.

Researcher: Promise Makhanza

Mjabuliseni B Nfanzini, hereby consent to participate in the research project titled "Exploring the Influence of School Culture on the Utilization of ICT in Teaching and Learning: A case of two Gauteng schools" conducted by Promise Makhanza. By signing this form, I acknowledge that I have been provided with information regarding the study and agree to the following terms:

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8. I understand that my participation in this study is valuable and will contribute to the advancement of knowledge in the field of education and I have been given the opportunity to ask questions and seek clarification regarding any aspect of this study.

YES / NO

Participant's name: M B Ntawzi

Participant's signature: 

Date: 13/09/2024

Researcher's name: Promise Makhanza

Researcher's Signature:



Date:  13/09/2024



Teacher's Consent Form for Participation in Research Study

Title of the Study: Exploring the Influence of School Culture on the Utilization of ICT in Teaching and Learning: A case of two Gauteng schools.

Researcher: Promise Makhanza

Stheniso Hope Tjane, hereby consent to participate in the research project titled "Exploring the Influence of School Culture on the Utilization of ICT in Teaching and Learning: A case of two Gauteng schools" conducted by Promise Makhanza. By signing this form, I acknowledge that I have been provided with information regarding the study and agree to the following terms:

Please circle the relevant options below:

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8. I understand that my participation in this study is valuable and will contribute to the advancement of knowledge in the field of education and I have been given the opportunity to ask questions and seek clarification regarding any aspect of this study.

YES / NO

Participant's name: Sithembiso Hope Tyane

Participant's signature: S. Tyane

Date: 13 September 2024

Researcher's name: Promise Makhanza

Researcher's Signature:

Promise Makhanza

Date: 13/09/2024

UNIVERSITY OF THE
WITWATERSRAND,
JOHANNESBURG



Teacher's Consent Form for Participation in Research Study

Title of the Study: Exploring the Influence of School Culture on the Utilization of ICT in Teaching and Learning: A case of two Gauteng schools.

Researcher: Promise Makhanza

Muswe Rendani, hereby consent to participate in the research project titled "Exploring the Influence of School Culture on the Utilization of ICT in Teaching and Learning: A case of two Gauteng schools" conducted by Promise Makhanza. By signing this form, I acknowledge that I have been provided with information regarding the study and agree to the following terms:

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YES / NO

Participant's name: Mulokwe Rendani

Participant's signature: Mulokwe

Date: 13/09/2024

Researcher's name: Promise Makhanza

Researcher's Signature:

Makhanza

Date: 13/09/2024



Teacher's Consent Form for Participation in Research Study

Title of the Study: Exploring the Influence of School Culture on the Utilization of ICT in Teaching and Learning: A case of two Gauteng schools.

Researcher: Promise Makhanza

I, NDIVHWO MAXWELL LUHLA, hereby consent to participate in the research project titled "Exploring the Influence of School Culture on the Utilization of ICT in Teaching and Learning: A case of two Gauteng schools" conducted by Promise Makhanza. By signing this form, I acknowledge that I have been provided with information regarding the study and agree to the following terms:

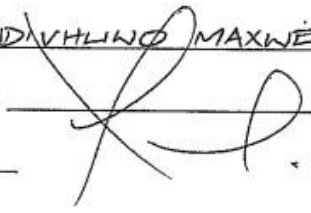
Please circle the relevant options below:

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☒ YES / NO

Participant's name: NDIVHLEND MAXWELL LULLA

Participant's signature: 

Date: 13/09/2024

Researcher's name: Promise Makhanza

Researcher's Signature:



Date: 13/09/2024



Teacher's Consent Form for Participation in Research Study

Title of the Study: Exploring the Influence of School Culture on the Utilization of ICT in Teaching and Learning: A case of two Gauteng schools.

Researcher: Promise Makhanza

LEBOHANG LEBALLO POTSANE, hereby consent to participate in the research project titled "Exploring the Influence of School Culture on the Utilization of ICT in Teaching and Learning: A case of two Gauteng schools" conducted by Promise Makhanza. By signing this form, I acknowledge that I have been provided with information regarding the study and agree to the following terms:

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8. I understand that my participation in this study is valuable and will contribute to the advancement of knowledge in the field of education and I have been given the opportunity to ask questions and seek clarification regarding any aspect of this study.

YES/NO

Participant's name: LEBOTLANG POTSANE

Participant's signature: 

Date: 13/09/24

Researcher's name: Promise Makhanza

Researcher's Signature:



Date: 13/09/2024



Teacher's Consent Form for Participation in Research Study

Title of the Study: Exploring the Influence of School Culture on the Utilization of ICT in Teaching and Learning: A case of two Gauteng schools.

Researcher: Promise Makhanza

Simphiwe Ngwenya, hereby consent to participate in the research project titled "Exploring the Influence of School Culture on the Utilization of ICT in Teaching and Learning: A case of two Gauteng schools" conducted by Promise Makhanza. By signing this form, I acknowledge that I have been provided with information regarding the study and agree to the following terms:

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3. I acknowledge that my participation in this study is voluntary, and I have the option to withdraw at any time without facing any consequences. ~~YES~~ / NO
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6. I understand and agree that my participation in this study will remain anonymous. My name or any other identifying information will not be disclosed in the research report. ~~YES~~ / NO
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8. I understand that my participation in this study is valuable and will contribute to the advancement of knowledge in the field of education and I have been given the opportunity to ask questions and seek clarification regarding any aspect of this study.

~~YES~~ / NO

Participant's name: Simpliwe Ngomane

Participant's signature: 

Date: 13/09/2024

Researcher's name: Promise Makhanza

Researcher's Signature:



Date: 13/09/2024



Teacher's Consent Form for Participation in Research Study

Title of the Study: Exploring the Influence of School Culture on the Utilization of ICT in Teaching and Learning: A case of two Gauteng schools.

Researcher: Promise Makhanza

I Mosa Mkh, hereby consent to participate in the research project titled "Exploring the Influence of School Culture on the Utilization of ICT in Teaching and Learning: A case of two Gauteng schools" conducted by Promise Makhanza. By signing this form, I acknowledge that I have been provided with information regarding the study and agree to the following terms:

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8. I understand that my participation in this study is valuable and will contribute to the advancement of knowledge in the field of education and I have been given the opportunity to ask questions and seek clarification regarding any aspect of this study.

~~YES~~ / NO

Participant's name: Musa Muma

Participant's signature: [Signature]

Date: 13/09/24

Researcher's name: Promise Makhanza

Researcher's Signature:

[Signature]

Date: 13/09/24