TEACHERS' EXPERIENCES OF TEACHING GRADE 8 TECHNOLOGY IN OVERCROWDED CLASSES

by

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DECLARATION

I, Goitsemang Annah Netshongolwe, declare that the research reported in this thesis, except where otherwise indicated, is my original work. This thesis has not been submitted for any degree or examination at any other university. This thesis does not contain other person's data, pictures, graphs or other information unless specifically acknowledged as being sourced from other persons. This thesis does not contain other person's writing, unless specifically acknowledged as being sourced from other researchers. Where other written sources have been quoted, their words have been re-written but the general information attributed to them has been referenced. Where their exact words have been used, their writing has been placed inside quotation marks and referenced.

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As the candidate's supervisor, I hereby approve the submission of the dissertation for examination.

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DEDICATION

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ABSTRACT

Teaching of Technology covers both theory and practical aspects of learning. Due to overcrowded classes in some contexts like South Africa, the classes lack space, which impacts the teaching and learning process. Teachers are often limited in their capacity to facilitate learning and their mobility within the classroom. The purpose of the study was to explore teachers' experiences in teaching Technology in overcrowded classes. The focus of the study was on grade 8 Technology teachers from public secondary schools in the Gauteng North District. The study adopted a qualitative research approach in which a case study design was employed. The data was generated using semi-structured interviews with participating teachers and classroom observations. Findings of the study revealed that teachers had both positive and negative experiences to share. As part of the positive experiences, participating teachers maintained enthusiasm using strategies such as rotational learning, making enough space and time for learning. They also engaged learners with practical work, and created songs that explained the Technology practical terms, so that learning can be fun. This enthusiasm fuelled their motivation to keep their lessons interesting and enjoyable for learners. Alluding to the negative experiences, participants shared that there was some ill-discipline behaviour in their overcrowded classes, low academic performances, and managing assessments was also problematic. However, they received support from the school and their subject departments to address these challenges. The study recommends that teachers who manage overcrowded classes and struggle with maintaining order and discipline may consider dividing the class into two groups and teaching them rotationally, as this strategy proved effective for participants in the study. Additionally, assigning duties and tasks to disruptive learners can help keep them engaged and focused on the instruction

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INTRODUCTION AND BACKGROUND AND OVERVIEW OF THE STUDY

1.1 Introduction

Overcrowded classes have been noticeable in many secondary schools in South Africa. These have been attributed to different factors such as managing discipline (Imtiaz, 2014; Mustafa et al., 2014), academic achievement (Bayat et al., 2014; Cortes et al., 2012), time management (Imtiaz, 2014; Mustafa et al., 2014), learners' attention (Benbow et al., 2007; Mustafa et al., 2014; Qasim & Arif, 2014), learners' motivation (Ikediaskhi & Amaechi, 2012; Imtiaz, 2014; Khumalo & Mji, 2014), teachers' stress and burnout (Mapfumo et al., 2014; Opoku-Asare et al., 2014), to mention but a few. This research study aimed to explore the experiences of teachers teaching in overcrowded classes. This chapter introduces the study by providing the background and overview of the study. It also outlines the problem statement and includes the main questions and objectives that guided the study. This chapter also provides an outline of the research design and methodology, explains the dissertation's structure, and emphasises the study's significance.

1.2 Background of the study

The teaching of Technology encompasses both theoretical and practical dimensions essential for effective learning. Thus, the teaching of the Technology subject is deemed insufficient without the inclusion of hands-on practical activities (Faize & Dhar, 2011). This necessity has led to the development of Technology curricula worldwide that advocate for the engagement of learners in practical exercises (Dumbraveanu, 2007). Practical experiences are crucial in the educational process, particularly within the Technology domain. Engaging in practical learning can yield numerous beneficial outcomes for learners, educational institutions, and society at large, such as fostered persistence, enhanced creative thinking and problem-solving skills, promoting a positive attitude towards learning, building personal agency, and improved employability and career adaptability (Lucas & Hanson, 2021). However, it poses a significant

challenge for teachers to effectively teach and implement practical Technology activities in overcrowded classes (Ali-Rweide, 2020).

Overcrowded classes result in insufficient space for effective learning (Hodges, 2018). In such environments, learners often find themselves absorbing information in isolation, with limited opportunities for interaction with peers and the teacher (Hodges, 2018). The teacher's ability to navigate the class and monitor learners progress is similarly restricted. Additionally, teaching Technology in these overcrowded settings presents the challenge of engaging all learners in hands-on activities (Faize & Dahar, 2011). This situation hinders the achievement of certain curriculum objectives. For instance, the requirement for learners to perform a mini practical assessment task (Mini PAT), which involves conducting technological experiments to create a product as outlined in the Curriculum Assessment Policy Statement (CAPS), becomes difficult to fulfill. The lack of space prevents the teacher from effectively overseeing learners work and limits the area available for learners to carry out their experiments. These objectives are crucial for fostering innovation and enhancing learners' creative and critical thinking abilities (Bassett et al., 2006).

1.3 Problem statement

Although global Technology curricula encourage teachers to engage learners in hands-on activities, according to Kibirige and Tsamago (2013), some educators in South African schools fail to include hands-on activities in their technology lessons. As a result, these teachers predominantly utilise traditional teaching methods, such as lecturing, dictation, and demonstrations (Kibirige & Tsamago, 2013). Such instructional approaches are more suited to overcrowded classes, where limited space hinders group interactions and practical activities (Kibirige & Tsamago, 2013). Furthermore, rather than facilitating practical experiences, teachers often rely on textbooks to convey the principles of Technology experiments, leading to a predominantly theoretical approach.

This reliance on theoretical methods is concerning, as it frequently fails to foster a deep

conceptual understanding among learners (Kibirige & Tsamago, 2013). It is clear that overcrowded classes appear to undermine the effectiveness of both teaching and learning. Maqoqa and Mvenene (2023) assert that the ratio of learners to teachers is directly linked to the quality of educational outcomes. Furthermore, Technology curricula promote the involvement of teachers in facilitating real-world activities for learners (Dumbraveanu, 2007). Nevertheless, the challenge of overcrowded classes places significant pressure on teachers, making it difficult to engage every learner in hands-on learning experiences. If the issue of class overcrowding remains unresolved, teachers will continue to face difficulties in delivering high-quality instruction. Mtika (2011) contended that smaller class sizes would enable teachers to engage more effectively with learners, providing them with the individualised attention they require.

1.4 Research rationale

My own experiences as a Technology teacher, who encounters many challenges when teaching learners in overcrowded classes, served as the basis for this study. Our school had a Technology laboratory that was being utilised as a classroom for grade 11 learners due to a shortage of available classrooms. Consequently, I was unable to utilise the laboratory for conducting technology experiments.

The limited space prevented me from arranging tables and chairs to facilitate group work and practical participation among learners. An analysis of data from Heeralal (2014) revealed that the primary obstacles teachers encountered in conducting practical work in Technology included insufficient resources and laboratories, time constraints, class size, and assessment pressures. Benbow et al. (2007) suggested that team teaching and peer teaching were effective strategies to address the challenges posed by overcrowded classes. Similarly, Johnson and Christensen (2024) highlighted collaborative learning as a method for managing large classes, where students work in teams to achieve shared objectives. However, Jansen (2001) contended that group work has proven ineffective in South African classes characterised by overcrowding.

Due to limited space, teachers are often restricted to the traditional 'chalk and talk' instructional

approach, as noted by Opoku-Asare et al. (2014). Although the CAPS curriculum mandates that I give learners time to respond to questions after discussing scenarios in the mini PAT, the large class sizes hindered my ability to facilitate and engage with their group work effectively. This limitation indicated that group work was an unproductive strategy in overcrowded settings. By conducting this study, I aimed to assist teachers in managing overcrowded classes by evaluating and implementing strategies that were suitable for such environments, thereby enhancing effective teaching practices. Addressing the issues related to overcrowding would enable teachers to deliver a high standard of education to learners.

1.5 Research Purpose and Significance of the Study

This study's main goal was to find out what it is like for teachers to teach Technology in crowded classes. Teachers of Technology in grade 8 at two public secondary schools in the Gauteng North District, north of Johannesburg, were the study's specific target. This research holds significance as yielded findings and recommendations that facilitate a re-evaluation of teaching strategies tailored to overcrowded classes.

1.6 Location of the Study

The research was carried out in two secondary schools situated in the Gauteng North District. These institutions are located in a semi-urban setting and predominantly serve a black learner population, with class sizes ranging from 70 to 130 learners. This indicates a pervasive issue of overcrowded classes across both schools. Additionally, these institutions face a shortage of resources, including inadequate infrastructure for classrooms and laboratories necessary for practical work, as well as a lack of qualified teachers.

1.7 Objectives

1. To explore teachers' experiences of teaching grade 8 Technology in overcrowded classes.
2. To understand the strategies teachers use in teaching grade 8 Technology in

overcrowded classes.

1.8 Research questions

1. What are teachers' experiences of teaching grade 8 Technology in overcrowded classes?
2. What are the strategies teachers use to teach grade 8 Technology in overcrowded classes?

1.9 Overview of the Research Design and Methodology

1.9.1 Research Design

This study adopted a case study methodology. As noted by Fry et al. (2009), case studies serve as detailed examples that clarify the central concept while also providing context to the issue at hand. Case studies are divided into three categories by Yin (2009): exploratory, explanatory, and descriptive. An exploratory case study was identified to be the most appropriate research design because the goal of this study was to explore the experiences related to teaching technology in overcrowded classes. This methodology was particularly relevant when there was no predetermined outcome, as highlighted by Yin (2009).

The exploratory case study is employed in situations where the outcomes are not predetermined. As noted by Yin (2009), case studies are suitable for inquiries that involve how, why, what, and who questions. In the context of exploratory case studies, the primary questions addressed are how and what. These studies are particularly useful for obtaining a comprehensive and detailed understanding of a social phenomenon. The exploratory case study serves to explore existing relationships that are too intricate for traditional surveys or experiments (Yin, 2009). Case studies can function as a means of either developing or confirming theories. Eisenhardt (2007) posits that the development of theory through case studies involves the use of one or multiple cases to create theoretical constructs, propositions, and/or theories grounded in empirical evidence obtained from those cases. In exploratory case studies, we engage in theory

development through our research, whereas explanatory or descriptive case studies focus on validating existing theories.

1.9.2 Research Methodology

This study utilised a qualitative methodology. As noted by Cohen et al. (2011), qualitative methods focus on the generation of written or spoken information which is not quantifiable. The researcher opted for this method to gain a deeper understanding of teachers' experiences in managing overcrowded Technology classes. Tenny et al. (2021) assert that qualitative research captures the experiences, perceptions, and behaviours of participants. This methodology facilitates participants in their articulated experiences, resulting in the generation of textual data, thereby making it well-suited for a qualitative framework.

1.9.3 Paradigm

Guba and Lincoln (1994) defined a paradigm as a foundational set of assumptions or a worldview that guides research endeavours. The main aim of the Interpretivist paradigm is to comprehend the subjective aspects of human experiences (Guba & Lincoln, 1989). It is crucial to comprehend how individuals interpret their surrounding environment. The interpretive paradigm was especially suitable for this research, as it allowed the researcher to delve into and gain a comprehensive understanding of teachers' experiences in teaching grade 8 learners in overcrowded Technology classes. Furthermore, this paradigm enabled the researcher to analyse how grade 8 Technology teachers engaged with learners in such settings, and examine their knowledge, skills, and overall experiences aimed at enhancing teachers‟ understanding.

1.9.4 Sampling method

Field (2005) describes a research sample as the sources or population utilised for data generation. Kothari (2004) identifies various sampling methods, including random, convenience, and purposive sampling methods. In this study, purposive sampling was employed. This method involves selecting participants who exhibit particular traits or attributes (Koerber & McMichael, 2008). The researcher applied purposive sampling to identify suitable

participants for the study.

1.9.5 Sample size

The concept of sampling, as defined by Field (2005), involves selecting a subset of a population to uncover truths and realities pertaining to that group. In this study, the sample consisted of four Technology teachers, specifically chosen due to the overcrowded nature of their classes. The decision to interview these four teachers was based on the challenges they faced in managing large class sizes. Through these interviews, the researcher was able to gain a comprehensive insight into the experiences of Technology teachers dealing with overcrowded classes.

19.6 Data Generation

As outlined by Gibbert and Ruigrok (2010), the data for the case study approach can be produced through multiple data generation methods. In this study, it was crucial that the methods employed for data generation aligned with the research approach, design, and paradigm, ensuring their appropriateness for the study. For this research study, semi-structured interviews and lesson observations were selected as the primary instruments used for data generation.

1.9.6.1 Lesson Observation

Observation entails the researcher visiting a school or classroom to witness the ongoing activities (Simpson & Tuson, 2005). In the research reported on here this approach proved beneficial for understanding the actual dynamics within the classroom. Teachers were observed while teaching and managing classes with a high learner-to-teacher ratio. An observation schedule was employed to help the researcher concentrate on the elements pertinent to the study. According to Simpson and Tuson (2005), an observation schedule outlines the focus areas and organises them into specific categories. The researcher conducted non- participatory observations, meaning there was no interaction or involvement in the classroom activities. The lesson observations were directed by the following research questions: What is the experiences

of teachers teaching grade 8 Technology in overcrowded classes? What strategies do teachers use to teach grade 8 Technology in overcrowded classes? Following the observations, each participant was invited for an interview to discuss the events that occurred during the lesson.

1.9.6.2 Semi-structured Interview

Galletta (2013) posits that the Semi-Structured interview serves as an effective data generation method for research, as it allows participants to seek clarification on specific points and respond candidly without fear of judgment. In this research study each participant engaged in a one-on-one interview with the researcher. In this format, while the interviewee has the freedom to express their thoughts, the researcher is required to maintain a list of questions or defined topics to address, referred to as an interview guide (Creswell & Clark, 2017). Consequently, the researcher conducted interviews with Technology teachers teaching grade 8 learners in Technology, utilising a predetermined schedule and a series of open-ended questions. Similarly, Cohen et al. (2007) emphasise that effective interview processes necessitate thorough planning. Therefore, the researcher provided the interview schedule to the participants in advance, allowing them to prepare and become acquainted with the questions. Additionally, the researcher recorded the responses to facilitate subsequent transcription.

1.10 Data Analysis Process

The data gathered in this study underwent analysis using thematic analysis. Braun and Clarke (2013) characterise thematic analysis as a methodical process for recognising, structuring, and interpreting patterns of significance (themes) found within a data set. Furthermore, Cohen et al. (2011) indicate that the analysis of qualitative data involves compiling, representing, and making sense of the information gathered.

1.11 Autonomy and Anonymity

All individuals involved in this study were treated with respect for their autonomy by the researchers. This meant that consent was properly acquired from each participant before their engagement. Each participant voluntarily chose to take part in the study and retained the ability

to rescind at any time (Cohen et al., 2018). The confidentiality of their privacy rights was assured to all participants and the schools involved, with the nature of interactions during interviews being contingent upon the participant's willingness to disclose information, including sensitive details, to the researcher. The researcher committed to ensuring that the information shared could not be linked back to any individual participant or their respective school. Audio recordings from the interviews were maintained in a secure and anonymous manner, utilised solely for the purposes of this research. The transcripts of the interviews were exclusively for research use, and the identities of the participants were kept confidential. Furthermore, the actual names of the schools were not disclosed, with both participants and institutions being referred to by pseudonyms (Cohen et al., 2018).

1.11.1 Consent

As noted by Drew, Hardman, and Hosp (2007), consent encompasses the process through which individuals can decide whether or not to engage in research activities. It is the researcher's duty to ensure that every participant is informed about the study's aims, methodologies, and any responsibilities that may be required of them (Brooks & Te Riele, 2014). The objectives of this study were conveyed to the principal of the school through a formal letter requesting permission to conduct interviews.

A letter was dispatched to the principal of the school, detailing the objectives of the study and seeking permission to engage with Grade 8 Technology teachers for research purposes. The researcher ensured that the principal signed a consent form which authorised discussions with the Grade 8 Technology teachers. Potential participants were briefed on the study's aims, duration, and their expected involvement. Each Grade 8 Technology teacher, particularly those managing overcrowded classes, also provided their consent by signing a form. Once the data

was transcribed, participants were notified that they had the opportunity to evaluate the transcripts to confirm the accuracy of the information. Additionally, participants were reassured that the research would not have any adverse effects on them and would, in fact, contribute

positively to the learning environment.

1.11.2 Trustworthiness and Authenticity

To effectively engage with the data source, a qualitative and interpretative approach was essential (Bertram & Christiansen, 2014). According to Stahl and King (2020). credibility refers to the researcher's ability to assure their audience of the significance and high quality of their findings. The process of establishing credibility encompasses aspects such as dependability, confirmability, and transferability (Guba & Lincoln, 1989). The researcher employed an audio recorder and transcribed the interviews to ensure the data's accuracy. The methodology of the study was articulated in detail to address concerns regarding dependability. The study centered on Grade 8 Technology teachers in Technology teaching, with questions specifically related to teaching in overcrowded classes.

This indicated that if the study were to be replicated using the same methods, subjects, and environment, it would yield comparable findings. Furthermore, the researcher enhanced transferability by ensuring that the findings of the study were relevant to other Technology teachers not included in the research, particularly those teaching Grade 8 Technology in overcrowded settings. The findings of the study were impartial, and fairness was maintained by allocating sufficient time for each interview. Lastly, conformability was strengthened by incorporating the interview transcripts into the interview schedule. The researcher ensured conformability by generating, categorising, reconstructing, and analysing the data. The questions posed were relevant and crafted to effectively address the research inquiries.

1.12 Organisation of the Study

1.12.1 Chapter One

Chapter one serves as an introductory section that provides context regarding overcrowded classes. It includes a statement of the problem, emphasising the challenges posed by overcrowded classes and their effects on teachers. The rationale and significance of the study are articulated, along with the focus, objectives, and key research questions. A brief summary

of the research design and methodology is provided, along with an outline of the organisation of the following chapters and a concluding overview.

1.12.2 Chapter Two

This chapter explores the literature related to the issue of overcrowded classes, with a primary emphasis on teachers, providing a literature review focused on teachers' experiences in teaching grade 8 Technology in such classes. The researcher defines the concept of overcrowded classes and discusses the associated challenges, including the need for quality teaching strategies, available teaching resources, teaching time, lack of laboratory technicians, learner assessments, and managing an overloaded curriculum.

1.12.3 Chapter Three

This chapter provides a comprehensive explanation of the theoretical framework that underpinned this research, along with the rationale for its selection, supported by relevant literature. The subsections covered in this chapter include a discussion on the foundations of Choice Theory, an overview of the five fundamental needs, and the significance of Choice Theory in this study. These five fundamental needs: survival, love and belonging, power, freedom, and enjoyment, are essential for human functioning and are closely linked. Teachers can use Choice Theory to understand learners' needs, develop effective strategies, and create a supportive learning environment. In overcrowded classes, Choice Theory helps analyse learners' sense of belonging and informs engaging lesson plans. By considering the five fundamental needs, teachers can accommodate diverse learning styles, support struggling learners, and create a conducive learning environment that addresses physical, psychological, and social needs.

1.12.4 Chapter Four

This chapter provides an in-depth overview of the research design and methodology utilised in the study. It encompasses a discussion on the rationale behind the chosen research design, approach, and paradigm. Additionally, the chapter outlines the data generation methods

employed, the sampling methods applied, the procedures for data analysis, considerations for ensuring trustworthiness, and ethical issues addressed, and concludes with a summary of the key points.

1.12.5 Chapter Five

The chapter provides an overview and context regarding teachers' experiences in overcrowded classes. It identifies several challenges, including diminished teaching quality in such environments, insufficient learning resources, restricted teaching time, inadequate assessment of learners, heightened workload for teachers, decreased morale among teachers, and a shortage of laboratory technicians. These issues are articulated as part of the problem statement. The significance of this study is emphasised, along with the rationale, objectives, and key research questions that guided the study's purpose. Additionally, the chapter outlines the research design and methodology employed.

1.12.6 Chapter Six

This chapter concentrates on two key elements: it presents a summary of the findings and offers recommendations based on the study's findings as well as a conclusion. The study's findings highlight that teachers experienced both positive and negative aspects of teaching Technology in overcrowded classes, including ill-discipline, managing assessments, and low academic performances. To overcome these challenges, teachers developed strategies such as dividing classes into two groups, assigning tasks to disruptive learners, and finding ways to manage assessments and low academic performances, including sacrificing personal time to mark assignments and scripts. The chapter recommends that teachers struggling with overcrowded classes consider these strategies, and recommends conducting a more extensive study across multiple schools, including a broader participant base, to gain a deeper understanding of overcrowded classes and effective management strategies.

1.13 Conclusion

The chapter provided an overview and context regarding teachers' experiences in overcrowded classes. It identified several problems with teaching Technology in overcrowded classes, indicating a gap in practice and a need for studies to further explore the topic. These challenges included diminished teaching quality, insufficient learning resources, restricted teaching time, inadequate assessment of learners, increased workload for teachers, decreased morale, and a shortage of laboratory technicians. These challenges were articulated as part of the problem statement. The significance of this study was emphasised, along with the rationale, objectives, and key questions that directed the research. Additionally, the chapter outlined the research design and methodology employed. The next chapter examines existing literature related to teachers' experiences in overcrowded classes.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

A literature review is characterised as a critical evaluation of the interconnections among various authors' works concerning a particular subject (Galvan, 2006). Abdallah (2024) posit that a literature review functions as a conduit between established knowledge and the on-going research. A thorough and effectively conducted literature review transcends a mere descriptive account of prior studies; it serves as a critical analysis that delineates the context, importance, and uniqueness of the research being presented. Furthermore, Boote and Beile (2005) assert that the aim of a literature review is to contextualise the research, validate its necessity, identify gaps in existing studies, and illustrate how the research integrates into the broader knowledge framework. Likewise, Ebidor and Ikhide (2024) argue that a literature review serves multiple purposes, including addressing research questions, assessing theories or evidence, scrutinising existing research findings and theories, offering a comprehensive overview of a particular phenomenon.

In this chapter, I provide a literature review focused on teachers' experiences in teaching grade 8 Technology in overcrowded classes. The chapter delineates various strategies employed by teachers to manage teaching in such environments. Consequently, the discussion encompasses quality teaching strategies, available teaching resources, instructional time, the necessity for laboratory technicians, learner assessments, and the challenges posed by an overloaded curriculum. These elements are examined in relation to teachers' experiences in teaching grade 8 Technology learners in overcrowded classes.

2.2 The Context of Overcrowded Classrooms in South Africa

Baruth (2009) indicated that the phenomenon of overcrowded classes in South Africa can be traced back to the country's historical context. Before 1994, the government implemented a

segregated education structure that catered to various racial groups (Baruth, 2009). Consequently, Steyn (2003) contended that the South African education system was characterised by significant inequalities, disparities, and educational injustices. Additionally, Baruth (2009) highlighted that one of these injustices was the elevation of learner-teacher ratios in schools that were previously disadvantaged, particularly those with African teachers and learners situated in rural township areas. The learner-teacher ratio in South African schools prior to 1994 is illustrated in Table 2.1 below.

Table 2.1 Average learner- teacher ratio prior to 1994

Schools defined by Racial classification	Learner–Teacher Ratio
White	20:1
Indian	35:1
Coloured	40:1
African	75:1

Source: South African Institute of Race Relations, 1996, p. 8

Table 2.1 shows that the ratios of learners to teachers were designed to favour White schools while marginalising African schools. As noted by Baruth (2009), along with Case and Yogo (1999) and Smith (2011), there existed distinct educational institutions for learners of various

racial backgrounds, which were governed by highly unequal regulations, curricula, and funding. Consequently, overcrowded classes became a significant issue in African schools during the apartheid period. Following the first democratic elections in 1994, one of the initiatives introduced to address The Post Provisioning Norm (PPN) was a response to the injustices of apartheid (Baruth, 2009; Muthusamy, 2015).

The primary aim of the PPN policy was to alleviate overcrowding by reducing the learner-teacher ratios in schools throughout South Africa. Despite the existence of policies such as the PPN aimed at resolving the issue of overcrowded classes, the lingering inequalities from the apartheid era remained evident (Baruth, 2009). This indicated that teachers continue to face the challenge of overcrowded classes, particularly in African schools, which are now referred to as previously disadvantaged schools (Fiske & Ladd, 2004; Kallaway, 1984; Maharaj et al., 2000; Nkomo, 1990; Rakometsi, 2008).

The existing Curriculum Assessment Policy Statement (CAPS) aims to support a maximum of 40 learners per classroom, irrespective of the school's context or the racial background of the learners (DBE, 2011). Despite this policy guideline, teachers around the globe often find themselves in situations where class sizes exceed 40 learners. For instance, research by Venketess (2011) indicated that over 150 learners were packed into a single classroom at a secondary school in Newlands East, Durban.

Furthermore, while various studies have addressed the issue of overcrowded classes, there has been a notable lack of focus on the experiences of Technology teachers in such environments (Inamulla, 2012; Fin, 2003; Meier & West, 2020; Benbow et al., 2007). Consequently, this study is crucial as it highlights the specific experiences of Technology teachers dealing with overcrowded classes. Additionally, although the Post Provisioning Norms (PPN) policy specifies a learner-teacher ratio of 40:1, this is not consistently observed in numerous schools.

The prevalence of overcrowded classes remains a significant concern, adversely affecting the teaching experiences of teachers in South Africa. While schools have the option to hire

additional teachers with the approval of the governing body to ease the burden of class management, numerous schools lack the financial resources necessary to hire additional personnel (Venketess, 2011). Consequently, teachers find themselves solely responsible for addressing the issues arising from overcrowded classes. This situation presents significant challenges for many teachers, resulting in various difficulties within the classroom environment. Challenges include a lack of quality teaching in overcrowded classes, lack of learning resources, limited teaching time, and increased teacher workload.

2.3 The Global Context of Teachers' Experiences in Overcrowded Classes

Research indicates that numerous countries face a critical challenge in delivering satisfactory basic education to school-aged children due to overcrowded classes. This issue stems from an unprecedented rise in school enrolment rates globally (Hachem & Mayor, 2019; Kweitsu, 2019; Shah, 2012). Despite notable advancements in enhancing access to fundamental education, considerable challenges remain, especially in developing countries. Among the challenges is the diminishing quality of teaching, as teachers find it difficult to optimise their teaching capabilities in the face of large class sizes, which ultimately compromises the quality of both teaching and learning (Hachem & Mayor, 2019).

Consequently, it is clear that class overcrowding represents a worldwide concern that obstructs effective teaching and learning processes. As a result, teachers are often left to navigate the challenges posed by overcrowded classes independently. This situation creates numerous difficulties, including diminishing quality of teaching, insufficient learning materials, restricted teaching time, increased workload for teachers, among others and the financial resources to do so (Venketess, 2011).

The challenge of overcrowded classes is prevalent in numerous African nations. Reports indicate that countries such as Nigeria, Kenya, Ghana, and South Africa acknowledge that their class sizes exceed the United Nations' recommended learner-teacher ratio of 40:1 for secondary education (Motshekga, 2012; Mutisya, 2020; Onwu & Stoffels, 2005; UNESCO Institute of

Statistics, 2008). According to calculations by UNESCO (2008), over 84% of classrooms contained more than 40 learners. Mweru (2010) noted that the Kenyan Government's implementation of free primary education in 2003 led to a significant increase in learner enrolment, resulting in overcrowded classes. Likewise, Edholm (2009) pointed out that the elimination of school fees allowed many families across Africa to enrol their children in school, further contributing to the issue of overcrowding.

While Ghana, Kenya, and South Africa have made progress in improving access to education, the persistent challenge of overcrowded classes adversely affects educational quality, as evidenced by the low academic performance of learners (Aryeetey & Kanbur, 2017). This decline in academic achievement poses serious challenges for teachers in meeting educational objectives. The dimensions of a classroom impact the level of attention that teachers can allocate to each learner, in addition to affecting the social interactions that occur among classmates (Preble, 2015). One of the significant challenges confronting the Nigerian educational system is the issue of overcrowded classes. Geometric increase in population in Nigeria has resulted to geometric increase in the population of school children and adolescents. This rate of increase in leaners' enrolment into public schools has led to a notable increase in class sizes and a high learner-teacher ratio (Olaleye et al., 2017). As noted by Akinsolu and Fadokun (2003), class size in Nigeria plays a crucial role in shaping educational goals and objectives.

Ahmad et al. (2018) highlighted that teachers expressed concerns regarding the time-consuming nature of class activities in overcrowded classes. Furthermore, teachers reported difficulties in monitoring learner behaviour and activities within these overcrowded classes, which adversely affected their classroom management capabilities. Additionally, a study by Ogunmade (2005) revealed that teachers in Nigerian schools faced challenges in conducting practical Technology lessons due to overcrowded Technology classes, compounded by a lack of adequate equipment, resources, and funding for new laboratories. Consequently, teachers struggled to cultivate Technology-literate learners. Similarly, the United States of America (USA) has also grappled

with overcrowding in its educational system, attributed to a continuously growing population and a shortage of teachers (Hachem & Mayor, 2019). Currently, there are approximately 17,400 schools in the USA that are overcrowded (Hachem & Mayor, 2019).

It is evident that large class sizes pose challenges for teaching and learning. Thus, average teacher ratio of Brazil and Mexico is 24:1 whereas Hungary, Poland, Italy and Norway have an average learner teacher ratio of 11:1. These ratios denote a number that is way below countries like China, Indonesia and Korea and Japan which have average ratios of between 35:1 and 55:1 (UNESCO, 2005). The research also depicts that class sizes in European countries have a smaller learner-to-teacher ratio as opposed to Asian countries. Large class sizes pose challenges for teaching and learning. The research also depicts that class sizes in European countries have a smaller learner-to-teacher ratio as opposed to Asian countries.

2.4 Technology as a Learning Subject

Technology Education was integrated into the South African curriculum to address the demand for engineers, technicians, and artisans essential for contemporary society, as well as to cultivate a population proficient in Technology for the modern era. Acquiring technological knowledge and skills equips individuals with the practical tools necessary to make informed decisions that align with their personal circumstances (Hirschfeld, 2012). Furthermore, Technology serves as a foundation for the essential knowledge required for future innovations that will perpetuate global economic growth (Amunga et al., 2011). The domain of Technology education has been instrumental in improving the technological infrastructure and providing the skilled workforce necessary to capitalise on technological advancements and discoveries (Kuhn et al., 2012; Freeman, 2012). All educational systems incorporate the study of Technology. Within this discipline, learners engage in hands-on activities to deepen their understanding of the world around them (Kolucki & Lemish, 2011). It fosters learners' comprehension of concepts, theories, and technological frameworks (Millar & Abrahams, 2008).

Consequently, the teaching of Technology entails learners experiencing both fundamental and

integrated technological processes (Behera,2023). Research indicates that learner achievement and skill development are enhanced when Technology is taught through practical engagement (Hinneh, 2017; Okam and Zakari (2017); Turpin & Cage, 2004; Aladejana & Aderibigbe, 2007; Watts, 2013). Nevertheless, the implementation of practical work is hindered in certain schools across the country due to insufficient resources, a lack of practical technology skills, and overcrowded classes (Onwu & Stoffel, 2005; Ramnarain, 2014).

Researchers including Cortes, Moussa, and Weinstein (2012), Marais (2016), and Van Wyk (2008) have argued that overcrowded classes significantly contribute to didactical neglect, which is characterised by the teacher's failure to sufficiently meet the educational requirements of each learner. Enhanced academic performance is believed to arise from teachers being able to concentrate more on the specific needs of each learner. However, in most classes, teachers are unable to assess their learners' practical work, homework, and class activities on an individual basis. Consequently, the teaching and learning of Technology has suffered due to overcrowded classes (Niyitanga et al. 2021).

Due to overcrowding teachers can incorporate digital technology in their teaching. Digital Technology has significantly transformed the classroom, influencing how instruction is presented. It is evident by the transition from traditional chalkboards to interactive whiteboards (IWBs) and from printed books to digital simulations. These days, educational digital technology is an essential component of how education is delivered. Numerous studies demonstrate how well digital technology may assist teachers adapt instruction to the requirements of each learner, foster collaboration, and increase learner enthusiasm (Raja & Nagasubramani, 2018; Ferdig, 2006; Tondeur et al., 2017). Instructional digital technologies such as interactive whiteboards (IWBs), digital textbooks and creative presentation softwares enhance teacher-led instruction. (Fatimah & Santiana, 2017; Dias & Atkinson, 2001). These tools support visualization, multi-sensory learning and real-time interaction. Collaborative digital technologies include platforms such as Google Workplace, Microsoft Office and educational forums. These encourage peer-to-peer collaboration and learning, benefit group projects and support constructive pedagogy (Sabzian et al., 2013). Teachers

report that these platforms advance shared responsibility and increase the accessibility in group works (Tiene & Luft, 2001).

Many teachers are also trying out flipped classrooms, where learners learn content online at home and then do group work in class (Nelson, 2013). This change lets the teachers use class time for deeper discussions and collaboration. However, not all teachers are eager to make these changes. Buabeng-Andoh (2012) found that older teachers or those who are not confident with digital technology use, are less likely to try learner-centered approaches. This focuses on the need for strong professional development and mentoring to help the teacher adapt (Ruggiero & Mong 2015; Bebell et al., 2004).

Even with the benefits, using digital technology in education still comes with challenges. Many schools do not use digital technology due to poor internet connectivity, old devices and not enough tech support (Akram et al., 2022; Alam et al., 2025). These problems are worse in low-income countries and increase the gap between schools. Another big issue is that many teachers do not feel ready or confident enough to use the digital technology in the classroom. Tabassum (2025), notes that while some learners do well with digital technology integration, there are others who get distracted or do not have internet access or devices at home. This causes learning inequality. Sometimes, institutions may lack strong policies or enough funds and support. Tondeur et al., (2017) say that for digital technology to work well in education, institutions need to have proper planning, committed leaders and long-term efforts as well as funds. However, teachers may avoid new tools if they seem like extra work instead of helping learners or helpful resources.Teachers' Challenging Experiences in Teaching Technology in Overcrowded Classes.

Emmer and Stough (2010) highlighted that teachers encountered significant challenges in monitoring learner behaviour and class activities within overcrowded environments. Consequently, such conditions adversely affected classroom management. Onwu and Stoffels

(2005) argued that overcrowded classes led to various constraints, which are elaborated upon below.

2.4.1 Lack Quality of Teaching Methods in Overcrowded Classes

In overcrowded classes, the predominant method employed for teaching Technology is the traditional lecture format. This approach has proven ineffective for Technology instruction, as evidenced by persistently low student performance in the subject (Toplis et al. 2012). The traditional lecture method yields minimal to no improvement in most learners' comprehension of the workings of the Technology field (Capanis et al. 2010; Bohari, 2020). Reports indicate that this method is effective for only about ten per cent of learners (Gekelman et al. 2011), primarily those who were intrinsically motivated and would likely have acquired the knowledge independently. Passive listening to teachers is not an effective means of learning any subject. Learners should engage actively in the process of knowledge creation and expansion. Research by Thomton (1990) and Tamir (1991) has demonstrated that even proficient teachers experience limited success in facilitating students' understanding of Technology when relying on this method. Teachers' ineffective application of teaching methods significantly impedes learners‟ comprehension of Technology as a discipline, as noted by Ayodele (2006). The instruction and learning of Technology should not be confined solely to theoretical lectures. A study by Onose et al. (2009) highlighted that the prevalence of overcrowded classes led many teachers to present Technology in an abstract manner, rendering lessons tedious and challenging for learners to understand essential technological concepts, skills, and principles. A predominant focus on theoretical application over practical engagement in Technology subjects was evident among most teachers. Furthermore, the teaching of Technology had devolved into a mere descriptive activity, relying heavily on lecture methods, while inquiry-based approaches had offered minimal knowledge to learners (Onose et al., 2009).

The Namibian Ministry of Education (2009) indicated that teachers faced difficulties in determining effective teaching strategies, as they often failed to employ a diverse range of instructional methods necessary for delivering quality practical lessons. Lomofsky and Lazarus

(2001) proposed that teachers in South African schools ought to employ a diverse array of teaching strategies to achieve the desired outcomes for effective practical lessons. This included methods such as project demonstrations, personalised assignments, and various instructional techniques. Wrenn and Wrenn (2009) further emphasised the importance of enabling learners not only to grasp theoretical concepts and their significance but also to learn how to implement these theoretical frameworks in real-world scenarios.

A key aspect of the active learning model, which sets it apart from other educational approaches, is its focus on experiential learning rather than passive listening as a means of knowledge acquisition (Bonwell & Eison, 1991; Felder & Brent, 2003). The adoption of alternative teaching strategies by teachers could enhance Technology education. Engaging activities such as project-based learning, exploratory learning, collaborative learning, and Technology-integrated instruction are essential for involving students in the learning process (Khalaily, 2019).

In similarly crowded classes with numerous learners, Thomton (1990) and Tamir (1991) advocated for increased learner engagement through participatory techniques, including group work, discussions, demonstrations, and questioning. The practice of posing theoretical questions and encouraging learners to think critically is vital for effective teaching. This approach keeps learners engaged and allows them to provide detailed responses, thereby enhancing their focus (Sadiq, 2003; Salim, 2011). Technology should be regarded as a discipline that ignites learners' curiosity and encourages inquiry, necessitating problem-solving skills. The hands-on nature of the subject fosters teamwork and the development of practical skills, while also enhancing observational, deductive, and evaluative abilities (Rawer, 1993).

2.4.2 Lack of Teaching and Learning Resources

The effective instruction and comprehension of Technology necessitates the availability of sufficient resources. Mudulia (2012) emphasised that textbooks, revision materials, laboratory supplies, and equipment should be accessible to facilitate effective teaching and learning in this

field. In secondary schools across nations such as South Africa and Ghana, the absence of Technology laboratories or teaching kits for Technology education has been noted (Toplis et al. 2012). This lack of resources often results in Technology lessons being predominantly delivered in a lecture format, with minimal opportunities for demonstrations. Consequently, learners are deprived of the chance to engage in practical activities independently, which is essential for the development of their process skills (Curriculum Research and Development Division, 2012). Furthermore, to adequately address the numerous topics outlined in the Technology syllabus, teachers frequently resort to traditional lecturing methods due to time constraints, thereby limiting learners' exposure to hands-on Technology experiences.

Textbooks and wall charts are commonly utilised instructional materials in the teaching and learning of Technology. The presence of a diverse range of instructional resources enables teachers to employ various teaching strategies, encouraging learners to engage in self-directed learning. This approach fosters interaction and interest within the classroom, alleviating the need for lengthy explanations by the teacher (Mudulia, 2012). Additionally, it promotes exploration and discovery among learners, allowing them to contribute meaningfully to established technological principles. When utilised effectively, these resources can deepen leaners' understanding of concepts and significantly enhance their overall learning experience (Lane, 2022).

Laboratories offer numerous advantages, including the facilitation of tangible learning experiences and the establishment of a foundation for Technology education at advanced levels (Hunde & Tegegne, 2010). A minimum requirement for laboratory spaces is that they should accommodate all learners and the teacher to effectively conduct practical activities (Score, 2008). In many African nations, a single Technology laboratory is often shared among all learners due to overcrowding. Consequently, the time allocated for each Technology project is insufficient to support daily practical activities. Research by Adedayo (2015) highlighted that a significant factor hindering practical work in Technology education was the absence of dedicated Technology laboratories. The availability of laboratory spaces and materials for

practical work in most educational institutions does not align with the number of learners enrolled (Feyera, 2014).

Shana and Abulibdeh (2020) recommend that learners should be afforded ample opportunities to participate in practical lessons during their secondary education. This necessitates that school administrations equip their laboratories with all necessary tools to ensure effective implementation of practical work and that such activities occur in environments conducive to hands-on learning. Nevertheless, many laboratory activities seem to have minimal influence on how learners are expected to learn, understand, and engage in knowledge construction within the realm of Technology. Practical work encompasses any educational activity that involves learners in the observation or manipulation of real objects and materials (Millar, 2004). High-quality learning resources for practical work are essential components of any Technology laboratory session (Olaleye, 2002). Technology education should adopt a fresh perspective to foster the development of individuals who could then secure employment in the industry.

According to the research conducted by Silas et al. (2019), it is essential to incorporate practical lessons into the Technology curriculum at the primary school level, as many topics require both theoretical and practical understanding. Learners tend to grasp concepts more effectively through hands-on experiments, which also engage their natural curiosity about real-life applications of their learning. Consequently, Technology education plays a crucial role in achieving developmental goals by imparting essential theories and practical skills that are vital for producing industry- ready learners (Ogunmade, 2006).

In the northern region of Ethiopia, specifically in Mekelle city within the Tigray region, the condition of Technology laboratories in eight governmental schools has been reported to be severely inadequate. Many laboratory spaces do not meet the required standards and were not designed for laboratory use, lacking fundamental facilities such as running water, electricity, work tables, and sinks. In some instances, the rooms have broken windows, roofs, and doors, rendering them unsafe for conducting Technology experiments and storing materials (Gebrekidan, 2014). As highlighted by Kasiyo et al. (2017), the substandard state of school

laboratories was a significant concern, as certain activities could not be performed in class due to safety issues for both learners and materials.

Similarly, a study by Omoifo (2012) in numerous schools across Namibia, found that there was a notable absence of laboratory facilities that would allow teachers to effectively demonstrate their Technology skills to learners. Consequently, learners seldom engaged in hands-on, minds on experiences, which presented challenges in preparing for practical examinations in Technology. Many schools lacked the necessary equipment for teaching demonstrations, and the classes were often too cramped for learners to work freely and collaborate during practical activities. It is essential to recognise that a conducive classroom environment is vital for effective teaching and learning to occur. As noted by Oshodi (2022), digital libraries serve as repositories that house materials and information in electronic formats within a database, allowing for easy access from any location worldwide. These libraries, often referred to as online or internet libraries, facilitate quick access to a variety of resources, including books, articles, academic and non-academic journals, news, statistics, and magazines.

The materials available in digital libraries come in diverse formats such as images, audio, video, and PDF, covering a wide range of subjects and disciplines (Oshodi, 2022). Oshodi (2022) further observes that Technology learners utilising digital libraries can study at their own pace, enjoy flexible timing, collaborate with peers, and review class notes and videos. These advantages significantly enhance the teaching and learning experience, thereby improving learners' performance. However, the lack of digital infrastructure and limited connectivity hamper Technology learners' ability to access digital libraries. The poor digital infrastructure in Africa is attributed to insufficient funding and exposure, posing a significant challenge for users, with limited connectivity affecting many regions of the continent (Oshodi, 2022).

Additionally, textbooks are crucial resources that provide teachers with the comfort and convenience of having lessons organised while ensuring access to the necessary knowledge and skills for effective teaching at appropriate levels (Du Plessis & Mestry, 2019). Ogunmade

(2006) highlighted that a majority of learners lacked access to textbooks, and many schools did not have public library facilities. In instances where such resources were available, the schoolbooks found in libraries were often outdated. The absence of adequate resources and the insufficient care of existing materials continue to pose challenges within many educational systems in Africa.

2.4.3 Limited Teaching Time

The fundamental aspect of teaching and learning, particularly concerning practical work in Technology, is the availability of time. Consequently, both teachers and learners require sufficient time to engage in practical activities related to Technology. Effective practical work necessitates ample time to impart and acquire the relevant content and skills (Henshaw, 2013; Zuofa, 2007). Unfortunately, minimal time is allocated to the enhancement of learners' conceptual and technological skills. A qualitative research study conducted by Millar and Abrahams (2009) revealed that the majority of teachers (24 out of 25) dedicated very little time to fostering the development of learners' knowledge and skills due to the limited time assigned for Technology practicals.

Ganimian and Murnane (2016) argued that the high learner-to-teacher ratio left little opportunity for teachers to identify and assist learners facing challenges. Additionally, Mudau (2007) posited that the insufficient allocation of practical sessions within the school timetable adversely impacted the execution of the Technology curriculum. Time constraints have been recognised as a significant obstacle to conducting practical work. This assertion was corroborated by the research conducted by Motlhabane (2014). The issue of time constraints as a barrier to practical work raised concerns, suggesting that either the curriculum developers overestimated the workload that could be effectively covered within a school year or that schools failed to allocate the necessary time for this learning area.

In a society that prioritises knowledge, it is essential for the designers of the Technology curriculum to re-evaluate the curriculum comprehensively, including its scheduling. Effective

teaching and proper time allocation are crucial for facilitating practical work. The research conducted by Netshivhumbe and Mudau (2021) highlighted that the time dedicated to teaching and learning Technology was inadequate, leading to the omission of other essential content. They noted that the time assigned to Technology was insufficient due to the necessity of conducting experiments, investigations, and projects, all of which demanded additional time (Netshivhumbe & Mudau, 2021). This indicated that Technology teachers faced a significant workload.

2.4.4 Increased Teachers' workload

Similarly, Koballa and Tippins (2000) asserted that the burdensome Technology curriculum forced teachers to prioritise syllabus completion over effective pedagogical practices and the proper execution of practical activities. Osborne and Collins (2001) suggested that this situation contributed to the prevalence of transmissive teaching methods, such as traditional lectures.

Ezeonwumelu and Ugochukwu (2024) also identified the overloaded Technology curriculum as a frequently cited limitation within Technology education. Supporting these observations, a qualitative study by Muthusamy (2015) revealed that Technology teachers, faced with overcrowded classes, often found it necessary to take their grading home in order to meet deadlines. The limited time available at school, coupled with the volume of learner work, hindered their ability to complete assessments on-site.

This finding aligned with research by Meier (2020), which indicated that overcrowded classes correlated with heightened workloads and contributed to teacher burnout. Additionally, Nesane (2008) and Millar et al. (2002) highlighted that the increased workload in such environments adversely affected the teaching and learning of Technology, as learners did not receive timely feedback. Consequently, Nghipandulwa (2011) and Abrahams (2011) advocated for regular interaction between Technology teachers and learners, as well as the importance of monitoring learners‟ progress through effective assessment and feedback. The literature suggests that overcrowded classes result in greater workloads, which could detrimentally affect teachers'

instructional capabilities and time management. The insufficient time available during school hours complicates the completion of necessary tasks, leading to a challenging and stressful teaching experience for educators (Muthusamy, 2015).

In South Africa, the Curriculum Assessment Policy Statement for Technology (CAPS) designates three hours of instruction per week for this subject. Mbatha (2016) indicated that due to the excessive demands of the curriculum, the pace of teaching in many South African schools is hindered, making it challenging to meet the curriculum requirements. Consequently, teachers often find themselves with insufficient time to effectively teach and execute all the mandated academic activities with their learners.

2.4.5 Low Teachers' Morale

The research conducted by Miyoba (2017) revealed that although teachers acknowledged the importance of practical work in educational settings, a significant number failed to implement it within their classes. This discrepancy was revealed by the inconsistency between their self-reported practices and the evidence found in their portfolios. Consequently, the study concluded that while teachers held favourable views on the significance of practical work in teaching integrated Science, these views were not effectively translated into actual practice. Teachers identified several barriers to the implementation of practical work in schools, including large class sizes, excessive workloads, insufficient teaching resources, and a lack of administrative support (Miyoba, 2017).

In a separate study of Ethiopian secondary schools, it was found that teachers working under inadequate teaching conditions exhibited low morale (Muthusamy, 2015). The factors contributing to the diminished morale among Technology teachers were primarily linked to challenges posed by overcrowded classes and a scarcity of resources. Mogofe and Kibirige (2013) in further noting that excessive workloads negatively impacted the morale of Technology teachers suggested that the newly established Further Education and Training (FET) colleges should focus on training laboratory assistants to support teachers in the setup

and management of Technology laboratories.

Additionally, the study in Ethiopian secondary schools reiterated that teachers in poorly resourced environments, lacking laboratories and necessary experimental materials, were often unmotivated to engage in teaching and conducting practical work with their learners (Mogofe & Kibirige, 2013). Therefore, it was imperative that all schools were equipped with laboratories where learners could practise and refine their science process skills. Such initiatives could serve as a source of motivation for both high school teachers and learners, encouraging a more serious approach to practical work. These initiatives could serve as an encouragement for high school teachers and learners to approach practical work with greater seriousness than was presently observed (Mogofe & Kibirige, 2013).

2.4.6 Lack of laboratory technicians

Technicians in the field of Technology play a crucial role in both current and future Technology education. Their specialised skills and expertise are unique and not readily found elsewhere. Trained and experienced technicians possess in-depth knowledge of practical techniques and often demonstrate superior expertise compared to Technology teachers in areas such as technique, health and safety, efficiency, and cost-effectiveness (Chala, 2019). They facilitate teachers delivering diverse and engaging Technology lessons, as evidenced by studies conducted by Helliar and Harrison (2011), Bello (2015), the National Standards for Professional Practice (2021), Worth (2020), and Chala (2019).

Recently, there has been significant discourse in the literature regarding the potential of teaching assistants, who are capable of instructing learners in Technology content, to alleviate some of the workload for teachers (Chala, 2019; Skipp & Hopwood, 2019; Webster 2014; Symes & Humphrey, 2011; Cassim & Moen, 2020; Warhurst et al., 2014). Their assistance could contribute to making the workloads of Technology teachers more manageable. Despite the recognition of their expertise, the profile and professionalism of technicians have often been undervalued and overlooked by non- technology staff within schools (Kind & Taber, 2005).

This lack of appreciation, frequently stemming from senior management, not only disheartens technicians but also hinders the training and mutually beneficial advancement of their roles (Soares & Lock, 2007). Soares and Lock (2007) suggested that insufficient levels of technician support are often correlated with underperforming Technology education departments. This situation has restricted opportunities for providing essential practical support to Technology teachers. The reasons for this are largely attributed to a lack of knowledge and understanding among senior management regarding the structure of the technician's role (Soares & Lock, 2007).

In many African countries, the absence of laboratory technicians in schools has compelled teachers to take on the responsibilities typically assigned to technicians. Laboratory practice and instruction are adversely affected due to the challenges of managing time between teaching responsibilities and technical duties (Kapting' ei & Kimeli, 2014). In schools, where there were science technicians, a study by Kapting' ei & Kimeli, (2014) revealed that they were not trained in the school‟s laboratory practice. School Technology technicians in Africa are needed to complete a diversity of tasks with equipment, stock monitoring and ordering, maintenance of equipment, running the prep room and safety instructions to ensure the smooth running of practical lessons (Busher & Blease,2000; Worth, 2020; Barker, 2016 & Hackling, 2009).

2.5 Coping Strategies for Technology Educators

Overcrowded classes present numerous challenges; however, teachers develop various strategies to address these issues, as highlighted in studies by Matsepe (2019), Benbow (2007), Muthusamy (2015), Juhji and Nuangchalerm et al. (2020), and Alebous (2021). The extensive secondary Technology curriculum often limits teachers' ability to incorporate practical activities into their lessons. Benbow et al. (2007) suggested that collaborative approaches such as team teaching and peer teaching could effectively mitigate the difficulties associated with overcrowded Technology classes. Additionally, Crute (2004) emphasised the value of teacher support groups, which provide a platform for discussing challenges and sharing solutions among

teachers.

In managing practical work within these crowded environments, the teacher typically assumes a central role during demonstrations, allowed learners to observe before attempting the tasks themselves. The teacher illustrates the activity and elaborates on each step of the process (Ameh et al., 2007; Mundi, 2006). This method enables learners to connect theoretical concepts with hands-on experiences (Tytler, 2007). Demonstrations offer several benefits, including time efficiency, resource optimisation, enhanced lesson engagement, immediate feedback, and a practical context for material usage (Abrahams, 2009). However, further research is necessary to gain insights into teachers' overall experiences in teaching Technology

learners in overcrowded classes, particularly given the limited time allocated for practical activities. Moreover, it is essential to explore the reasons behind teachers' experiences in teaching Technology under such conditions in order to enhance learners‟ engagement and enjoyment, as well as to improve future instructional practices. Adequate support from school administrators, colleagues, parents, and the community is also crucial for Technology teachers. Teachers should be afforded sufficient opportunities for continuous professional development and collaboration with peers and experts regarding curriculum matters. Such professional development offers a systematic approach to learning that leads to modifications in teaching practices and enhancements in learner learning outcomes. Furthermore, it fosters collaboration, allowing teachers to engage with one another. This collaborative model is advantageous for all teachers, as it transforms instructional methods and elevates learner achievement (Needu, 2018).

2.6 Conclusion

This chapter examined various literatures concerning Technology education, teaching resources, teaching time, the necessity for laboratory technicians, and the challenges posed by an overloaded curriculum. The findings from multiple studies highlighted the prevalent difficulties that teachers face, which affect their capacity to effectively manage Technology

teaching in overcrowded classes. The next chapter outlines the theoretical framework utilised in this research.

CHAPTER 3

THEORETICAL FRAMEWORK

3.1 Introduction

In the analysis of data, the researcher employed a theoretical framework. As articulated by Kivunja (2018, p. 46), a theoretical framework represents a "synthesis of the thoughts of giants in the field of study." He further elaborated that this framework encompasses the insights of prominent figures in a specific research area regarding the research question and the phenomenon studied, and may also provide guidance on interpreting the data findings. This chapter provides a comprehensive explanation of the theoretical framework that underpinned this research, along with the rationale for its selection, supported by relevant literature. The subsections covered in this chapter include a discussion on the foundations of Choice Theory, an overview of the five fundamental needs associated with Choice Theory, and the significance of Choice Theory in the context of this study.

3.2 Foundations of the Choice Theory by William Glasser

The Choice Theory is a behavioural theory formulated by William Glasser in the year 1980, grounded in the premise that all individuals possess five fundamental needs embedded in our genetic makeup (Glasser, 2010). These needs include: survival and reproduction; the need for belonging (to love and be loved); the pursuit of power; the desire for freedom; and the quest for enjoyment (Tanrikulu, 2014). Frey and Wilhite (2005) asserted that individuals' behaviours are influenced by these five essential needs: survival, love and belonging, power and significance, freedom and autonomy, and fun. Glasser (2000) argued that individuals are more inclined to exert effort when they feel a strong sense of belonging within the educational environment. Understanding Choice Theory equips teachers to address the fundamental academic needs for teaching and learning in the classroom. When teachers are aware of these academic needs, they cultivate an environment that fosters a desire to learn, encourage the production of high-quality work, and promote responsible behaviour among learners (Botha, 2022). Thus, Choice Theory

serves as both a theoretical and practical framework for creating an effective teaching and learning atmosphere.

Choice Theory represents both a theoretical and practical framework aimed at fostering more fulfilling relationships between teachers, learners and senior management staff. According to Louis (2009), William Glasser's Choice Theory enhances our comprehension of the processes involved in sociocultural cognitive development. In a previous study, Glasser (1998) asserted that learning was significantly shaped by the dynamics presented in social environments, such as schools. Louis (2009) contended that a thorough understanding of Glasser's Choice Theory equipped teachers with essential tools to enhance social interactions with learners and refined their overall teaching methodologies. Olson and Dweck (2009) emphasised that cognitive development cannot occur in the absence of social interaction. In this study, I aimed to explore the experiences and strategies employed by teachers in overcrowded Technology classes. Messina (2023) indicates that the most effective approach for teachers in managing overcrowded classes was to establish strong working relationships with their learners and other colleagues. Teachers described this process as forming a connection with stakeholders in their community of practice (Messina, 2023). Teachers who strive to create an inclusive classroom atmosphere and make learning enjoyable tend to find it easier to manage larger groups of learners (Messina, 2023).

To foster an environment of mutual support and trust, it is essential to provide opportunities for social interaction and dialogue between learners and teachers. Glasser (1993) emphasised that as learners become acquainted with their teacher, they are more likely to share personal insights. This exchange fosters the closeness necessary to cultivate a warm and supportive classroom environment. Teachers who progress with their learners from one grade to the next benefit from a deeper understanding of their learners, which facilitates the creation of this supportive atmosphere (Messina, 2023). Figure 3.1 below indicates the Choice Theory visually depicting the five needs.

Figure 3.1: Choice Theory as adopted from Koppikar (2019)

3.3 Unpacking the Choice Theory's five needs in relation to teaching practice

3.3.1 The need for survival

The fundamental requirement for survival, encompassing essentials such as food, shelter, and physical comfort, is crucial for human functioning (Gabriel & Matthews, 2011). In addition to these physical needs, there exists a psychological aspect that emphasises the importance of order and security. Furthermore, it is imperative for teachers to create a classroom environment that is conducive to learning by optimising factors such as lighting, seating arrangements, air circulation, and temperature, irrespective of any contextual challenges (Gabriel & Matthews, 2011).To address needs for order and security, teachers should implement behaviour guidelines that foster safety and respect, as well as establish consistent classroom procedures and routines that instill a sense of stability and security (Botha, 2022). The arrangement of seating plays a vital role in fulfilling survival needs within the classroom setting. Organising learners in rows facilitates manageable interactions and minimises

disruptive behaviour, thereby enhancing on-task engagement during lessons (Wannarka & Ruhl, 2008). Research indicates that learners who exhibit disruptive behaviours and have low attention spans, often linked to lower popularity among peers, derive significant benefits from seating configurations that utilise rows and columns of individual desks (Hastings & Schwieso, 1995). Teachers used groups: "We started the year in groups, because we think that is very important, just for the atmosphere and to promote collaboration" . Classroom seating arrangements have shown to mitigate negative social interactions among learners (Van den Berg et al. 2012).

The research indicated that altering seating configurations can significantly affect social dynamics within the classes (Van den Berg et al. 2012). When the teacher is grouping learners for a particular Technology task, they must consider group seating arrangements to promote greater learner-to-teacher and learner-to-learner interaction. Teachers can use their discretion to select sitting positions for learners who need proximity to maintain attention or get extra support, often to sit in the front rows and traditional classroom seating. This layout is particularly very effective in classes with large population size (Ibiloye & Bello, 2021).

3.3.2 The Need for Love and Belonging

The need for love and belonging is arguably the most fundamental in the human experience as alluded in Choice Theory. It is essential for fostering relationships (Gabriel & Matthews, 2011; Hirsch & Clark, 2018). Belongingness, which is the need to belong, includes the desire to be accepted in and be affiliated with a certain group (Baumeister & Leary, 1995). The need to affiliate with a group can be unique to a peer group among school learners, colleagues, and the teaching team. The need for affiliation goes beyond simply knowing or being known by other people. Receiving attention, being accepted and being supported by group members, along with providing the same reciprocation, is central to belongingness (DeWall, Baumeister & Vohs, 2008). Further, it is an experience that allows teachers to feel that their performance directly affects the functioning of the organisation they belong to.

A substantial and expanding body of research has explored the concept of belonging (Allen & Bowles, 2012; Allen et al., 2018; Du Toit-Brits, 2022; Boelens et al., 2017; Cho et al., 2017). One interpretation of belonging is that it plays a vital role in fostering a teacher's professional development and identity. It is essential to acknowledge that the concept of belonging encompasses the degree to which teachers perceive themselves as valued, accepted, and supported by school management within their school environments. This viewpoint is further substantiated by the research conducted by Allen et al. (2018), Boelens et al. (2017), Cho et al. (2017), all of whom highlighted the importance of interpersonal relationships in fostering human interactions and collaborations. It was also identified that creating a learning experience for teachers aided in the development of a sense of belonging in them (Ussher, 2010; Bedarkar & Padita, 2013). Muthusamy's (2015) study found that schools should provide support to teachers in managing the challenges of overcrowded classrooms, enabling them to perform their duties effectively.

3.3.3 The Need for Power

The fulfilment of the need for power is achieved through personal development, the acquisition of knowledge and skills that improve human life, the promotion of higher achievements, and the enhancement of self-esteem (Gabriel & Matthews, 2011). According to Muthusamy (2015), teachers can address this need by collaborating with other teachers to explore ways of assisting each other with discipline and curriculum-related matters, thereby allowing more time for teaching. Additionally, attending personal development training organized by the department can also be beneficial. Likewise, Datnow (2011, p. 152) defines teacher collaboration as "sharing of expertise in delivering a lesson, solving a problem, or working together on a project". From these definitions, one can conclude that teachers agree to work together, sharing their teaching expertise while utilising their varied skills. Therefore, collaborative teaching is seen as a key aspect of teacher professional development and a vehicle to increase teacher knowledge. Stanley (2011) identified collaborative opportunities within schools as one of the

best practices for improving their classroom teaching.

Collaboration in developing knowledge is viewed as essential for effective teaching and as an indispensable investment for teachers (Kinzer et al. 2014). Collaborative teaching was introduced to teachers to encourage them to work as a unit, thus enhancing their development (Rytivaara &Kershner, 2012). Studies by Ranamane (2006) and Kingsley (2012) revealed that teachers were motivated to use collaborative teaching as a model for teacher learning to become knowledgeable about teaching and implement powerful pedagogical practices. According to Stanley (2011), when teachers collaborate in teaching, they share knowledge, teaching methods and resources, thus creating a set of common beliefs. Recently, schools are seen as contexts for teacher learning. They are organised in ways that offer more opportunities for teacher collaborative activities (Shah, 2012).

Therefore, for collaborative teaching to be successful, schools must provide cultures that foster collaborative work amongst teachers, create time and space for teachers to meet occasionally for planning and preparation, and share teaching tips and strategies. Schools as organisations need to develop and support teachers to continuously improve. There must be constant professional development activities to keep teachers abreast of subject developments. Thus, professional development needs to focus on developing teachers' skills and knowledge (Friend & Cook, 2013). The above discussion suggests that the provision of supportive conditions is a key element in nurturing and promoting teaching activities in schools.

3.3.4 Making Informed Decisions

The ability to make informed decisions is fundamental to the concept of freedom (Gabriel & Matthews, 2011). SMT needs to provide teachers with opportunities to make knowledgeable choices regarding aspects that influence their work and personal growth. This includes decisions such as drawing up their lesson plans, teaching guidelines, and having debriefing sessions where teachers share their challenging experiences and present them to SMT. Curriculum

overload is one of the most pressing challenges facing contemporary education

Curriculum overload is one of the most pressing challenges facing contemporary education systems worldwide. It occurs when the volume and scope of content to be taught exceed the available time and resources, leaving teachers overburdened. The consequences are profound, impacting teacher job satisfaction and educational outcomes (Ahmed, 2024). According to Ahmed (2024), addressing Curriculum Overload involves coming up with new strategies that teachers can address the problem, such as drafting their lesson plans and teaching guidelines that only involve focusing on "essential content" rather than trying to cover "everything." By prioritising key concepts, skills, and competencies, teachers are able to reach their teaching goals.

3.3.5 The Importance of Enjoyment

The importance of enjoyment encompasses a variety of experiences such as joy, pleasure, satisfaction, play, humour, merriment, amusement, and participation in activities that bring happiness (Gabriel & Matthews, 2011). This need is often fulfilled through friendships (love and belonging), the exercise of autonomy (freedom), and the assurance of safety and security (Gabriel & Matthews, 2011). Teachers can achieve this need when the environment is supportive. Additionally, employees tend to be successful in achieving goals when the environment is supportive, which in turn leads to engagement at work (Bakker, Schaufeli, Leiter & Taris, 2008). It is quite likely possible that when teachers are provided with guidance when needed, they would feel more committed to being absorbed in work, and by extension, would feel like they belong and satisfied. Satisfied teachers are invaluable assets in any effective educational system (Rezaee, Khoshsima, Zare-Bahtash & Sarani, 2018)

The findings in Biyela's (2019) study have revealed that there are other school teachers who can manage overcrowded classes with the support of the School Management Team (SMT) and other stakeholders. Collaboration of teachers with SMT and others seems to be a solution

towards the effectiveness of teaching and learning in overcrowded classes. It also appears that teachers form professional learning communities in schools where they share skills and matters affecting teaching and learning, which is effective in managing overcrowded classrooms (Marzano, 2003). Thus, when teachers are adequately supported, they can enjoy teaching and perform their best.

3.4 The Significance of Choice Theory in This Study

Choice Theory offered a theoretical framework for examining the experiences of teachers in overcrowded classes. The five fundamental needs identified by William Glasser, namely, survival, belonging, power, freedom, and enjoyment, serve as essential concepts for assessing the fulfillment of teachers' professional needs in such environments. Understanding Choice Theory revealed that teachers often respond in particular ways due to the challenges posed by overcrowded settings (Botha, 2022). This philosophical perspective is a valuable tool for analysing Technology teachers' experiences within the context of overcrowded teaching and learning environments. The five needs of Choice Theory facilitate the exploration and evaluation of teachers's' order and security in the overcrowded classroom and how teachers strive to make their lessons engaging. Consequently, for teachers to reach their goals they should make thoughtful decisions regarding their teaching strategies and how they accommodate diverse learning styles to support struggling learners, and seating arrangements for learners so that they focus during individual tasks and interact with other learners during group projects.

3.5 Conclusion

This chapter explored the Choice Theory and its application to this research, particularly in relation to how Technology teachers in overcrowded classes can offer quality of teaching and individual attention to learners with support from the school management. The Choice Theory outlines that when teachers' teaching needs are addressed by the provision of adequate support, their sense of

belonging increases and so does their productivity. Therefore, school management becomes crucial in addressing these challenges by investing in more staff, better resources, and sustainable teaching environments. They can also empower teachers to succeed and prioritise teachers' well-being and workload.

CHAPTER 4

RESEARCH DESIGN AND METHODOLOGY

4.1 Introduction

A structured approach to conducting research and generating relevant data to address specific research questions or examine particular issues is referred to as research methodology. This encompasses the methods, procedures, and resources employed by researchers to plan, develop, implement, and assess their studies. A well-defined research methodology is crucial to ensure the validity, reliability, and credibility of the research findings (Khan et al., 2023). The objective of the study was to explore teachers' experiences with Teaching Technology in overcrowded classrooms. This chapter outlines the methodology employed to achieve this objective. It provides an in-depth discussion of the research methodology, paradigm, and design utilised in this study. Furthermore, the chapter addresses sampling methods, data generation methods, and the analysis of the data. Ethical considerations related to the research, as well as the identified limitations, are also discussed in detail.

4.2 Qualitative research approach

This research used a qualitative approach. In order to produce rich details regarding participants' reality, the qualitative approach entails the generation of textual data (Cohen et al., 2011). According to Kabir (2016), qualitative research is typically descriptive and non- numerical. This implies that the created data takes the shape of words and phrases. It frequently records the participant’s or data source’s subjective impressions, feelings, emotions, and experiences. The "what" (descriptive), "how" (operational), and "why" (reasoning) questions regarding a given occurrence are the focus of qualitative methods. Furthermore, Berg (2011) argued that the qualitative approach is helpful for gaining in-depth understanding of circumstances. One of the primary benefits of qualitative research, as noted by Myers (2013), is that it allows researchers to observe and understand the context surrounding the decisions and actions taken.

Berg (2011) added that this approach frequently employed to explore behaviours, experiences, and viewpoints on specific topics. Since the goal of this study was to explore and obtain profound insight and understanding of teachers' experiences teaching in overcrowded classes, the qualitative approach was used. The participants in the study were able to articulate comprehensive descriptions of their experiences by employing qualitative methods, which enabled them to gain profound understanding of their circumstances. That is to say, participating teachers were able to provide detailed explanations of their encounters with overcrowded classes because a qualitative method was used. Participants were also able to freely share their opinions and sentiments about teaching in overcrowded classes because of this method. When the researcher wants to get detailed written accounts of the participants' experiences, they employ the qualitative approach (Mack, 2005). This methodological approach was suiatble for this study since it gave the researcher the chance to generate detailed textual information about teachers' experiences with overcrowded classes.

4.3 The Interpretivist paradigm

It was crucial to define the idea of paradigm, its constituent parts, and different viewpoints before going on to analyse the paradigmatic assumptions of this study. Paradigms are frameworks of philosophical presumptions that direct researchers, according to Mertens (2012). The interpretivist paradigm has served as the foundation for most qualitative research. This viewpoint is reinforced by Lapan et al. (2012), who also maintained that every qualitative study contains an interpretive viewpoint that aims to reveal participants' opinions. The interpretive paradigm served as the basis for my study. The interpretive paradigm is predicated on people's views, attitudes, and beliefs, claimed Cohen et al. (2011). This paradigm was suitable for this study since my goal was to comprehend, clarify, and characterise secondary school teachers' experiences with overcrowded classes in secondary schools. Participants were able to open up and share details about their experiences and feelings of teaching in overcrowded classes because of this paradigm. In my capacity as a researcher, I applied interpretation and meaning to the data gleaned from the experiences of the participants in order to obtain a comprehensive

understanding.

Interpretive scholars concentrate on people's subjective perceptions of the outside environment, according to Willis (2007). Lincoln (2010) contended that the interpretivist paradigm aims to provide answers to the issues of how and why. Because the interpretive paradigm is based on observation and interpretation, conclusions can be drawn from the data that participants contribute. This paradigm was especially appropriate for my study since I was able to get information from teachers about their experiences with overcrowded classes, observed them in action, then analysed and made sense of the information that was gathered.

By giving teachers the opportunity to share their experiences, I was able to learn a great deal about how they felt and the reasons behind their experiences teaching in overcrowded classes. This study benefited greatly from the interpretative paradigm since it allowed me to explore and acquire a deep comprehension of teachers' experiences of teaching learners in grade eight in overcrowded classes. As noted by Khalifa (2023), research philosophy encompasses a compilation of concepts and theories regarding the progression of knowledge. Philosophy, to put it another way, is the practice of using abstract ideas and principles to direct study. The initial concepts in the development of a study are usually philosophical assumptions. According to Creswell and Poth (2018), ontological and epistemological viewpoints are among the philosophical assumptions.

The nature and characteristics of reality are described by the ontological assumptions (Guba & Lincoln, 1989). According to Crotty, (2003), ontology is the study of being. Multiple realities and beliefs are the ontological premise of qualitative research (Hays & Singh, 2012). By using qualitative research, academics accept the concept of many realities. For example, people being studied and different interpretations of their realities suffice (Guba & Lincoln, 1989). Thus, qualitative researchers conduct studies on persons with the goal of documenting these various realities. The use of many types of evidence in themes that portray several viewpoints and use the authentic words of various people is known as proof of multiple realities. In practice, researchers incorporate quotations and themes derived from participants' expressions, and offer

evidence and support for the diverse viewpoints presented.

The nature of the interaction between the researcher and the topic is the focus of epistemology. According to Crotty (2003), it explains how we know what we know. According to Schwandt (2000), the epistemological premise of qualitative research is that information is acquired via the calibre of interactions with study participants. According to the epistemological assumption, when researchers undertake a qualitative study, they aim to come as near as possible to the subjects of the study. As a result, subjective evidence is compiled using personal opinions. This is how people's subjective experiences are the source of knowledge. Thus, it becomes important to carry out research in the areas where the participants reside and work, as these are crucial settings for comprehending what they have to say (Lincoln et al., 2011).

4.4 Research style

A research style is a specific way of carrying out educational research (Mann, 2006). A case study research design was used in this research. Neale et al. (2006) asserted that a case study narrates the outcome by chronicling the events that culminated in a particular situation. They indicated that case studies are particularly valuable when there are compelling or unique narratives to explore. Additionally, case studies provide a wealth of detailed information (Neale et al., 2006). Coombs (2022) elaborated that a case study represents a systematic research approach aimed at achieving a comprehensive understanding of a contemporary issue or event. This type of research requires an in-depth examination of an individual, organisation, or event to grasp a real-world phenomenon (Coombs, 2022). In the fields of humanities and social sciences, case studies are frequently utilised to analyse complex issues and offer insights into various situations (Mann, 2006).

Several data sources, including observations, interviews, and documents, may be used in a case study (Yin, 2009). Case studies can be utilised to produce new theories or insights and provide a nuanced view of the subject under study (Yin, 2009). A case study might be exploratory, explanatory, or descriptive, according to Yin (2009). An explorative case study was the best

research approach for this study, which examined experiences of teaching Technology in overcrowded classes. In situations where there is no predetermined outcome, the exploratory case study is employed. The "how" and "what" questions are addressed in an exploratory case study. Exploratory case studies are also suitable when a researcher wants a thorough and detailed explanation of a study topic (Yin, 2009).

The exploratory case study was deemed the most suitable research methodology for this study, which focused on the experiences of teaching Technology in overcrowded classes. This approach enabled me to gather comprehensive insights from teachers regarding their experiences with Technology in overcrowded eighth-grade classes. The data generation methods employed allowed me to pose and explore the "how" and "why" questions, which were essential for facilitating in-depth discussions among teachers about their experiences in such challenging teaching environments. Additionally, Creswell (2008) asserted that a case study is linked to providing a detailed account of the context within the research study, encompassing individuals, events, and how their interactions with their environment are influenced. Similarly, Cohen et al. (2011) asserted that case studies are highly specialised. In order to explore a particular set of teachers inside two specific schools and their experiences with overcrowded classes, I decided to use a case study for this research. The case used in this study was two secondary schools in Johannesburg North District.

4.5 Sampling methods

A research sample, according to Field (2005), is a population or source that is utilised to generate data. According to Kothari (2004), there are various sampling methods that can be applied in research, including the purposive, convenient, and random sampling methods. Purposive sampling involves identifying and selecting individuals or groups possessing significant knowledge or insight into a relevant subject matter (Cresswell & Plano Clark, 2011). By using purposive sampling, the researcher looked out for potential participants who had particular characteristics (Koerber & McMichael, 2008). Purposive sampling was employed in

this study to specifically choose participants who shared their experiences teaching Technology in overcrowded classes. To achieve the objectives of the study, four grade eight Technology teachers from two distinct schools were chosen.

4.6 Background of participants

There were four participants in this study and four classes were observed. The following purposive sampling criteria were followed:

- Teachers taught in overcrowded Technology classes were chosen to participate in the study
- Teachers taught in public secondary schools in Johannesburg North District where the research was based
- Teachers taught grade 8 Technology subject

A brief profile description of teachers who participated in this study was compiled.

Table 4.1: Teachers' Profile

Teacher's name (pseudonym)	**Highest Qualification**	**Years of Teaching Experience**	**Years of service in this school**	**Number of learners in class**
Mosana	Bachelor's Degree	7	5	80
Makaringe	Bachelor's Degree	6	5	123
Mogashoa	Bachelor's Degree	10	6	80
Mokoena	Bachelor's Degree	8	8	70

4.7. Data Generation methods

Data generation is a systematic process aimed at obtaining information regarding a specific topic of interest, which is essential for addressing research questions and evaluating findings

(Kabir, 2016). The primary objective was to ensure that the data generated was both truthful and trustworthy. The overarching goal of any data generation effort is to generate high- quality findings, which would subsequently facilitate thorough data analysis and lead to the formulation of a robust and credible response to the posed questions (Kabir, 2016).

The reliability of research findings is fundamentally linked to the credibility of the data acquired. The likelihood of errors can be minimised through the selection of appropriate data generation methods whether they are new, modified, or existing and by providing clear guidelines for their effective application (Kabir, 2016). Data generation represents one of the most critical stages in the research process. Regardless of the excellence of the study design, the project cannot be deemed complete without the successful generation of the necessary data (Kabir, 2016). Identifying the type of data needed is the first step in data gathering, which is followed by choosing a sample drawn from a particular population. After that, you must generate data from the chosen sample using a specific tool (Kabir, 2016).

4.7.1 Lesson observations

Simpson and Tuson (2005) characterised observation as the act of monitoring individuals' behaviours, events, settings, artifacts, and routines. Cohen et al. (2011) noted that a significant benefit of observational methods is their ability to provide researchers with the opportunity to gather "live" data from naturally occurring social situations. This approach allows researchers to closely explore ongoing activities. The observation method was chosen as a key data generation method in this study because it facilitated the examination of teachers in overcrowded classes, capturing their behaviours, attitudes, interactions with learners, as well as their teaching strategies, language use, disciplinary approaches, and classroom management techniques. The classes selected for observation were those with the highest enrolment figures in the school. Observing these classes was deemed essential for me to acquire direct insights into the dynamics of overcrowded classes, including learner-teacher interactions, instructor attitudes and presentations, and instructional methodologies.

According to Cohen et al. (2011), an observation serves as a reality check because people's words and actions do not always match. This approach to gathering data was perfect, because it gave the researcher direct insight into the issues surrounding overcrowded classes. Additionally, Cohen et al. (2011) asserted that observations are effective instruments for understanding circumstances. As a result, this approach was chosen since it gave the researcher the chance to learn more about the experiences of teachers in overcrowded classes.

4.7.2 Semi-Structured Interviews

Interviewing is the process of asking questions and receiving answers from study participants (Kabir, 2016). Interviews may be structured, semi-structured, or unstructured, and in this study, semi-structured interviews were used. In semi-structured interviews, the interviewer and participant participate in a formal interview; the incorporation of open-ended questions, along with the training of interviewers to pursue pertinent topics that may diverge from the interview guide nonetheless offers the chance to discover novel perspectives and insights regarding the subject matter. Semi-structured interviews have the potential to yield reliable and comparable qualitative data. The process of posing and responding to inquiries could be facilitated through telephonic communication or various electronic devices, such as computers. Interviews can be categorised as structured, semi-structured, or unstructured, as noted by Kabir (2016).

This particular study employed face-to-face semi-structured interviews. In semi-structured interviews, both the interviewer and the participants take part in a formal dialogue. The incorporation of open-ended questions, along with the training of interviewers to explore pertinent topics that might diverge from the interview guide, allows for the discovery of new perspectives and insights regarding the subject matter. Semi-structured interviews are capable of yielding reliable and comparable qualitative data, as highlighted by Kabir (2016).

Table 4.2: Teachers' interview Summary

Teachers' pseudonym	The place of the interviews	The date of the interviews	Duration of the interviews	The frequency of the interviews
Miss Mosana	Participant's office	19-04-2024	1 hour	Once
Miss Makaringe	Participant's office	22-04-2024	1 hour	Once
Miss Mogashoa	Participant's office	24-04-2024	1 hour	Once
Miss Mokoena	Participant's office	29-04-2024	1 hour	Once

4.8 Data analysis method

Data analysis, according to Ghosh (2017), is the process used to arrange, depict, characterise, assess, and interpret data. This study employed thematic analysis method of analysing data. This systematic process of identifying, categorising, and interpreting significant patterns (themes) within a dataset is referred to as thematic analysis. By employing this method, researchers can discern and comprehend shared meanings and experiences across the dataset. The primary objective of thematic analysis is not to uncover unique meanings that may exist in isolated data points. Instead, it serves as a tool for identifying commonalities in discussions or writings on a particular topic and for interpreting those shared elements (Braun & Clark, 2012). As noted by Peel (2020), the essential aim of the thematic data analysis approach is to organise and clarify complex data into manageable codes, categories, and themes. Elliott (2018) describes thematic analysis as a research method that identifies and examines patterns or themes

within a dataset, often yielding new insights and understandings.

In this study, thematic analysis was used to examine the generated data. Thematic analysis, according to Braun and Clarke (2013), is a method used to methodically find, arrange, and shed light on patterns of meanings (themes) throughout the data generation. Additionally, Cohen et al. (2011) stated that assembling, expressing, and interpreting subjective data are all part of the examination process. In this way, I read the transcriptions of all four participants to become acquainted with their respective words. After that, I carefully coded all of the data's intriguing properties. During the data analysis process, I used Braun and Clarke's (2006) six-phase approach to thematic analysis to organise the data according to themes and produced a report.

Two types of data sources were recognised for this research: interviews and observations categorised as primary data sources, alongside a literature review, which serves as secondary data (Ajayi, 2017). According to Onwuegbuzie and Teddlie (2003), researchers typically engage in a minimum of six stages when analysing qualitative data, a methodology that the researcher employed in this study. The table below illustrates the implementation of these six stages within the data analysis process:

Table 4.3 the six stages of the data analysis process according to Braun and Clarke (2013) section 26 (2) p.p. 120-123

Phase	**Description of the process**
1. Familiarisation with the data	Transcribing data, reading and re-reading the data, and noting down initial ideas.
2. Generating initial codes	Coding interesting features of the data systematically across the entire data set, generating data relevant to each code.
3. Searching for themes	Collating codes into potential themes, gathering all data relevant to each potential theme.
4. Reviewing themes	Checking if the themes work in relation to the codes, generating a thematic "map" of the analysis.
5. Defining and naming themes	Ongoing analysis to refine the Specifics of each theme.
6. Producing the report	Final opportunity for analysis: selecting appropriate extracts; discussion on analysis; relate to the research question or literature; and produce a report.

4.9 The pilot study

To determine whether methods and processes to be employed in a bigger study are feasible, pilot studies are an essential first step (Teresi et al., 2022). To enhance the findings of the primary study, the pilot study's findings should be carefully analysed (Teresi et al., 2022). A pilot study does not give the whole picture of the research. Nonetheless, it is crucial for making decisions about how well data was generated from small samples and for making conclusions more likely (Leon et al., 2011). A limited number of individuals with traits similar to the sample, namely, secondary school teachers, were the focus of this pilot study. Two teachers who were purposefully selected from two secondary schools in the Gauteng North District of the Gauteng Department of Education (GDoE) made up the pilot sample. Using a pilot study, I estimated how much time would be necessary to complete the main study interviews. Also, during the pilot study, the observations took only one hour which wasn't enough since the researcher had to observe both theory and practical lessons. Thus, for the main study findings I decided to have one hour for theory and one hour for practicals.

4.10 Ethical considerations

Ethical considerations, as outlined by Mirza et al. (2023), focus on the responsibilities researchers hold towards their participants, audience, society, and academic communities. To ensure adherence to the principles of robust research methodologies, it is essential for researchers to refer to various ethical guidelines. Key ethical aspects that must be addressed to uphold qualitative research during data generation and analysis include respect for participants, management of conflicts of interest, the nature of relationships with participants, informed consent, confidentiality, anonymity, feedback to participants, research credibility, and issues related to translation. Throughout the study, informed consent was maintained. A legal process known as informed consent makes sure that a client or participant is aware of all the expenses and risks associated with a research study or intervention (Nnebue, 2010). In order for informed consent to be deemed valid, it is essential that the client possesses the necessary competence and that the consent was provided voluntarily.

Informed consent is a legal procedure that ensures a participant understands all potential risks and costs related to a study (Nnebue, 2010). For informed consent to be considered valid, the individual must possess the necessary competence, and the consent must be provided voluntarily. Notifying the participant of the study's purpose, available alternatives, and possible risks and benefits are all components of informed consent. It is the responsibility of the researcher to ensure that every participant is informed about the goals, procedures, and any duties associated with the study (Brooks & Te Riele, 2014).

The principal of the school received a letter explaining the purpose of the study and asking for authorisation to talk with Grade 8 Technology teachers for this purpose. I ensured that all paperwork allowing them to communicate with the grade 8 technology teachers was signed by the school's principal. The goal, duration, and expectations of the study were communicated to potential volunteers. A consent document was signed by each participating Grade 8 Technology teacher with overcrowded classes. Participants were told that they may review the transcripts to make sure no information had been misrepresented after they had been transcribed. Participants received assurances that the study would improve the learning environment and not have any adverse effects on them.

4.11 Autonomy and Anonymity

I treated each participant in this study with autonomy. This meant that the I needed to have the agreement of every study participant. Every participant voluntarily signed up, but was free to leave the trial at any moment (Arellano et al., 2023). All study participants and the participating schools were assured confidentiality about their right to privacy, and interactions during interviews were contingent upon the participant's choice to divulge information to the researcher, including private information. The audio recordings made during the interview were kept confidential, anonymous, and used exclusively for this study. I also made sure that the information supplied could not be linked to any specific participant or the school involved. The transcripts of the interviews were utilised exclusively for study. According to McMillan &

Schumacher (2006), confidentiality and anonymity mean that the participants and the setting should not be identified in any report. During the transcription and translation of the data, I assigned codes (numbers) to the participants (and later pseudonyms) in order to ensure confidentiality.

4.12 Trustworthiness of the study

Credibility is one of the main requirements for guaranteeing the calibre of qualitative research (Ahmed, 2024). Credibility pertains to the veracity of the information or participant opinions, as well as the researcher's interpretation and portrayal of them (Polit & Beck, 2012). By discussing their experiences as a researcher and confirming the findings with the participants, the researcher increases credibility (Cope, 2013). According to Sandelowski (1986), a qualitative study is deemed trustworthy if the descriptions of human experience are instantly recognisable to those who have had similar experiences. Credibility, reliability, confirmability, and transferability are all components of the process that researchers employ (Alexander, 2019).

In this study, to confirm the credibility of the data, I conducted data checking with the participants. Data were returned to participants to be assessed for credibility and resonance with their experiences. I maintained dependability by providing a detailed explanation of the study's methodology. Detailed analysis of the findings ensured that the study findings can be transferred to teachers with similar experiences. The findings of the study were derived from participants' experiences using their verbatim to support the analysis. This improved the confirmability of the data findings.

4.13 Location of the study

The two secondary schools were located in the Gauteng North District. The location of these schools was semi-urban, with 70 to 130 learners per class; the majority of the learners at these schools were Black, indicating that all classes were overcrowded in both schools. Both schools were lacking in teachers' in sufficient numbers and other resources, such as classroom facilities and a laboratory for practicals.

4.14 Limitations of the study

Cohen et al. (2011) identified several limitations inherent in research, one of which pertains to generalisability. The research was based on the experiences of teachers from two specific schools, which limited the applicability of the findings to a broader population. This study concentrated on the experiences of teachers teaching overcrowded grade 8 Technology classes, yielding data that may enhance effective teaching and learning within these settings. Given that the study was conducted in the context of two high schools, the conclusions drawn cannot be extended beyond this scope.

4.15 Conclusion

The methodology of the research, encompassing the paradigm, approach, and data generation methods utilised in the study, was thoroughly examined and articulated in this chapter. Additionally, the sampling methods employed and sample size used was outlined. The chapter concluded with a discussion on data analysis, reliability, ethical considerations, and limitations. The findings derived from the generated data will be presented and analysed in the next chapter.

CHAPTER 5

DATA ANALYSIS, FINDINGS AND DISCUSSIONS

5.1 Introduction

This chapter focuses on the analysis, findings, and discussions derived from the data obtained through observations and semi-structured interviews. The findings are categorised based on the themes that emerged from the data, as outlined in Chapter Four. The analysis followed the six phases of thematic analysis as defined by Braun and Clarke (2006). These phases comprised familiarisation with the data, coding, identification of themes, review of themes, definition and naming of themes, and the final write-up. These steps were carefully executed to develop the themes for the discussion of the findings. Furthermore, direct quotations from teachers have been incorporated into the data presentation to enhance clarity and interpretation. Relevant literature has also been integrated into the findings to provide context to the data.

5.2 Data analysis and discussion of findings

Two themes emerged from the observation and semi-structured interviews in response to teachers' experiences of teaching grade 8 Technology in overcrowded classes. Main theme one answered key research question one and main theme two answered key research question two. Four sub-themes emerged from the two main themes as follows: motivation and enthusiasm for teaching grade 8 Technology subject; support received by teachers from their schools; ill-discipline behaviour in overcrowded classes; and managing assessments and low academic performances in overcrowded classes. Table 5.1 below shows the themes and sub-themes as they are reflected in this chapter.

Table 5.1 Themes and sub-themes as presented in this chapter

Main themes	Sub-themes
Theme One: Positive teachers' experiences of teaching Technology in overcrowded classes	Motivation and enthusiasm for teaching grade 8 Technology subject Support received by teachers from their schools
Theme Two: Negative teachers' experiences of teaching Technology in overcrowded classes	Ill-discipline behaviour in overcrowded classes Managing assessments and low academic performances in overcrowded classes

5.2.1 Theme One: Positive teachers' experiences of teaching Technology in overcrowded classes

Participants indicated that their positive teaching experiences were informed by the enthusiasm they had for teaching Technology despite the challenges that came with overcrowding. The reasons teachers had positive experiences was the enthusiasm to teach Technology regardless of the context they were teaching in. This enthusiasm fueled their motivation to keep their lessons interesting and enjoyable to learners. The following sub-themes explored this positive teaching experience.

5.2.1.1 Motivation and enthusiasm for teaching grade 8 Technology subject

Participants indicated that they came up with teaching strategies that made their learners enjoy learning and made it fun. In turn, participants maintained their motivation and enthusiasm for teaching the subject.

Miss Mosana stated:

"For me to maintain enthusiasm, I come up with strategies for them to participate and enjoy the lesson. For example, I'll create songs that explain Technology practical terms so they'll be having fun and learning at the same time. That means teaching and learning is taking place and I am achieving my objectives and that brings pleasure to me."

Miss Makaringe also shared:

"As a teacher, what motivates me is seeing learners participate during lessons. To maintain enthusiasm, I let learners watch something on the smart board and partake in the Technology practicals, that way, I know they will participate fully since they love practicals and watching videos. Learners' participation is the indication that teaching and learning is taking place, I can say, that brings joy to me."

Miss Mokoena stated:

"Learners enjoy Technology practicals more than Technology theory. During practicals, they participate. Their participation motivates me. Since practicals are hands-on activities, their participation means I achieved my teaching objective and that makes me happy."

Miss Mogashoa stated:

"The only way to make them happy is to take them out of the classroom. They enjoy practical work. I am motivated because they participate. During practicals they perform well, that is what every teacher will want to achieve, that brings joy to me".

The teachers' responses reflected that joy, pleasure, and motivation were strongly linked to their learners' engagement. This suggested that teacher motivation was directly influenced by learners' participation levels. The teachers believed that high participation rates during practical activities indicated that they were successfully meeting their teaching objectives, which is a primary goal in education. Thus, this analysis showed a strong correlation between learners"

participation and teacher motivation. In essence, all four teachers emphasised that learner participation is a key indicator of motivational teaching. Miss Mosana, Miss Makaringe, Miss Mokoena, and Miss Mogashoa consistently noted that when learners are actively engaged, it not only enhances the learning experience but also boosts the teachers' motivation. This indicates a strong link between engagement and perceived teaching success. Moreover, each teacher highlighted that learners' participation was a key indicator of enjoyment and motivation. This shared perspective highlighted the belief that when learners are actively involved with the learning, educational objectives are being met. Miss Mosana further indicated that seeing learners participating gave her the enthusiasm to teach them. She motivated them to participate by creating songs that explained Technology terms. *"I'll create songs that explain Technology practicals terms so they'll be having fun and learning at the same time",* she said. Therefore, this meant that learners would be learning and singing at the same time. The learners' participation motivated the participating teachers and made learning fun. In other words teachers were actively creating a supportive classroom environment that engaged the learners through *songs, hands-on activities and watching videos,* which all align with the concept of the need for enjoyment. This need refers to the need to make teaching and learning fun and enjoyable in order to stay motivated to teach and achieve set objectives (Bakker, Schaufeli, Leiter & Taris, 2008).

The data gathered from the participants also illustrates the essence of learner engagement through practical activities and creative teaching methods. It highlights the mutual relationship between learner participation and teacher motivation, emphasising the need for teachers to create environments that support effective teaching and learning to achieve educational goals even in unconducive overcrowded classes' context. Miss Mosana's view was supported in Nussbaum's (2003) study, whereby teachers were motivated by learners' participation, emphasising that teachers experienced a wide range of emotions in relation to various aspects of their assessment practice. Nussbaum (2003) further explained that these emotional responses fluctuated depending on the "object" of assessment, with positive emotions arising from strong

learner participation, while negative emotions resulted from weak participation. This emotional rollercoaster, as described through descriptive analysis, emphasises the significant role that learner engagement played in shaping teachers emotional experiences.

5.2.1.2. Support Received by Teachers from their Schools

Participants indicated that they received support from the school and their subject departments. Participants alluded to receiving support from their Head of Departments (HODs) by extending deadlines for them to mark as they had a large number in their classes. Other participants shared that their HODs helped with discipline, where they came to class during the period to reprimand ill-disciplined learners. They further shared that the HODs assisted with keeping track of the Annual Teaching Plan (ATP). An Annual Teaching Plan is a guideline that teachers need to follow while teaching. If participants were not on par with the ATP, they would be asked by the HOD to come up with intervention strategies, such as morning and afternoon lessons and revising with previous question papers in class.

Le Fevre (2014) indicated that SMTs needed to ensure they extend continuous constructive teaching and learning support to the teachers teaching in their subject disciplines under their supervision. Moreover, the need for power under the Choice Theory emphasises the collaboration between education stakeholders, in the case of the study, between the Technology teacher and the HOD (Galsser,1998; Messina, 2023). In line with these expectations, Miss Mosana stated:

"My HOD extends deadlines so that I submit and finish marking assessments. She [HOD] helped me with discipline. She came to class during my period to reprimand ill- ill-disciplined learners and gave the learners punishment of packing tables and chairs and sweeping the class."

Likewise, Miss Mokoena indicated:

"My HOD is hands-on and my deputy curriculum is as well. I also receive support from the district, from our subject specialist, I do receive support. I receive support in terms of discipline and the Annual Teaching Plan whether we are on par or not. An annual teaching plan is a

guideline that teachers need to follow while teaching. If I am not on par with the ATP they ask me to come up with intervention strategies such as morning and afternoon lessons and also we treat previous question papers in class."

Miss Mogashoa specified:

"My HOD, my head of department, extended deadlines for my marking because I have overcrowded classes and I don't have time. I cannot meet the 3-day marking deadline. So when I ask for an extension from my departmental head, I am given an extension as a way of support from the school management team."

Miss Makaringe shared an interesting perspective:

"The HOD is there just for you to go and vent. If you have challenges, he won't say this is what you can do."

Three out of four teachers attested to being provided support by their HODs. Two teachers received support with classroom management (discipline), policy implementation support (Miss Mokoena), and the others extension of deadlines due to overcrowding (Miss Mogashoa and Miss Mosana). However, Miss Makaringe's response implied that unlike the other participants (Miss Mosana, Miss Mokoena, and Miss Mogashoa), Miss Makaringe did not have the level of support that was expressed by them. It appeared that her HOD was available only to lend a listening ear without offering any support in addressing challenges experienced in overcrowded Technology classes. This experience contradicts the concepts of love and belonging as alluded by Cho et al (2017) in the Choice theory, where teachers need to be supported by school management to feel like they belong, are valued, and cared for in a school environment.

She could not rely on her HOD, as they did not suggest what could be done in matters brought before them. Similarly, a qualitative research case study conducted by Muthusamy (2015) in overcrowded classes in one mainstream school in Durban South area, revealed that teachers

who taught in overcrowded classes did not always receive the relevant assistance from management, and as a result, handled classroom matters on their own. It was further recommended that there had been a need for coordinated efforts in schools by management and teachers so that teachers did not feel the burden of overcrowded classes alone, as noted by Desimone and Garet (2015). Lack of school management's support due to overcrowded classes was one of the challenges teachers had faced in overcrowded classes.

5.2.2 Theme Two: Negative teachers' experiences of teaching Technology in overcrowded classes

Participants also shared negative experiences with teaching overcrowded grade 8 classes. These negative experiences were discussed under the following sub-themes: ill-disciplined behaviour in overcrowded classes and low academic performance in overcrowded classes.

5.3.1.1. Ill-discipline behaviour in overcrowded classes

Participants indicated that they had negative experiences in teaching in overcrowded classes since they couldn't easily accomplish their objectives because they had to maintain discipline. Regardless of the amount of time allocated for teaching, the participants could not always achieve the teaching objectives as they had planned. This was because some learners became noisy which caused frequent interruptions and forced the participants to stop teaching and address the disruptions.

Miss Mosana stated:

"It is impossible to teach in such a class because some learners will be making noise and the other learners won't be able to hear what I'm teaching about. Learners will be making noise while others want to concentrate and I will have to stop and reprimand them."

When Miss Mosana was probed on how she maintained order in her classroom, she said:

"I maintain order by dividing learners, if there are a hundred in a class, I have to ask the first 40 to sit outside, then there'll be a monitor to check on them so that they don't make noise and

disturb other classes while I'm busy with the remaining learners that are in class for 30 minutes. Then the next 30 minutes will attend to the learners seated outside, and then my one hour will lapse."

Similarly, Miss Makaringe shared:

"It becomes difficult to teach because you don't reach your lesson objectives. You need to maintain discipline. Whatever minutes or hours allocated to your period, you cannot finish or obtain your lesson objectives because you have to keep discipline in the classroom".

When Miss Makaringe was further asked about how she addresses discipline problems in her classroom, she clarified:

"I identify learners who are very disruptive in class. I single them out. I put them at the front so that I can maintain order. I will also give them responsibilities such as writing down the names of learners who are making noise and ensuring that the class is clean and ready for teaching and learning."

Miss Mokoena echoed similar sentiments regarding ill-discipline in the classroom. She specified: *"I experienced many challenges. There is a lack of discipline because of overcrowded classes; I will have to control 100 learners in one class. It is a lot.''*

When she was asked how she controlled her classroom, she shared:

"You make it work. For example, you use whatever furniture that you have, but you have to arrange it in a way that the learners sit and face the front so that you can see their faces, I involve their parents, and you have to know your learners, you have to know the good learners and the troublesome learners. For the troublesome learners, I allow them to sit in front so that I can track whatever they are doing in class, and I give those chores to keep them busy in class. They have to wipe their board and collect books to keep them busy."

Miss Mogashoa also indicated:

"A lot of teaching is affected by overcrowding. I spend allocated time disciplining learners

instead of going into the content or the subject matter of the day. To maintain order, I sit the noisemakers in front and I give them chores to keep busy. They also wipe the chalkboard and collect books to keep them distracted."

It appeared from the data excerpts that ill-discipline was a common challenge in overcrowded classes. The discipline problems that teachers faced were disruption and noise during lessons. The participants' responses also suggested that discipline issues stemmed from the class being too overcrowded, which resulted in severe discipline problems. Unlike the other participants (Miss Mokoena, Miss Mogashoa, and Miss Makaringe), Miss Mosana used a different strategy to maintain order in class. She divided the class into two groups, teaching the first half for thirty minutes and teaching the other half for the remaining thirty minutes, where Miss Mokoena, Miss Mogashoa, and Miss Makaringe maintained order and discipline by identifying learners who caused a lot of disruption in the classroom, singled them out, and placed them in the front. This aligns with the survival component of Choice Theory, which suggests that teachers may exercise their discretion in assigning learners' seating positions to maintain attention and order in the classroom (Van de Ber et al., 2012). They also assigned them tasks like noting the names of learners who were causing noise, making sure the classroom was organised and ready for teaching, and wiping the board and collecting the books if necessary so that the teacher could keep them occupied.

It was interesting to note that teachers speak about similar strategies to address ill-discipline in the class. For example, providing troublesome learners with chores and rearranging classroom seating. This suggested that these kinds of strategies were working in maintaining discipline in class, as more than one teacher was using them. This could also mean that teachers shared this information in platforms such as training workshops since they were teaching in the same district. Norris (2003) noted that teachers in overcrowded classes across North America often utilised teaching time to resolve conflicts and manage behavioural issues among students. This was no different from the experiences of the teachers participating in this current study. Therefore, ill-discipline in overcrowded classes seems not only to disrupt but also consume

teaching time. Discipline in overcrowded classes seems to be a major challenge for many teachers across various contexts of the world, not just South Africa and North America. For example, the issue of overcrowded classes is prevalent in many African nations. Reports indicate that several countries, including Nigeria, Kenya, and South Africa, have acknowledged class sizes that exceed the United Nations' recommended ratio of 35 learners per teacher (Motshekga, 2012; Mutisya, 2020; Onwu & Stoffels, 2005).

Consequently, these overcrowded conditions hinder effective teaching, as teachers often face challenges related to instruction, classroom management, physical space, and assessment (Iqbal & Khan, 2012).Teachers themselves have described such situations in overcrowded classes as stressful (Mutisya, 2020; Muthusamy, 2015; Shah, & Inamullah, 2012; Yelkpieri et al., 2012). As evidenced in this study, various strategies can be employed to address ill-discipline in overcrowded classes. Teachers need to explore various alternatives and see which strategies work best in their circumstances (Tshangana et al., 2023).

5.3.1.2. Managing assessments and low academic performances in overcrowded classes

Participants indicated that overcrowding impacted their assessment management and learner performances negatively. When participants assessed learners, they discovered difficulties because of the overcrowding. It was particularly difficult for them to focus on learners with different learning abilities. The challenges of overcrowding threatened the subject's pass rate. To address the difficulties brought on by their unfavourable experiences of teaching in overcrowded classes, participants developed methods such as giving up their weekends to mark assignments and scripts at home. They occasionally arrived at work early, stayed behind after school, used spare time, and used free and break times to mark assessments or control learners" books. Miss Mosana asserted:

"I am unable to control learners' books and won't see who is struggling. After marking their scripts that is when I realised that some of my learners were struggling, which would affect the pass rate".

When asked how she manages to finish marking the large numbers of scripts, she said:

"Usually, I will sacrifice my family time. I will take scripts home and mark them at home, right, or sometimes come early in the morning, maybe the first 30 minutes before class, I will mark those books or the assessments."

When it comes to assessing learners in overcrowded classes, Miss Makaringe similarly shared:

"I am unable to monitor learners' activity books effectively; I am also unable to give learners feedback on time, and I am unable to have one-on-one sessions with struggling learners, and that is affecting their pass rate. I control learners' activity books during my free period, by doing that I finish controlling them while there is time, and I will be able to give learners feedback on time. I give struggling learners individual attention if one of their subject teachers is not at school or ask a period from the subject teacher if not too busy with them."

Miss Mokoena specified:

"My work is lagging behind, so as learner assessment, it contributes negatively to my teaching. Most of the time, I'm behind. I'm behind with controlling books and I'm behind with

submitting the marks so I have to use my spare time, I use my free period, I use break time and sometimes I even take books, tests, and School-Based Assessements (SBAs)home so that I can be able to mark and finish on time. For things like practicals, I allow them to sit in groups and do it in groups so that it's easier for me to mark."

Mogashoa indicated:

"It is challenging to focus on learners with different learning abilities. The numbers that we have it is challenging to work under these conditions, and it is difficult for learners sometimes to catch up with work. Learners and the pass rate are affected. I cannot even run basic programmes such as intervention in class because of overcrowding. Right, so you know that book control is important. It forms part of our core duties as teachers. So, I assess learners' classwork books outside the classroom sometimes. This is during my free time and lunch breaks, and sometimes I stay at school to assess learners' classwork books. It's true, now, yes, it is quite challenging. I conduct morning lessons to give struggling learners individual attention".

It appeared that overcrowding and time constraints caused teachers to fall behind schedule in monitoring students' activity books. As a result, they were unable to identify learners who were not taking notes, completing writing activities, marking their activity books, or making necessary corrections in a timely manner.

Since learners were to be evaluated based on the work in their activity books, this presented a challenge for their ability to pass tests, particularly if their books lacked notes, marked exercises, and corrections. To support this assertion, Miss Mosana shared: "*I am unable to control learners' books and won't see who is writing because the numbers are large in my class. After marking their scripts that is when I realised that some of my learners were not, which would affect the pass rate"*. Likewise, Miss Mogashoa shared: *"It is challenging to focus on learners with different learning abilities because of the large numbers that we have, it is challenging to work under these conditions, and it is difficult for learners sometimes to catch up with work."* When the number of learners in a class was too large for the capacity of the classroom, it became difficult for the Technology teachers to pay individual attention to learners. With packed classes there was not enough room for teachers to move around the classroom and see which learners were having difficulty.

The pass rate was also impacted by the overcrowding since there wasn't enough room for teachers to move around the classroom to identify learners that were struggling; teachers had limited time after teaching to assist struggling learners and to identify those who weren't writing because they woudn't have any work to use to prepare for their assessment. Miss Makaringe indicated that learner pass rate was impacted due to the following reasons: *"I am unable to monitor learners' activity books effectively; I am also unable to give learners feedback on time and I am unable to have one-on-one with struggling learners and that is affecting their pass rate".*

Ajogbeje (2023) proposed that feedback ought to be provided to learners either during class or upon the completion of a task or project. This feedback enables learners to uncover their

perspectives or beliefs regarding the situation. When the class was overcrowded, it became challenging for Technology teachers to give immediate feedback as they were faced with piles of books for marking. This is also consistent with the findings in the study conducted by Ahmad et al. (2018) where he mentioned that overcrowded classes were associated with a lack of feedback provision, and the heightened workload has contributed to teacher burnout. Similarly, Nesane (2008) noted that teachers faced challenges due to the increased demands of overcrowded classes. Consequently, it can be inferred from the aforementioned empirical evidence and literature that overcrowded classes result in a greater workload, which may adversely affect students' academic performance due to insufficient feedback and a lack of personalised learning opportunities.

5.4. Findings from lesson observations

I observed the four different participants from two different schools. I observed both Technology Theory and Technology practicals. Therefore, I observed each participant once and each lesson took one hour.

Miss Mosana lesson observation

During the lesson observation for the theory lesson the class was overcrowded with 80 learners. Furniture was scarce, and tables and chairs were arranged in rows facing the front. There was no space in between for Miss Mosana to move around the class or even go to the back. During the lesson, Miss Mosana took fifteen minutes trying to settle the class so that she could be able to start the lesson as learners were making noise and talking to each other as if she was not there in class. After fifteen minutes she decided to divide the class in half. The first half was seated outside with the class monitor to ensure that they don’t disturb other classes, while she taught the remaining half for 30 minutes and for the remaining 30 minutes she taught the learners that were outside. This observed behaviour supported the sentiments she shared during the interview session about splitting the class in half.

There were only 45 learners left in class. The class was quiet and paying attention while she was teaching the first half. There was space in between the tables. This suggests that halving

the class was an effective strategy for classroom management. This also provided evidence that the disruptions were indeed a result of overcrowding because when the class was halved, the discipline improved, and the teacher could progressively teach learners without disruptions.

Miss Mosana managed to move around the class and helped the struggling learners. Learners were seated in pairs per table. During the theory lesson, Miss Mosana wrote notes on the board, explained them, asked questions to see if learners understood the lesson, and provided learners with a class activity. Learners had to share a textbook; it was one textbook per desk. She then did corrections with the learners and there was not enough time for her to control activity books, she collected them so that she could control them during her spare time.

During practicals to maintain order, Miss Mosana started by dividing learners into half of the class. The first half was seated outside with the monitor to ensure that they didn't disturb other classes, while she was teaching the remaining half. She reviewed the instructions in the practicals booklet with them, during which they answered questions; she presented various images of the model which was a grain crusher that they were required to construct, ensuring they understood what to build, and guided them through the materials and tools necessary for constructing the model, afterwards she let them ask questions and she also asked them questions for 30 minutes and the remaining 30 minutes she went through booklet instructions with learners that were outside. It was evident during my observation that this strategy of halving the class was working for her overcrowded class context.

5.4.1. Miss Makaringe lesson observation

During the lesson observation of the Technology theory there were 123 learners in the overcrowded class. There was little furniture; seats and tables arranged in groups facing each other. There was a little space in between groups for Miss Makaringe to move from one group to another; a few learners had to stand and hold their chairs for her to pass. There was a lot of commotion in the classroom during the theory lesson as learners conversed with one another.

Miss Makaringe noted that learners were causing a lot of disruptions in the classroom. She made

a special mention of them. To keep things in order, she gave them a task of writing noise makers in their groups. Since she was able to teach without any interruptions, it appeared that the strategy she used of writing noise markers worked because learners suddenly became quiet. She discussed this strategy in the interview as being effective. This suggested that her interview responses were in-line with practice as observed.

Throughout the theoretical lesson, Miss Makaringe instructed learners to sit in groups of ten, open the text book and read the scenario. After reading she then asked learners questions to see if they understood the scenario. Each group presented what they had read in the scenario. Miss Makaringe then told learners to answer questions under the scenario in their classwork books individually. For clarity one member of the group went to her. The time they were busy with class activity, she went around the groups controlling learners books using a signature stamp so that she could finish before the period ended, and she attended to struggling learners in their groups. With the remaining ten minutes, the teacher did corrections with learners of the informal assessment, which was the class activity; learners marked their books with a pencil.

During Technology practicals, to maintain order, Miss Makaringe instructed disruptive learners to write noise makers to keep them busy. She allowed learners to watch the video of the model they were going to build in class, which was a grain crusher so that they could have a picture of what was expected and which materials to use. The materials that they had to use included: cardboard, solatape, glue, strings and wires, which they brought from home, and afterwards she explained and let them ask questions, and she also asked them questions. Learners were very active during the lesson. Clearly, in Miss Makaringe's class, learners were able to read, present, and respond to the questions related to the scenario. Additionally, she was able to provide corrections to the learners, assist those who were struggling, and oversee the learns' books before the class concluded.

5.4.2. Miss Mogashoa lesson observation

During Technology class, there were 80 learners in the classroom, and the class was overcrowded. Rows of tables and chairs faced the front, and there wasn't much furniture. Miss

Mogashoa could not go about the class or even walk to the back, and helped struggling learners since there was no space between the learners, similarly to Miss Mosana's class. The classroom was somewhat noisy during the theoretical lesson. It was similar to the context of Miss Makaringe's class. Learners who were extremely disruptive in class were identified by Miss Mogashoa. She specifically mentioned them. To keep everything in order, she placed them in the front and assigned them tasks. This observed behaviour supported the sentiments she shared during the interview session about placing disruptive learners in front. This observation further proved that this strategy was working for her in addressing discipline issues in her classroom.

Miss Mogashoa provided learners with hand-outs of notes and class activity. Learners pasted them in their books. She explained the notes, and once she was done she allowed learners to ask clarity-seeking questions. Miss Mogashoa requested learners to complete the class activity that was on the hand-outs. The activity was a crossword puzzle with 25 clues about the terminology that she had taught learners about that was on the hand-outs of the notes.

Miss Mogashoa did not do corrections with learners due to time constraints, the period ended while they were still busy completing the crossword. (25 clues were a lot). Miss Mogashoa managed to control learners' activity books as she asked learners to pass activity books to the front were she was sitting. While she was controlling learners' books, she identified a few learners who were struggling and she called them to the front and helped them with the activity. Miss Mogashoa took learners outside for practicals. Group leaders were selected to maintain order. During the lesson, I observed learners engaging in practical activities, grouped as they answered questions in their booklets and constructed a grain crusher model in class using materials they had brought from home. They used cardboard, solatape, glue, strings, and wires brought from home to make the model. For clarification, they sought assistance from Miss Mogashoa. Throughout the session, the learners posed clarity-seeking questions, inquiring whether they should list actual materials or those written in the booklet for their model. However, the participant did not provide a definitive answer; she merely suggested that they use any materials they deemed appropriate for their model. Nevertheless, she was unable to identify gaps in the learners' understanding or assist them in improving when they recognized their mistakes and

took steps to prevent their recurrence.

5.4.3. Miss Mokoena lesson observation

During Technology class there were 70 learners in the classroom, the class was overcrowded. Rows of tables and chairs faced the front, and there wasn't much furniture. Miss Mokoena could not go about the class or even walk to the back and helped struggling learners since there was no space between the learners, just like in Miss Mosana and mogashoa's class. There was a lot of chatter in the classroom during the theory lesson as learners were interacting similarly to Miss Makaringa's and Miss Mogashoa's class context. Learners who were causing a lot of disruption in the class were noted by Miss Mokoena. To keep everything in order, she placed them in the front and assigned them tasks. It was observed that the strategy she was using of putting disruptive learners in front seemed to work because she managed to teach without any interruptions. (She spoke about this strategy in the interviews).

During the theory lesson, Miss Mokoena came with charts with notes and placed them on the board for learners to compare with their notes that she had previously told them to copy from the textbooks as a way to save time. She then explained them, asked questions to see if learners understood the lesson, gave learners an opportunity to ask questions and gave them a class activity. Learners had to share a textbook, (one textbook per desk). For the remaining ten inutes Miss Mokoena did corrections with learners. Since there was not enough space to move around to control activity books, she asked learners to send their books to where she was sitting. Miss Mokoena did not help struggling learners due to time and space.

Miss Mokoena took the learners outside for the practical sessions. They were organised into groups, with one member from each group presenting the grain crusher model made in class with cardboard, solatape, glue, strings, and wires that they brought from home. Leaders were appointed to ensure order was maintained. However, she failed to assist struggling learners during the writing segment of the assignment, which is connected to the practicals, as it helps learners understand the tools and materials they can utilise to construct the model; the measurements they should apply, and there are images of various models to enhance learners'

comprehension of the model they are creating. Consequently, they lagged behind on that specific day's lesson and assignment, making it likely that they will struggle to catch up. Observations clearly indicated that having learners present the models outdoors was a commendable idea, as everything was orderly and the presentations were executed well.Class monitors ensured order by recording the names of learners who were disruptive. As a result, the presentations were conducted smoothly and completed punctually, as the teacher refrained from interrupting the learners to address those causing disturbances.

5.5. Conclusion

The presentation and analysis of findings focused on the themes and sub-themes derived from the data generated in chapter four. These themes were: Positive Teachers' Experiences of Teaching Technology in Overcrowded Classes; and Negative Teachers' Experiences of Teaching Technology in Overcrowded Classes. The sub-themes identified were Motivation and Enthusiasm for Teaching Grade 8 Technology, Support Received by teachers from the School, Ill-Discipline in Overcrowded Classes, and Low Academic Performance in Overcrowded Classes. Teachers shared various experiences of teaching in overcrowded classes, with multiple factors contributing to their success and challenges. Despite these challenges, teachers still managed the situation of overcrowding, although there was a need for improvement. Intervention is necessary to address this issue and improve the teaching and learning environment for both teachers and learners. In the next chapter, I discuss these findings in relation to the research questions and provide implications for further research and practice, with a focus on how improvements and interventions could be implement.

CHAPTER SIX

SUMMARY OF FINDINGS AND RECOMMENDATIONS

6.1 Introduction

The objective of this research was to explore the experiences of teachers in teaching Technology content within overcrowded classes. The study discussed the challenges faced by teachers in such environments and the strategies they employed to address these challenges. This chapter focuses on two key elements: it presents a summary of the findings and offers recommendations based on the study's outcomes as well as suggestions for future research.

6.2 Summary of the findings

This section provides an overview of the conclusions derived from the findings of this study. The findings are summarised and categorised based on the two primary research questions outlined in Chapter Five. These two main research questions are: what are teachers' experiences of teaching grade 8 Technology in overcrowded classes and what are the strategies teachers use to teach grade 8 Technology in overcrowded classes.

6.2.1 Positive Teachers' experiences of teaching Technology in overcrowded classes

The findings of this study indicated that teachers had positive experiences of teaching grade 8 Technology in overcrowded classes. Participants indicated that their positive teaching experiences were informed by the enthusiasm they had for teaching Technology despite the challenges that came with overcrowding. The reasons teachers had positive experiences was the enthusiasm to teach Technology regardless of the context they were teaching in. This enthusiasm fuelled their motivation to keep their lessons interesting and enjoyable to learners. Participants indicated that they came up with teaching strategies that made their learners enjoy learning and make it fun.

In turn, participants maintained their motivation and enthusiasm for teaching the subject. Participants also indicated that they received support from the school and their subject

departments. Participants alluded to receiving support from their Heads of Department (HODs) by extending deadlines for them to mark as they had a large number in their classes. Some participants shared that their HODs helped with discipline, where they came to class during the period to reprimand ill-disciplined learners. They further shared that the HODs assisted with keeping track with the Annual Teaching Plan (ATP). If participants were not on par with the ATP they would be asked by the HOD to come up with intervention strategies such as morning and afternoon lessons and revising with previous question papers in class.

6.2.2 Negative teachers' experiences of teaching Technology in overcrowded classes

It was revealed from the participants' interview responses and class observations that there were some negative experiences with teaching overcrowded grade 8 classes. These negative experiences included ill-discipline behaviour in overcrowded classes and managing assessments and low academic performances in overcrowded classes. Responses also suggested that discipline issues stemmed from the class being too overcrowded resulted in severe discipline problems. These took away time for teaching, as the environment was not supportive of effective teaching and learning. Feedback from teachers revealed that the predominant disciplinary issues involved disruptive behaviours, particularly noise-making.

According to teachers' comments, one of the negative experiences of teaching in overcrowded classes was that they could not accomplish the learning objectives because they had to maintain discipline. No matter how many minutes or hours were allotted to the session, the teachers were unable to complete or meet the learning objectives because learners were creating noise while others were attempting to focus, forcing teachers to stop and admonish them. Teachers used a different strategy to maintain order in class. They divided the class into two groups, teaching the first half for thirty minutes and teaching the other half for the remaining 30 minutes; and they also maintained order and discipline by identifying learners who caused a lot of disruption in the classroom, singled them out, and placed them in the front. They also assigned them tasks like noting the names of learners who were causing noise, making sure the classroom was

organised and ready for teaching, and wiping the board and the book collection if necessary so that they could keep them occupied.

Participants further indicated that overcrowding impacted their assessment management and learner performances negatively. When participants assessed learners, they discovered challenges because of the overcrowding. It was particularly challenging for them to focus on learners with different learning abilities. The challenges of overcrowding threatened the subject's pass rate. To address the difficulties brought on by their unfavourable experiences of teaching in overcrowded classes, participants developed methods such as giving up their weekends to mark assignments and scripts at home. They occasionally arrived at work early, stayed behind after school, used spare time, and used free and break times to mark assessments or control learners‟ books to see if there were struggling learners. Afterwards they provided these struggling learners with individual attention if one of their subject teachers was not at school, or they would ask for a period from the subject teacher if was not too busy with them.

6.3 Concluding remarks based on the study findings

Even though teachers had positive experiences with overcrowded classes, they also had negative experiences. There were contributing factors that led to teachers' negative experiences which were ill-discipline behaviour in overcrowded classes, and managing assessments and low academic performances in overcrowded classes. Participants' responses also suggested that discipline issues stemmed from the class being too overcrowded, resulting in severe discipline problems. It appeared that overcrowding and time constraints caused teachers to fall behind schedule in monitoring learners' activity books. As a result, they were unable to identify learners who were not taking notes, completing writing activities, marking their activity books, or making necessary corrections on time. Since learners were to be evaluated based on the work in their activity books, this presented a challenge for their ability to pass tests, particularly if their books lacked notes, marked exercises, and corrections. Nevertheless, one of the teacher participant, Miss Mosana, effectively managed the crowded situation by splitting the class into two groups, instructing the first group for thirty minutes and then teaching the second group for

the remaining thirty minutes. Similarly, Miss Makaringe ensured order and discipline by organising learners into groups, selecting one learner from each group to document disruptive behaviour, and assigning them tasks such as cleaning the classroom. Lastly, Miss Mogashoa and Mokoena maintained order and discipline by identifying learners who frequently disrupted the class, isolating them, and seating them in the front. They also tasked these learners with responsibilities such as recording the names of those making noise, cleaning the board and collecting books, ensuring the classroom was organised for the lessons while keeping them engaged. Participants also came up with ways to manage assessments and low academic performances in overcrowded classes. Participants further developed strategies such as giving up their weekends to mark assignments and scripts at home. They occasionally arrived at work early, stayed behind after school, used their spare time, and used free and break times to mark assessments or control learners' books.

6.4 Recommendations from the study

Schools can implement a range of strategies to enhance both teachers' and the institution's capabilities in managing overcrowded Technology classes for grade 8. The recommendations outlined below serve as potential measures for the schools involved in this study to tackle the issue of overcrowding. Additionally, other schools facing similar challenges may find it beneficial to adopt and modify some of the proposed strategies as appropriate. In light of this, the following recommendations have been formulated based on the study's findings.

6.4.1 Recommendation for Practice

Teachers who manage overcrowded classes and struggle with maintaining order and discipline may consider dividing the class into two groups and teaching them rotationally, as this strategy proved effective for participants in the study. Additionally, assigning duties and tasks to disruptive learners can help keep them engaged and focused on the instruction.

6.4.2 Recommendations for future research

This research has focused solely on the experiences of four teachers teaching Technology in

grade 8 learners in overcrowded classes across two secondary schools in the Johannesburg North District. Consequently, a more extensive study that encompasses a variety of schools within the Johannesburg North District is essential to gain a comprehensive understanding of the extent of overcrowded classes in educational institutions. Additionally, this study focusing exclusively on the teachers' experiences; future research could benefit from including a broader participant base, such as learners, and employing diverse research methodologies, including mixed-methods and quantitative approaches. While overcrowded classes are often viewed as a challenge, they also present an opportunity for effective management of large groups. Therefore, it would be valuable for future studies to explore teachers' best practices for managing overcrowded classes through participatory action research (PAR) to assess the effectiveness of these strategies in schools within Johannesburg North and to empower teachers.

6.5 Conclusion

In this chapter the focus was on three issues, namely a summary of the findings, concluding remarks based on the study findings, and recommendations for practice and future research. In the summary of the findings the study summarised and organised the findings according to the two main research questions reflected in chapter five. It was concluded that teachers had both positive and negative teaching experiences. Negative experiences were ill-discipline which hindered teachers to reaching their goals, and teachers were also unable to manage assessments and the low academic performances in overcrowded classes. However, teachers came up with strategies to manage overcrowdings which seemed to work. At the end the study recommended that other schools in a similar context could also adopt some of the strategies that were recommended in this study.

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Yin, R. K. (2009). *Case study research: Design and methods* (Vol. 5). Sage.

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Appendix A: Observation Schedule

Example of an open ended observation schedule

School:	Date:
Class:	Time:
Class teacher:	Grade:

The table below contains the contents that will be observed within the classroom.

1. Number of learners in a class	
2. School background	
3. Size of classroom	
4. Resources	
5. Learning environment	
6. Learner participation	
7. Teaching strategies	

Appendix B: Interview schedule

I will first introduce myself.

I will thank the participant for agreeing to be part of the study. I will explain the purpose of the study which is to explore teachers‟ experiences of teaching grade 8 Technology in overcrowded classes and to understand strategies teachers use in teaching grade 8 Technology in overcrowded classes. I will further ask the participant to sign the consent form. I will also remind the participants that their participation is voluntary, and they can withdraw anytime.

Warm-up questions:

1. What inspired you to teach technology?
2. What is your understanding of overcrowded classes?
3. How overcrowded are your classes?
4. How many learners do you usually have in your overcrowded classes?

In relation to the first research question: What are teachers' experiences of teaching grade 8 Technology in overcrowded classes?

1. Do you experience challenges in teaching Technology in overcrowded classes?
2. How are you able to overcome these challenges?
3. How has your experiences impacted on your teaching?
4. How do you cope in teaching technology in overcrowded classes?
5. How do you carry the workload that comes with teaching technology in overcrowded classes?
6. How do you maintain order and security in your class?
7. How do you create a caring learning environment where trust, respect, and tolerance are nurtured?
8. Are you able to give learners opportunity to make informed choices about areas and issues pertaining to their academic and social development?

9. Do you ensure learner personal growth, knowledge development and achievement?

10. Do you believe you receive relevant support from the school or department to teach technology in overcrowded classes?

11. With the experiences of overcrowded Technology classes are learners actively involved and enthusiastic about your lesson?

12. Do you think learners include teachers and school work in their quality world?

13. Are your learners enjoy and satisfied with learning Technology?

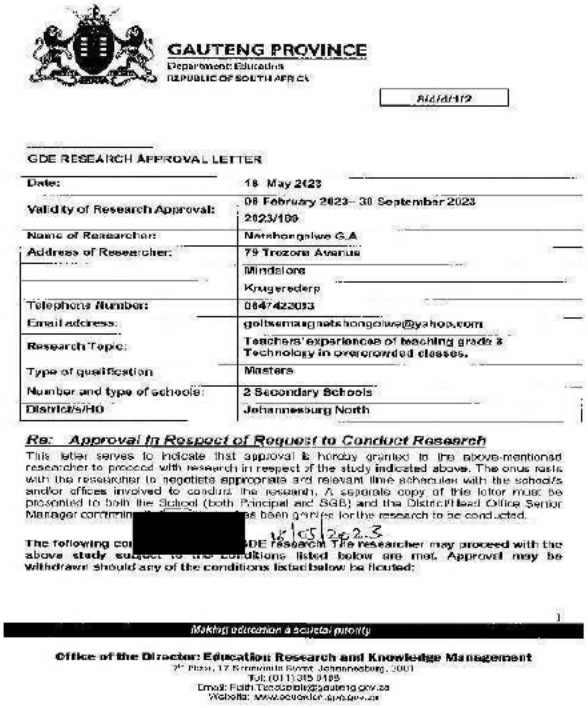
In relation to the second research question: How do teachers teach grade 8 Technology in overcrowded classes?

14. What strategies do you use to teach Technology in overcrowded classes?

15. Which resources do you have access to and how do you make use of them in your teaching?

16. How do you implement technology subject practical work in overcrowded classes?

Appendix C: Approval letter from the Department of Education



GAUTENG PROVINCE
Department: Education
REPUBLIC OF SOUTH AFRICA

Ref/dd/19

GDE RESEARCH APPROVAL LETTER

Date:	18 May 2023
Validity of Research Approval:	08 February 2023– 30 September 2023 2023/109
Name of Researcher:	Ntshongalwe G.A
Address of Researcher:	79 Trozoni Avenue Mindalora Krugersdorp
Telephone Number:	0847422033
Email address:	goitsemangntshongalwe@yahoo.com
Research Topic:	Teachers' experiences of teaching grade 8 Technology in overcrowded classes.
Type of qualification	Masters
Number and type of schools:	2 Secondary Schools
District/s/HO	Johannesburg North

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.

[redacted] 18/05/2023

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

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

Appendix D: Memorandum of Understanding between Supervisor and candidate

COLLEGE OF HUMANITIES

MEMORANDUM OF UNDERSTANDING BETWEEN SUPERVISOR AND CANDIDATE

The relationship between supervisor and a candidate for a research degree is one of mentorship. A supervisor should advise about the structure of the degree, should direct the candidate to sources and material, may suggest better forms of expression, but in the end the thesis/dissertation must be the candidates own work.

CORRECTION OF STYLE AND GRAMMAR

A completed thesis/dissertation must be satisfactory as regards form and literary expression. Although the supervisor will point out any passages in the thesis/dissertation which are stylistically poor, or which are grammatically weak, it is not possible for a supervisor to correct great numbers of language errors. A student may, if necessary, and at his or her own cost, employ a copy editor at his or her own cost to proof read the thesis and correct blemishes of style.

PLAGIARISM

A candidate may not include in the thesis/dissertation any quotations from another writer, or adopt substantial ideas from another writer, without acknowledgement and without reference to the source of the quotation. Direct quotations must be indicated by the use of quotation marks. Plagiarism will lead to the thesis and the degree being failed.

MAXIMUM PERIOD ALLOWED FOR COMPLETION

Masters: A Masters degree undertaken on a full-time basis should be completed in 4 semesters. There is a maximum of 8 semesters.

PhD: A Doctoral degree undertaken on a full-time basis should be completed in six semesters. There is a maximum of 12 semesters.

Permission of the Board of the College is required for extensions beyond these periods and will only be granted in special circumstances.

EXPECTATIONS OF SUPERVISOR AND CANDIDATE

Projected date for the submission of the research proposal? August 2023

Will the candidate be expected to attend group seminars? **Yes.**

Approximate frequency of such seminars? .....

How often will the candidate present written work? E.g. monthly, . quarterly, etc Fortnightly or when the need arises .....

How often will the supervisor and the candidate expect to meet? e.g. monthly, every two months, etc. Weekly or when the need arise. .....

Approximately how soon after submission of written work may the candidate expect comments from the supervisor? .....

See overleaf for additional provisions.

Any other special provisions agreed on? .....

Appendix E: Ethical Clearance Approval

UNIVERSITY OF KWAZULU-NATAL
INYUVESI YAKWAZULU-NATALI

21 August 2023

Goitsemang Annah Netshongolwe (222121659)
School Of Education
Edgewood Campus

Dear GA Netshongolwe,

Protocol reference number: HSSREC/00005949/2023
Project title: Teachers' experiences of teaching grade 8 Technology in overcrowded classes.
Degree: Masters

Approval Notification – Expedited Application

This letter serves to notify you that your application received on 01 August 2023 in connection with the above, was reviewed by the Humanities and Social Sciences Research Ethics Committee (HSSREC) and the protocol has been granted **FULL APPROVAL**.

Any alteration/s to the approved research protocol i.e. Questionnaire/Interview Schedule. Informed Consent Form, Title of the Project, Location of the Study, Research Approach and Methods must be reviewed and approved through the amendment/modification prior to its implementation. In case you have further queries, please quote the above reference number. PLEASE NOTE: Research data should be securely stored in the discipline/department for a period of 5 years.

This approval is valid until 21 August 2024.
To ensure uninterrupted approval of this study beyond the approval expiry date, a progress report must be submitted to the Research Office on the appropriate form 2 - 3 months before the expiry date. A close-out report to be submitted when study is finished.

HSSREC is registered with the South African National Health Research Ethics Council (REC-040414-040).

Yours sincerely,

[redacted]

Professor Dipane Hlalele (Chair)

Appendix F: Turnitin Report

Research study

ORIGINALITY REPORT

8%	6%	2%	4%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	researchspace.ukzn.ac.za Internet Source	3%
2	www.coursehero.com Internet Source	<1%
3	hdl.handle.net Internet Source	<1%
4	www.journals.ac.za Internet Source	<1%
5	www.iiste.org Internet Source	<1%
6	Submitted to North West University Student Paper	<1%
7	eprints.nottingham.ac.uk Internet Source	<1%
8	www.mcser.org Internet Source	<1%
9	Submitted to University of South Africa Student Paper	<1%

Appendix G: Editors certi

Date: February 9th 2025

To Whom It May Concern

I am writing to confirm that the dissertation entitled
TEACHERS' EXPERIENCES OF TEACHING GRADE 8 TECHNOLOGY IN OVERCROWDED CLASSES
by
Goitsemang Annah Netshongolwe
Supervisor: Dr Lerato Sokhulu
has been edited for English language grammar, spelling and usage.

N.B. This letter is issued on the understanding that all corrections and amendments recommended, all anomalies and omissions highlighted, and all clarifications and reformulations requested have been addressed by the candidate to the satisfaction of the supervisors.

[redacted]