
THESIS SUBMISSION

**Title: TEACHERS' UNDERSTANDING OF
MAINSTREAMING LEARNERS WITH AUTISM
DISORDERS AT RURAL PRIMARY SCHOOLS**

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Submitted in fulfillment of the requirements in respect of the doctoral degree with specialization in **Educational Psychology** in the department of **Education Foundations** in the faculty of **Education** at the University of the Free State.

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DECLARATION

I, Thembile Ngidi, declare that the thesis: "Teachers' understanding of mainstreaming learners with autism disorders at rural primary schools", handed in for the qualification of Doctor of Education at the University of the Free State, is my own independent work and that I have not previously submitted the same work for a qualification at or in any other university. I also declare that no work of other scholars has been used without the means of proper citation and that all the sources used or quoted have been indicated and acknowledged by means of complete references.

I, hereby, cede copyright to the University of the Free State.

THEMBILE NGIDI

Signed.....  . Date.....12/02/2025.

DEDICATION

To God the Almighty through whom all things are possible, who gave me strength.
To my late mother Nokuthula Malinga.

ACKNOWLEDGEMENTS

"Education is the movement from darkness to light" - Allan Bloom.

There are many people who have contributed to this study and supported me throughout the study, and I wish to express my gratitude and my sincerest thanks to them. Many thanks to the following individuals:

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LIST OF ABBREVIATIONS AND ACRONYMS

ASD - Autism Spectrum Disorder

CHAT - Cultural-Historical Activity Theory

PECS - Picture Exchange Communication System

AAC - Augmentative and Alternative Communication

VOCAs - Voice Output Communication Aids

RIAS - Rural Inclusion Activity System

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ABSTRACT

This study explores teachers' understanding of mainstreaming learners with autism in rural primary schools in KwaZulu-Natal, South Africa, focusing on the specific challenges and support systems in under-resourced settings. Employing a qualitative, phenomenological approach, the study draws on an alternative theoretical framework more suited to the research context, replacing the previously applied Cultural-Historical Activity Theory (CHAT). Data were gathered through semi-structured interviews and document analysis, capturing insights from teachers in rural areas regarding their knowledge, perceptions, and experiences of inclusive education. The study involved a purposive sample of teachers in rural primary schools, with considerations for their gender, age, qualifications, teaching experience, and cultural background. Findings reveal that while teachers generally express positive attitudes toward inclusion, they face substantial challenges, including a lack of autism-specific training, inadequate professional support, and insufficient access to specialists and educational resources. Cultural misconceptions about autism further contribute to difficulties in mainstreaming learners effectively. The study recommends targeted professional development programs, increased funding for inclusive education in rural schools, and stronger community engagement initiatives to raise awareness and reduce stigma surrounding autism. By emphasizing the crucial role of teachers in inclusive education, this research provides practical insights for policymakers and educators to enhance the mainstreaming of learners with autism in South African rural schools.

Keywords: Autism inclusion, teachers' perceptions, rural education, inclusive education, mainstreaming, special needs education, autism training, educational barriers, learners with autism.

CHAPTER ONE

INTRODUCTION AND ORIENTATION OF THE STUDY

1.0 Introduction

Inclusive education has become a central tenet of modern educational policy worldwide. Over recent decades, scholars (e.g., Artiles, Kozleski & Waitoller, 2011) have argued that providing equitable learning opportunities for all students—irrespective of ability, socioeconomic status, or cultural background—is essential for a just society. In this context, the mainstreaming of learners with autism in general education settings has emerged as a vital area of inquiry. This study focuses on exploring teachers' understanding of mainstreaming learners with autism in rural primary schools in KwaZulu-Natal, South Africa. By foregrounding the voices of teachers who operate in under-resourced rural environments, the study aims to provide insights into the challenges they face and to identify strategies that could enhance inclusive practices.

1.1 Background

The global shift toward inclusive education is rooted in international policy frameworks and national educational reforms. As Artiles, Kozleski, and Waitoller (2011) note, inclusive education is now widely recognized as a vehicle for social justice and equity. International bodies such as UNESCO have promoted inclusive practices that ensure all learners receive quality education. However, as these ideas are implemented in diverse contexts, their interpretation is mediated by local cultural, economic, and political factors.

In South Africa, the transformation of the education system following the end of apartheid in 1994 marked a significant move toward inclusivity. The South African Constitution (1996) guarantees the right to education for all, and policies such as White Paper 6 on Inclusive Education (Department of Education, 2001) have laid the

groundwork for integrating learners with disabilities into mainstream classrooms. Yet, despite these progressive policies, there remains a stark contrast between policy intentions and classroom realities—especially in rural areas.

Rural schools in KwaZulu-Natal and other provinces continue to struggle with historical inequities that persist from the apartheid era. Many of these schools were under-resourced by design, and despite efforts to redress past imbalances, significant challenges remain. For instance, inadequate infrastructure, limited access to specialist support, and insufficient teacher training are common issues that undermine the effective implementation of inclusive education. In addition, cultural misconceptions about disability—wherein conditions such as autism are sometimes interpreted through spiritual or traditional lenses (Silwanyana, 2021; Zeliadt, 2017)—further complicate efforts to create truly inclusive environments. Moreover, while extensive research has examined inclusive practices in urban or well-resourced contexts, there is a notable gap concerning rural settings. Studies such as those by Pather (2011) and Pillay et al. (2021) suggest that although strides have been made in mainstreaming learners with disabilities, the specific challenges faced by rural educators are under-explored. Rural teachers often contend with large class sizes, scarce resources, and a lack of professional development opportunities—all of which impact their ability to support learners with autism effectively. The current study, therefore, is positioned to fill this research gap by providing an in-depth examination of the experiences of teachers in rural primary schools, thereby informing both theory and practice in inclusive education. learners with autism.

1.2 Research Problem

Although inclusive education has received substantial attention in recent literature, there remains a paucity of research that focuses specifically on the experiences and understandings of teachers in rural primary schools. Ideally, all learners with autism would receive tailored support within a mainstream classroom that adapts to their unique learning needs. In reality, however, many rural schools in KwaZulu-Natal face

systemic constraints—including inadequate training, limited access to specialists, and insufficient educational resources—that impede the effective mainstreaming of learners with autism.

Current research predominantly addresses inclusive practices in well-resourced urban areas or focuses broadly on learners with disabilities without considering the distinct challenges in rural settings. Moreover, literature on teachers' perspectives in rural contexts is scarce, which means that the voices of those on the front line are underrepresented. The real situation is one where teachers are expected to implement inclusive practices despite lacking the necessary support structures and specialized knowledge. This study, therefore, seeks to bridge this gap by investigating the specific challenges and support needs of rural teachers in mainstreaming learners with autism, thereby providing a basis for practical recommendations that can enhance inclusion in similar contexts.

1.3 Theoretical Framework

This study uses the Cultural-Historical Activity Theory (CHAT) as a theoretical lens for studying the mainstreaming of learners with autism in rural primary schools in Kwazulu-Natal. Cultural-Historical Activity Theory (CHAT) is a theoretical framework that helps to understand and analyse the relationship between the human mind and activity. Several studies in inclusive education have drawn from CHAT in recent years. Grimalt-Alvaro and Ametller (2021, p. 1) reveal that, "Cultural-Historical Activity Theory (CHAT) has been extensively used in different areas of research to understand contextualised, mediated human activity, with an emphasis on transformation", hence the relevance of CHAT to this study. Historically, the theory derives from German philosophy and Russian social science and focuses on the activity of people (Gretschel, Ramugondo & Galvaan, 2015). According to Engestrom (2015), and Igira and Gregory (2009), CHAT was initiated by Lev Vygotsky (1978) in the 1920s and early 1930s and was further developed by Alexei Leont'ev (1978, 1981), and Luria. In Engestrom's reading, Activity Theory has evolved through three generations of research (Engestrom & Sannino, 2021). Additionally, Grimalt-Alvaro and Ametller (2021, p. 2) state that, "CHAT is based on the Vygotskian theory of cultural mediation, which states that the human (subject) action on the part of the world (object) is always mediated

by culturally developed artifacts." The first generation focused on Vygotsky's mediated action, the second generation focused on the individual in collective activity, and the third generation focused on multiple interacting activity systems and boundary-crossing between them (Engestrom & Sannino, 2021).

Dracup, Austin and King (2020, p. 884) explain that, "Cultural-historical activity theory offers an analytical framework for understanding complex work environments such as universities, in which people participate in multi-faceted, multi-voiced systems of activity to work towards shared goals." This study views primary schools as part of a multi-faceted system of activity working towards mainstreaming learners with autism. This study regards mainstreaming learners with autism as a shared goal guided by the legal and policy framework on inclusive education in South Africa. Gretschel et al. (2015) elaborate 'cultural' positions humans - the subject of activity theory - as being shaped by their cultural views and resources. 'Historical' highlights the inseparable influence of our histories on our actions and how this history shapes how we think. 'Activity' refers to the doing of people, together, that is modified by history and culture, and situated in context, and 'theory' refers to the conceptual framework that Activity Theory offers for describing and understanding human activity. The main ideas of the theory relevant to this study are: 1) Humans act collectively, learn by doing, and communicate in and via their actions; 2) Humans make, employ, and adapt tools of all kinds to learn and communicate; and 3) Community is central to the process of making and interpreting meaning – and thus, to all forms of learning, communicating, and acting. Additionally, rural primary schools in Kwazulu-Natal are considered communities according to the application of CHAT to this study.

1.4 Research Aim

The study seeks to explore teachers' understanding of mainstreaming learners with autism in rural South African schools.

1.5 Research Objectives

The following objectives guided the study:

- i. To explore teachers' understanding of mainstreaming learners with autism in rural primary schools in KwaZulu-Natal.
- ii. To determine the types and levels of support available to teachers to facilitate the mainstreaming process.
- iii. To identify strategies that can enhance the mainstreaming of learners with autism in these rural contexts.

1.6 Main Research Question

What are teachers' understandings of mainstreaming learners with autism in rural primary schools?

Sub-questions

- i. What is teachers' understanding of mainstreaming learners with autism in rural primary schools?
- ii. What types of support do teachers receive to assist them in mainstreaming learners with autism?
- iii. What strategies can be implemented to improve the mainstreaming process for learners with autism in rural primary schools?

1.7 Research Methodology

This research is situated within the interpretivist paradigm, which involves studying phenomena in their natural settings and making sense of them in terms of the meanings people assign to them (Denzin & Lincoln, 2008). The interpretivist approach allows for the systematic analysis of socially-meaningful action through direct observation of people in their natural contexts, to understand how they construct and maintain their social worlds (Neuman, 2011). In line with this, this study seeks to observe and understand teachers in rural primary schools in KwaZulu-Natal, to interpret their perspectives on inclusive education and mainstreaming learners with autism. The role of the researcher is to comprehend and elucidate the social realities surrounding mainstreaming autistic children, from the standpoint of the teachers (Cohen, Manion & Morrison, 2007). Through interaction with the teachers, the study aims to gain insights into their understanding of inclusion and mainstreaming learners

with autism, rather than imposing an external interpretation. The interpretivist paradigm enables privileging the teachers' voices and meanings in investigating this phenomenon within the specific rural school contexts in KwaZulu-Natal. The study utilised a qualitative research approach. Denzin and Lincoln (2011, p. 3), cited in Creswell and Poth (2018, p. 7), observe that qualitative research is a situated activity that locates the observer in the world.

1.7.1 Approach

This study adopted the qualitative research approach, which involves interpretive practices of studying phenomena in their natural settings and making sense of them in terms of the meanings people assign to them (Denzin & Lincoln, 2011). As Creswell (2013, p.44) explains, "Qualitative research begins with assumptions and the use of interpretive/theoretical frameworks that inform the study of research problems addressing the meaning individuals or groups ascribe to a social or human problem." Specifically, this study used qualitative tools like interviews and observations to collect data from teachers in rural primary schools in KwaZulu-Natal in order to understand their perspectives and experiences with inclusive education and mainstreaming learners with autism (Lapan et al., 2012).

According to Merriam and Tisdell (2015), the key characteristics of qualitative research are that it focuses on meaning and understanding, the researcher is the primary instrument of data collection and analysis, and it involves an inductive process. These align with the purpose of this study, which is to gain an in-depth understanding of how teachers in rural KwaZulu-Natal schools make sense of inclusive education and mainstreaming autistic children. The qualitative approach allowed the researcher to interact with teachers in their natural school settings and inductively build an interpretation of the phenomenon based on the teachers' perspectives and meanings, rather than testing a predetermined hypothesis (Yin, 2016). The qualitative approach fitted well with this study because it enabled privileging the voices and experiences of teachers working in rural schools in KwaZulu-Natal to gain insights into their understanding and implementation of inclusion for learners with autism (Lodico et al.,

2010). The findings generated provide a nuanced, context-specific understanding of this phenomenon.

1.7.2 Design

Phenomenology is a qualitative research design that aims to understand the essence and underlying structure of a phenomenon from the perspectives and lived experiences of the people involved (Creswell, 2013). Phenomenological studies explore phenomena as they are consciously experienced by people in their everyday lives (Smith, Flowers & Larkin, 2009). This study adopted the phenomenological design because it sought to understand the essence of the phenomenon of inclusive education and mainstreaming learners with autism from the lived experiences of teachers in rural primary schools in KwaZulu-Natal. The goal was to describe the teachers' perceptions, perspectives, understandings, and feelings regarding the phenomenon of including and teaching autistic children in their classrooms (Finlay, 2012).

Phenomenology was well-suited for this study because it enabled digging deep into the teachers' lifeworld's and subjective experiences to find the core meanings they attach to mainstreaming learners with autism (Vagle, 2018). The phenomenological approach allowed the researcher to bracket presuppositions and interpret the meanings teachers themselves give to this phenomenon in their specific rural school contexts in KwaZulu-Natal (Neubauer et al., 2019). Ultimately, phenomenology facilitated grasping the essence of the mainstreaming experience from the teachers' point of view.

1.7.3 Data Generation Techniques

The study generated data using semi-structured interviews and document analysis.

1.7.3.1 Semi-Structured Interview

Semi-structured interviews were one of the main data collection tools in this study. Semi-structured interviews involve prepared key questions to define the topics and

issues to be covered but also allow diverging and probing to pursue ideas in more detail (Gill & Johnson, 2002). This interview format has several advantages that made it well-suited for this study on teachers' perspectives of inclusive education and mainstreaming learners with autism. It allows flexibility to probe for more information and clarification of answers (O'Leary, 2014). The teacher respondents could expand on their experiences and understandings in their own words. It also enables asking targeted, theory-driven questions based on the research objectives while still leaving room for unexpected themes to emerge (Adams, 2015). In addition, it provides reliable, comparable qualitative data across the teacher respondents as all were asked the same key questions (Jamshed, 2014). Finally, the semi-structured interview gives more control to the researcher to guide the conversation than unstructured interviews, but more freedom to respondents than structured interviews (Deggs & Hernandez, 2018).

In this study, the semi-structured interviews with teachers in rural KwaZulu-Natal schools began with broad questions about their experiences with inclusive education and learners with autism before probing for details on specific aspects like training, challenges, needed support among others. The key questions addressed the research objectives, but flexibility allowed the researcher to explore emergent topics. In summary, semi-structured interviews allowed obtaining rich, focused qualitative data on this phenomenon from the teachers' perspectives.

1.7.3.2 Document Analysis

Document analysis is a form of qualitative research tool in which the researcher interprets documents to give voice and meaning to an assessment topic (Bowen, 2009). Analysing documents incorporates coding content into themes, like how focus groups or interview transcripts are analysed (Bowen, 2009). Document analysis was selected in this study because it allowed the researcher to analyse the policy documents and records used by teachers. Creswell and Poth (2018) argue that methodological congruence should exist between the theoretical framework and the research methods utilised in a study.

Document analysis was used in this study as a qualitative method to review and evaluate the content of relevant policy and school records documents. Specifically, documents that were analysed include school policy documents from the sampled rural schools in KwaZulu-Natal in order to assess what specific provisions are outlined for inclusive education and learners with autism (Mahlo, 2011). These shows how policies are implemented at school-level. Teachers' records, including lesson plans, learning support plans, and progress reports for autistic students were analysed to establish how autistic children are supported in practice in rural classrooms (Walton, 2016). These documents are valuable sources of information to help answer the research questions regarding how teachers understand and implement inclusive education policies for learners with autism in rural KwaZulu-Natal schools. Document analysis complements the interview and observational data and allow triangulation to develop a rigorous qualitative study (Bowen, 2009). Specifically, the documents provided insights into the formal policies and intended practices, which can be compared with the actual practices described by teachers.

1.8 Selection of participants

The population for the study comprised teachers in rural schools in Kwazulu-Natal Province who are actively involved with the responsibility for mainstreaming in the selected rural schools.

1.8.1 Sampling Process

Participants in this study were sampled using purposive sampling. Barglowski (2018, p. 162) states that "purposive sampling is useful when the research is orientated towards a rather clear-cut research interest. It involves the identification of relevant cases before the research is conducted." Cohen, Manion and Morrison (2013) state that purposive sampling achieves representativeness and allows for comparisons. Eight rural schools and teachers were purposively selected for this study. The study sample was purposive to reflect the diversity of the rural schools in Kwazulu-Natal Province.

Purposive sampling was appropriate for this phenomenological study as it allowed the researcher to intentionally select participants who have all experienced the phenomenon being explored, which is implementing inclusive education for autistic students (Creswell & Poth, 2018). Purposive sampling enabled capturing a range of perspectives from teachers across different rural primary schools in KwaZulu-Natal to understand the essence of this phenomenon (Benoot et al., 2016). Using purposive sampling aligns with the qualitative methodology, as it focuses on in-depth understanding rather than empirical generalisation (Merriam & Tisdell, 2015).

1.9 Data Analysis

The researcher used thematic analysis to analyse data in this study. Braun and Clarke (2006, p. 6) view thematic analysis as "a method of identifying, analysing and reporting patterns (themes) within data." The researcher utilised six main stages, as suggested by Braun and Clarke (2006, p. 10): "familiarise oneself with data, generate initial codes, comb for themes, review themes, define and narrate themes, and finally produce the report." Braun and Clarke (2019, p. 591) note that thematic analysis "is about telling stories, about interpreting, and creating, not discovering and finding the 'truth' that is either 'out there' and findable from, or buried deep within, the data." Therefore, the researcher interpreted the data guided by Braun and Clarke's view of thematic analysis.

Thematic analysis was used to analyse the qualitative data in this study by following the six phases outlined by Braun and Clarke (2006):

- i) Familiarising with the data: The interview transcripts, observation notes, and documents were read and re-read to become immersed in the depth and breadth of the content. Detailed notes and ideas for coding were generated.
- ii) Generating initial codes: The data were organised into meaningful groups by coding interesting features across the entire dataset. Codes identified key patterns in the data relevant to the research questions.

- iii) Searching for themes: Broader themes were developed by collating related coded data. Themes captured important aspects of the data in relation to the research questions.
- iv) Reviewing themes: The candidate themes were checked against the dataset to ensure they tell a convincing story of the data. Themes were refined, split, combined, or discarded at this stage.
- v) Defining and naming themes: The essence of each theme was identified and themes were clearly defined and named.
- vi) Writing up: The analysis was written up to provide a compelling argument supported by data extracts and analytical narrative. The story of the data in relation to the research questions was told.

This systematic process of thematic analysis facilitated identifying, analysing and interpreting patterns of meaning in line with Braun and Clarke's (2006) methodology.

1.10 Value of the Research

This study aimed to make important professional and conceptual contributions. The key beneficiaries of this research will be autistic students, teachers, and schools in rural areas of KwaZulu-Natal. By exploring teachers' perspectives and lived experiences with inclusive education and mainstreaming autistic children, the findings can inform much-needed training, policies, and practices to improve inclusion in these contexts. Giving voice to teachers will provide insights into the challenges, needed support and local practices that can facilitate better acceptance, participation, and outcomes for autistic students in rural classrooms.

Conceptually, this study sought to advance knowledge on autism in Africa, which remains an understudied context compared to Western countries. While research on autism spectrum disorder has proliferated globally, literature situated in Africa is still scarce. A few studies have examined autism in African contexts, indicating the need for more research due to rising prevalence yet poor understanding and support services across the continent. However, there is a notable paucity of research specifically exploring the inclusion of autistic children in schools from an African

perspective. This study aimed to fill this gap by generating context-specific knowledge on implementing inclusive education for autistic students in rural KwaZulu-Natal. Adopting an interpretivist paradigm allowed the researcher to privilege **teachers working in local areas'** voices and illuminate strategies for successfully mainstreaming autistic children that consider rural settings, resource constraints and isiZulu culture. This insider perspective on the nuances of inclusion in rural KwaZulu-Natal schools can lead to valuable insights for enhancing accommodations, training teachers, and formulating policies attuned to the local context. Such African-centred knowledge can ultimately inform efforts to improve inclusion of learners with autism not only in KwaZulu-Natal but also across other rural South African schools more widely.

1.11 Ethical Considerations

The researcher made several ethical considerations in this study. The researcher applied for ethical clearance from the University of the Free State. In this study, there was voluntary participation, and participants were free to withdraw their participation. The researcher ensured confidentiality and anonymity by using pseudonyms. These ethical considerations are explained in detail below.

The researcher also obtained permission to conduct the study from the relevant authorities, the Department of Education and school principals in Kwazulu-Natal Province. Hence, their privacy was protected, not shared in public or with anyone, further prioritising their dignity. Additionally, the researcher obtained informed consent from the participants. Participants were free to withdraw from the study at any time should they desired to do so. Validity and reliability were addressed through triangulation of information from different data sources and receiving feedback from informants (Cohen, Manion & Morrison, 2018). The researcher also used member checking for the participants to confirm the transcription of their contributions to the study. Birt, Scott, Cavers, Campbell and Walter (2018, p. 1802) state that member checking, also known as participant or respondent validation, is "a technique for exploring the credibility of results." Member checking is essential in qualitative research because it promotes the active involvement of the research participants in checking and confirming the results.

Furthermore, trustworthiness in this study was enhanced by disclosing the analysis methods with enough detail to enable the reader to determine whether the process is credible (Korstjens & Moser, 2018). The researcher maintained a diary to ensure reflexivity by examining her "conceptual lens, explicit and implicit assumptions, preconceptions and values, and how these affect research decisions in all phases of qualitative studies" (Korstjens & Moser, 2018, p. 121). Another vital strategy the researcher used involved maintaining an audit trail by transparently describing all the research steps and keeping records throughout the study. Nowell, Norris, White and Moules (2017, p. 1) explain:

To be accepted as trustworthy, qualitative researchers must demonstrate that data analysis has been conducted in a precise, consistent, and exhaustive manner through recording, systematizing, and disclosing the methods of analysis with enough detail to enable the reader to determine whether the process is credible.

1.12 Significance of the study

This study has practical and theoretical significance. Practically, it offers insights into the challenges and support needs of teachers working in rural environments, thereby informing targeted professional development, resource allocation, and policy refinement. The findings are anticipated to benefit school administrators, policymakers, and teacher training institutions by highlighting the critical areas that require intervention. Theoretically, the study contributes to the body of knowledge on inclusive education by providing a nuanced, context-specific analysis of how rural teachers interpret and implement mainstreaming practices. This localized perspective enhances our understanding of the intersection between educational policy, cultural context, and classroom practice.

1.13 Rationale of the study

Although the literature on inclusive education has grown considerably, there remains a significant gap concerning the experiences of rural educators in South Africa. Rural

primary schools are uniquely challenged by resource limitations and historical legacies that impede the effective mainstreaming of learners with autism. This study is essential because it targets these under-researched areas, aiming to generate actionable insights that can bridge the divide between policy aspirations and classroom realities. By focusing on the voices of rural teachers, the research seeks to illuminate the specific obstacles they face and propose strategies that are both contextually relevant and practically feasible.

1.14 Definition of key terms

To ensure clarity and consistency, the following key terms are defined:

Inclusive Education: An educational approach that integrates all learners, regardless of their abilities or backgrounds, within the same classroom environment, providing the necessary supports to meet individual needs (UNESCO, 2009).

Mainstreaming: The process of integrating learners with special needs, such as those with autism, into general education classrooms while ensuring that adequate support is provided (Mahlo, 2017).

Learners with Autism: Refers to students diagnosed with autism, a neurodevelopmental condition marked by challenges in social interaction, communication, and repetitive behaviours. Person-first language is used to emphasize their individuality (American Psychiatric Association, 2013).

Rural Primary Schools: Educational institutions situated in non-urban areas that are typically characterized by limited resources, lower access to specialized support services, and distinctive cultural and infrastructural challenges.

1.15 Layout of the Study

Chapter One: Introduction and Orientation. This chapter consists of the introduction to the study. It provides the background to the study, the rationale of the study, and the outline of the chapters.

Chapter Two: Theoretical Framework. The chapter discusses the Cultural-Historical Activity Theory (CHAT) guiding this study. The chapter focuses on providing the theory's relevance to the study.

Chapter Three: Literature Review. The focus of the chapter is to unpack mainstreaming learners with autism disorders globally, regionally, and locally while striving to provide the reader with a conceptual background to autism. Scholarships on mainstreaming learners with autism disorders and prominent themes on the impact of inclusion were unpacked.

Chapter Four focuses on the research methodology used to generate data for the study. The chapter explains the research design, objectives, and objectives. The chapter discusses data generation methods and their relevance to the study. Data analysis and issues related to the trustworthiness of collected data are explored in the chapter. The chapter also covers data analysis procedures and ethical issues observed during data generation.

Chapter Five is on data presentation. The study's results on understanding mainstreaming learners with autism disorders are presented using themes, categories, and sub-themes.

Chapter Six entails the analysis of the findings from this study. The results are compared with findings from other scholars and studies. The researcher also used the theoretical framework to analyse the findings.

Chapter Seven, the final chapter, presents the summary, conclusions, and recommendations of the study.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This previous chapter presented the background to this study. The present chapter reviews literature relevant to the study on the teachers' understanding of mainstreaming of learners with autism spectrum disorder. The literature review is presented using several themes.

2.1 Autism Spectrum Disorder

ASD is of a nature that requires understanding from the aspects of neurodevelopmental intricacy, behavioural patterns, and differences in sensory processing. In order to contextualise the study, the researcher begins the literature review by interrogating scholarship that includes articles that range from editorials, systematic reviews, thus giving evidence levels from expert opinions to systematic reviews with meta-analyses, both old and contemporary. The conceptualisation of the condition has significantly changed since its original characterisation by Leo Kanner in 1943. For many years, autism was considered a childhood disorder that was resolved by adulthood for the greater part. It is now well-established that autism is a lifetime condition and encompasses major impairments that persist for at least a lifetime among all individuals with higher functioning. Adults with ASD bear a great deal of mental health burdens and higher rates of comorbidities.

Autism spectrum disorder (ASD) refers to a group of complex neurodevelopmental conditions characterised by impairments in social interaction and communication, often accompanied by repetitive and restricted behavioural patterns and interests. The core clinical features manifest within the first three years of life and persist into adulthood. However, there exists significant heterogeneity in the presentation of autism symptoms across individuals as well as over the lifespan (American Psychiatric

Association, 2013). ASD, as defined by the American Psychiatric Association (APA) in the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), is characterised by persistent deficits in social communication and interaction and restricted repetitive behavioural patterns. While the reviewed literature primarily focuses on arthropod development and structure, it provides pertinent insights into understanding ASD. For instance, Schoenemann (2021) explores trilobite eyes, revealing diverse compound eye types such as holochroal, abathochroal, and schizochroal, emphasising the importance of studying sensory variations across species. This aligns with the prevalence of atypical sensory responses observed in individuals with ASD, suggesting potential parallels between ancient organisms' sensory adaptations and contemporary neurodevelopmental disorders. Additionally, Liao and Oates (2017) investigated Delta-Notch signalling in segmentation, offering insights into generating repeated structures amid inherent biomolecular noise across multicellular organisms. Understanding the emergence of robustly-repeated structures despite molecular noise may shed light on the heterogeneous presentation of ASD.

Prevalence estimates indicate that approximately 1% of the population meets the criteria for an ASD, though exact rates vary based on diagnostic criteria and data collection methods (Maenner et al., 2016). The condition is about four times more common in males than females (Baio et al., 2018). Autism was initially considered to be a rare disorder; however, the apparent rise in diagnoses over the past few decades indicates that autism is more prevalent than once recognised. This increase may be attributed to better diagnostic tools and increased awareness. However, it may be argued that these studies have mainly been focused on the global North and, thus, there is an apparent gap in literature from the global South. This dearth in literature can also be linked to the aforementioned argument related to diagnostic tools and awareness. Lagging behind in terms of diagnostic tools and awareness impacts on researchers' interest on the phenomenon to a greater extent.

Additionally, Vannier and Haug (2016) address fossils as the records of organisms that lived, thus emphasising how powerful it is to learn about ancient life in order to refine our understanding of biodiversity in present times. In line with this, studying how

developmental mechanisms may have changed over evolutionary time might also reveal some insight for neurodevelopmental disorders like ASD, such as pointing out mechanism conservation or adaptive modification in a temporal framework. This review invites a much more global consideration of ASD by mentioning the values of investigating ancient sensory systems and the molecular mechanisms that produce repetitive structures in organisms. Meeting these interdisciplinary contributions may trigger a more holistic approach to the complexity of ASD and possibly inspire creativity in research and intervention efforts. The next section presents scholarship on the barriers to inclusion of learners with Autism Spectrum Disorders.

2.2 Barriers to inclusion of learners with Autism Spectrum Disorders

Inclusion of learners with autism spectrum disorders (ASD) in mainstream classrooms remains limited globally, especially in rural regions of developing countries like South Africa. This section of the literature review examines key systemic, pedagogical, and attitudinal barriers constraining the mainstreaming of young autistic students in rural schools.

2.2.1 Systemic Barriers

In South Africa, despite progressive post-apartheid policies that champion participatory education for special needs learners, deep challenges prevail in acting on these legislative intentions into practical realities within the educational system (Donohue & Bornman, 2014). Policies such as the South African Schools Act and White Paper 6 have, thus, been wide-ranging in terms of offering support for Inclusive Education. However, vaguely defined entitlements to support and insufficient funding in rural and urban, more or less resourced schools, hinder the effective implementation of policies by authorities. Schools in such areas often lack the infrastructure and professional personnel needed to address learners with special needs; hence, such learners are barred from receiving the kind of assistance meant by the policy (Engelbrecht et al., 2016; Ngcobo & Muthukrishna, 2011). Besides this, the higher order of procedural difficulties in timely ASD identification and individualised support

adds to these issues for the rural teacher, who often has restricted resources and limited training in specialised educational interventions.

More often than not, these teachers are left to their own devices, without the support structures that would enable them to offer effective support to students with ASD (Engelbrecht et al., 2016; Ngcobo & Muthukrishna, 2011). Bottlenecks continue to take place through bureaucratic channels, from health facilities to district education offices, and authorities experience delays in diagnosis that are needed to ensure early, timely transitions; these are very critical in optimising the child's developmental outcomes (Kalenga & Fourie, 2016; Tekola et al., 2016). Such is furthered by the fact that most diagnostic frameworks are based on the typical standard norms of development that seldom consider the experiences of rural children. It has also emerged that factors such as poverty, traditional cultural practices, and barriers in accessing health services may lead to developmental profiles quite unlike typical norms. These factors tend to contribute toward under-diagnosis or misdiagnosis when diagnoses are done in these communities. As such, most ASD children in rural South Africa are denied the chance of receiving appropriate educational support due to systemic barriers. This again calls for policies that are sensitive to contexts at both diagnostic and educational levels.

Systematic barriers are magnified by rurality and infrastructural constraints, especially in the rural context where this study was carried out. Rurality and infrastructure constraints like staff shortages and limited child mental health services exacerbate these bottlenecks (Franz et al., 2017). Remote areas have fewer specialised therapists and remedial teachers stretched across villages, forcing prolonged waiting periods for evaluations essential for medical-educational planning (Bornman & Donohue, 2013). Where posts exist, retaining skilled professionals willing to serve in isolated areas with scant amenities remains challenging. Optimal teacher-student ratios up to 1:5 prescribed in policy frameworks for specialized learning environments are unattained, compelling reliance on teacher aides and volunteers without adequate training (Engelbrecht et al., 2016). Key support personnel like educational psychologists, occupational therapists, speech therapists, and social workers routinely allocated to

urban and peri-urban schools remain inaccessible across rural locales (Walton , 2016). Parents incur prohibitive costs travelling to distant government centres, trying to secure assessments and therapy inputs for children increasingly left out of nascent rural autism support models (Tekola et al., 2016).

2.2.2 Pedagogical Barriers

Mainstream rural teachers are generally unprepared through professional preparation to include students with ASD effectively. This gap in preparedness has been attributed to a scarcity of specialised knowledge on ASD, an inferior understanding of the subtle needs of learners with autism, and lack of scaffolding skills for inclusionist teaching practice (Lindsay et al., 2013; Qadach et al., 2021). Besides, most of the pre-service and in-service teacher education programmes lack coverage of evidence-based strategies concerning instructional accommodations, which further creates problems like issues of role ambiguity and self-efficacy among teachers working with autistic students.

In one South African study, only 19% of teacher trainees reported receiving coursework specifically addressing ASD accommodations, while the surprising proportion of 81% felt that the content was not adequately preparing them in terms of providing inclusive education (Ngcobo & Muthukrishna, 2011). Alarming was that as many as 67% of the final-year students were still uninformed about the educational pathways available to students with ASD — a high level of concern within teacher preparation for inclusion. Besides the gaps in teacher training, overcrowded school curricula represent another obstacle for including ASDs. Packed syllabi with very limited resources leave little room for creative lesson adaptations and collaborative planning and ability-based approaches to learning. As such, a “one-size-fits-all” approach predominates in the classrooms at the expense of students who want customized instructions.

Most content-loaded curricula implicitly depend on typically developing children's processing rates, sensory regulation, and social development. In such programmes, autistic students are at a disadvantage by default. Rural teachers with large class size

cohorts, with increasing pressure to meet coverage of all content schedules, may have to use rigid adherence to standardised curricula and progress students forward through the content without time for adjustments. In addition, the reliance on narrow metrics through inflexible summative assessments further exacerbates such barriers and often forgets the unique learning needs of students with ASD. Such assessment practices run contrary to the principles of universal design and competency-based evaluation, complicating teacher efforts toward differentiation of instruction (Guldborg, 2017; Ngcobo & Muthukrishna, 2011). Where school context teachers have their evaluation ratings based on students' test results, incentives under high-stakes testing conditions may enable educators to concentrate resources on higher-scoring students and not channel energies into struggling students, including ASD students. Hence, systemic barriers discourage practising teachers from prioritising inclusive practices, further causing learners with autism to lose accommodation that enables them to be successful in a general educational setting.

2.2.2.1 Africanisation of Autism Spectrum Disorder

Cultural perceptions and beliefs have a significant influence on how autism spectrum disorder (ASD) is viewed, diagnosed, and treated across Africa. In many African communities, disabilities, including ASD, are often explained through a spiritual or moral lens, being attributed to curses, witchcraft, evil spirits or parental sins (Bakare & Munir, 2011; Gona et al., 2016). This stems from traditional belief systems that view misfortunes as having supernatural causes. As a result, children with ASD can face stigma, social isolation, and traditional healing practices rather than evidence-based therapies.

For instance, a study by Gona et al. (2016), on caregiver experiences in Kenya, found that autism was frequently attributed to supernatural causes. Families reported being told their child was affected by ancestral spirits, witchcraft or curses due to familial sin. Some children underwent potentially-harmful rituals like starvation and animal sacrifices intended to exorcise spirits. Stigma also led to social exclusion, entailing being banned from communal events or places of worship. Similarly, research by

Bakare and Munir (2011) highlighted the tendency for African healthcare workers to endorse supernatural explanations for autism, including possession by evil spirits. Beliefs that autism stems from spiritual causes rather than biomedical factors contribute to delays in diagnosis and access to empirically supported treatments.

There are also widespread misconceptions that ASD is a "Western" disorder not relevant to Africa (Elsabbagh et al., 2012). This relates to the relatively recent recognition and characterisation of ASD as a diagnostic category, which occurred largely in Western nations. Some view ASD as a product of Western biomedical models that pathologise normal human diversity. However, genetic studies indicate that ASD has a similar prevalence across ethnic groups when appropriate diagnostic tools are used (Mandell & Novak, 2005). Autism's core features involving social, communication and behavioural impairments manifest across human populations. Though phenotypes and co-occurring conditions may vary due to biological and cultural factors, ASD is a true neurodevelopmental disorder affecting Africa as much as other global regions.

Greater awareness and destigmatisation of ASD are critical across African communities. A survey by Bakare et al. (2008) found poor knowledge of ASD among Nigerian healthcare workers. Similarly, Igwe et al. (2010) reported low autism awareness among university students in Nigeria intending to work in healthcare fields. Stigma and misinformation appear higher in rural and low-resource contexts (Gona et al., 2016). There is a need for culturally-informed awareness campaigns through schools, media, religious institutions and community leaders to promote accurate understanding of ASD, reduce stigma and encourage help-seeking.

Adapting assessment tools is also essential for timely, accurate ASD diagnosis in Africa. Western diagnostic measures like the ADOS and ADI-R reflect social norms around eye contact, communication and restricted interests that differ cross-culturally (Mandell & Novak, 2005; Oppong et al., 2023). Translated versions demonstrating reliability and validity across diverse African settings are needed (Ruparelia et al., 2016). Considerations include variations in terminology, interactional styles and accessibility for those with limited literacy. Process-oriented tools may have advantage over structured activities due to cultural variability in play and social conventions.

Interviewing both caregivers and children, where possible, can enhance cultural sensitivity.

Beyond awareness and adapted screening, access to evidence-based interventions must also increase. Early intensive behavioural therapy can significantly improve outcomes for children with ASD (Granpeesheh et al., 2009). However, a survey by Bakare et al. (2009) found inadequate autism treatment facilities and professionals in Nigeria. Similarly, Gona et al. (2016) noted extremely limited services in rural Kenyan communities despite rising ASD prevalence. Along with prioritising access, cultural adaptation of behavioural therapies is important for motivation and generalisation (Hinton et al., 2017). This requires incorporating families' values, communication styles and daily routines. Collaborating with traditional healers may also support integrative care aligning African healing practices with empirically-supported treatments.

Cultural beliefs significantly shape the experience of ASD across Africa. Stigma driven by spiritual explanations creates barriers to diagnosis and evidence-based therapies. Culturally-informed awareness, adapted screening tools, and accessible behavioural interventions can transform understanding of ASD and help children reach their full potential across Africa's diverse communities. With collaboration among local advocates, researchers, traditional healers, governments and global institutions, substantial progress can be achieved in supporting individuals with ASD across the continent.

2.2.2.2 Language Used by Assistive Devices for Teaching and Learning

Assistive technology plays an important role in supporting the learning and development of children and adults with autism spectrum disorder (ASD). A range of devices have been developed that utilise language in different ways to provide structure, prompts, reinforcement and feedback for learners with ASD (Schlosser & Sigafos, 2008). This section examines research on how language is incorporated into assistive devices to facilitate teaching and learning for this population.

One major application of language in assistive technology for ASD is to help learners structure and organise information and activities. Visual schedules and timers that present sequences of events and transition warnings in words, icons or photos can aid comprehension, independence, and self-regulation (Stephenson & Limbrick, 2015). For example, using photo activity schedules helped increase independence in integrated classrooms for students with ASD when taught to classroom aides (Hall, McClannahan & Krantz, 1995). Language explanations through video modelling also support learning and retention by providing clear verbal and visual step-by-step instructions about target skills or behaviours (Mason et al., 2013). Additionally, social stories that describe social situations with relevant, patient language have shown potential to improve learners' understanding of concepts like emotions or social rules when combining text and images, although more research is needed (Liu et al., 2021). Finally, natural language processing allows chatbots to facilitate conversational practice in a consistent, non-judgmental environment (Ramdoss et al., 2012). The predictable language interactions can help learners with ASD get comfortable with social communication.

Language strategies like prompting and reinforcement are also commonly incorporated into assistive technology to shape behaviours and teach new skills to learners with ASD. Auditory prompts can provide helpful verbal cues for transitions, initiating actions and positive reinforcement through recorded speech (Schlosser & Sigafoos, 2008). Speech generating devices allow learners to pre-programme frequently-used phrases to communicate needs and participate in learning activities, promoting independence and social interaction (van der Meer et al., 2013). Additionally, research has explored using natural language processing in educational games and virtual environments to tailor language-based support like prompting, feedback, and reinforcement to individual learners' zone of proximal development (Bernardini et al., 2014). This data-driven approach can optimise engagement and learning.

For language in assistive technology to be effective, several considerations are important. First, language must be clear, concise, and literal to support comprehension

for learners who interpret language concretely (Stephenson & Limbrick, 2015). Complex syntax, figures of speech and abbreviations often cause confusion. Second, language should provide positive reinforcement through motivational phrasing to encourage desired behaviours and progress while also preventing undesired behaviours through careful design (Ramdoss et al., 2012). Personalisation to match personalities and preferences promotes engagement and comfort as well (Liu et al., 2021). Finally, combining language modalities frequently enhances outcomes, as individuals with ASD often benefit from visual and auditory supports (Bernardini et al., 2014). However, some have sensory sensitivities limiting multimodal language use, so personalisation remains vital. Careful language design and application in assistive technology can enhance learning for diverse learners with ASD.

Beyond structuring activities and reinforcing skills, assistive technology also utilizes language to support communication abilities of learners with ASD. Visual schedules, social stories and other visual supports, as previously described, provide augmented receptive language input to improve comprehension (Quill, 1997; Wood et al., 1998). Aided language stimulation also highlights symbols while communicating verbally to teach understanding and use of visual-graphic symbols (Elder & Goossens, 1994). Though limited research exists, aided language stimulation shows potential to build receptive and expressive skills. Similarly, the System for Augmenting Language (SAL) combines speech, symbols and print to support comprehension and production, with impressive outcomes like increased intelligible speech and symbol use in a longitudinal study (Ronski & Sevcik, 1996). Such techniques leverage the power of carefully-designed multimodal language input and output to enhance communication.

Assistive technologies also incorporate language to enable individuals with ASD to express themselves. Given strong visual processing strengths in ASD, visual-spatial symbols like photographs, line drawings and Picture Communication Symbols are often used successfully for communication, with picture exchange training also yielding positive expressive language outcomes for many (Bondy & Frost, 1998; Mirenda & Erickson, in press). Additionally, interventions like Functional Communication Training (FCT) teach learners to use manual signs, tangible symbols or speech generating devices to replace problematic behaviours with appropriate communicative functions,

reducing challenges while building skills (Mirenda, 1997). Furthermore, voice output communication aids (VOCAs) integrate speech, symbols, and language processing to facilitate social interaction, conversation and functional communication, though more research on language optimization in VOCAs is needed (Ronski & Sevcik, 1996; Schlosser et al., 1998). When thoughtfully-designed and personalised, assistive technologies enable diverse expressive communication for learners with ASD.

Beyond communication, assistive technology also utilises language to support academic learning for students with ASD. Despite limited research, interactive multimedia reading programmes, spelling supports, educational games leveraging natural language processing, and other tools show potential to reinforce language, literacy, and academic skills (Bernardini et al., 2014; Heimann et al., 1995). However, the effects appear highly learner-dependent, with inconsistent benefits over human instruction. Additionally, synthesised speech shows promise as a learning facilitator for some students, increasing engagement and verbalisations during computer activities in one study (Parsons & La Sorte, 1993). Though minimal evidence exists currently, capabilities like personalised feedback and scaffolding through language-driven AI could greatly enhance outcomes as technology advances. Overall, language-based learning tools remain an emerging application requiring substantial additional research.

Several recommendations emerge for advancing language optimisation in assistive technology for ASD. First, rigorous comparative studies on the relative efficacy of language strategies are needed, as most literature comprises single-subject studies yielding minimal information to guide practice (Ramdoss et al., 2012). To optimise language interventions, comparisons controlling for language modality, theoretical approach, and intensity should be made to identify critical components, and increased personalisation is needed to account for individuals' abilities, sensitivities, preferences, and how these factors interact with technology effectiveness (Liu et al., 2021). Additionally, improved study designs and reporting are imperative, including participant demographics, diagnostic details, replicable procedures, and comprehensive outcome measures beyond behaviour (Mirenda, 2001). Finally, key

applications like VOCAs, natural language processing systems and computer-assisted instruction lack robust evidence on language optimisation specific to ASD. Prioritising research on personalised, contextually-appropriate and adaptive language integration could propel assistive technology to better serve diverse needs and capacities of learners with ASD.

Assistive technologies increasingly leverage the power of language to support individuals with ASD across educational, communicative, and social goals. From customisable verbal prompts to AI-driven feedback, endless possibilities exist to enhance learning through thoughtful language design tailored to each learner's strengths and needs. However, substantial research is needed to clarify best practices and truly optimize this potential. As technology progresses, collaborations between speech-language pathology, education, applied behaviour analysis and computer science can help linguistic innovation and personalisation in assistive tools transform life for people with ASD. With compassionate, evidence-based guidance, language-enabled assistive technology can become an instrumental key unlocking potential for many.

2.2.3 Attitudinal Barriers

Prevailing community assumptions framing disability via spiritual and medical constructs shape mindsets that disability results from moral transgressions or intrinsic damage rather than contextual and neurological factors (Chitiyo et al., 2019; Silwanyana, 2021). Such beliefs engender bias that autistic behaviours reflect wilful defiance or permanent intellectual impairment rather than variable learning aptitudes, eroding perceived capabilities and belonging (Kalenga & Fourie, 2016; Sharma & Nuttal, 2016). When cultural models position neurological diversity as abject, familial shame and denial deter collaborative school partnerships pivotal for contextualised educational planning tailored to rural realities (Eloff & Kgwete, 2007; Franz et al., 2017).

Negative societal stereotypes also vicariously impact rural teachers, causing teacher self-efficacy doubts around effectively including autistic students within resource

limitations and without adequate training (Engelbrecht et al., 2016; Sharma & Nuttal, 2016). Educators' frustrations over seemingly unresponsive autistic children, coupled with self-blame for failing to achieve expected progress, lead to burnout and abandoning inclusion efforts, absolving systemic inadequacies while further marginalising rural autistic students (Gona et al., 2016). When diversity gets reframed as a deficiency, rural schools forfeit opportunities to draw cultural and communal strengths into the teaching-learning process in favour of precarious dependence on specialised external expertise. Concentrating decisional authority and resources at centralized agencies disempowers rural teachers and communities from leveraging contextual affordances to scaffold accommodations for neurodivergent students (Walton, 2016).

2.2.3.1 Teachers Understanding of Autism Spectrum Disorder in Rural Primary Schools

Autism Spectrum Disorder (ASD) is increasingly prevalent, with rising numbers of students with ASD entering mainstream classrooms. However, research indicates primary school teachers often lack adequate preparation for educating these students, especially in rural areas. This review examines literature on teachers' understanding of ASD within rural school contexts.

Literature shows that rural teachers receive insufficient pre-service training in ASD. Rural general educators report minimal coverage of ASD in their certification programmes, resulting in limited knowledge of characteristics and instructional strategies (Williams et al., 2011). In a survey of over 600 American teachers, around half had no ASD-focused coursework at all, with rural teachers less likely to receive training (Morrier et al., 2011). Even among special educators who commonly support students with ASD, rural programmes provide inadequate development of expertise needed in inclusive settings (Barned et al., 2011). With scarce local specialists, many rural teachers enter classrooms while underprepared to meet needs of students with ASD.

Beyond pre-service programmes, practising rural teachers also express low confidence in their abilities to teach students with ASD. A study of Australian primary school teachers found that rural educators had significantly lower self-efficacy for including students with ASD compared to other disabilities (Sharma & Sokal, 2015). Key concerns of rural teachers were managing ASD behaviours and supporting social, communication and academic development. Teachers emphasised needing additional professional training focused specifically on educating children with ASD to feel capable meeting their needs (Lindsay et al., 2013). Accessing autism-specific learning opportunities poses challenges in rural communities.

Rural teachers also demonstrate variable, often inaccurate understanding of core ASD characteristics. While basic awareness has improved, misconceptions persist, like equating ASD solely with intellectual disability or emotional disturbances (Guldberg et al., 2011). Knowledge of social communication deficits in ASD is particularly limited. For example, a study of high school teachers showed highly inconsistent recognition of typical social challenges faced by students with ASD (Williams et al., 2011). Lack of understanding leads to reactive rather than preventative practices. Ongoing ASD education addressing both strengths and differences is needed to dismantle misconceptions.

Regarding instruction, general education teachers lack strategies for making academic content accessible to students with ASD. Rural teachers emphasise needing more training in implementing accommodations and modifications for diverse learners in the classroom (Pennington et al., 2009). Often, providing an aide is viewed as the primary accommodation for included students with ASD rather than adapting curriculum and instructional methods. Teachers also report limited skills for monitoring progress and designing appropriate goals for students with ASD without sufficient knowledge of evidence-based practices. Close collaboration with qualified special educators is essential to address gaps.

Collaboration itself represents an area for growth in rural schools' inclusion of students with ASD. Both regular and special education teachers describe limited teamwork in meeting ASD students' needs (Glashan et al., 2004). Confusion around roles and responsibilities can occur when collaboration is lacking. High turnover of rural staff

also disrupts coordination. ASD inclusion requires ongoing consultation and sharing of expertise among teachers to plan accommodations, monitor progress, and implement effective strategies. Strong structures facilitating teamwork are key.

Some promising programmes demonstrate ways to expand rural teachers' ASD knowledge and skills. Experienced autism consultants providing intensive professional development and in-classroom mentoring increased rural teachers' competence and use of ASD teaching strategies (Roberts & Simpson, 2016). Similarly, virtual training programmes incorporating modules, mentorship and feedback have boosted rural teachers' confidence educating students with ASD (Morrier et al., 2011). Multifaceted and practice-based learning can grow expertise, though intensive training is difficult to sustain in under-resourced rural areas.

Recommendations for improving rural teachers' ASD understanding include enhanced preservice requirements, ongoing professional development incorporating coaching, increased school-family collaboration, and addressing attitudinal barriers around inclusion (Avramidis & Norwich, 2002; Dillenburger et al., 2010). Parents report feeling excluded from educational planning for children with ASD in rural areas. With improved preparation and whole-school commitment, teachers can gain the knowledge and skills necessary to provide high-quality inclusive education to rural students with ASD.

While progress is being made, gaps remain in many rural teachers' ASD understanding, from limited pre-service exposure to misconceptions about characteristics. Teachers lack strategies for making academics accessible and collaborate across disciplines. However, personalised training programmes show potential for expanding rural teachers' skills and confidence educating students with ASD. Comprehensive ASD education alongside, greater collaboration and family involvement, can ensure that teachers understand the strengths and needs of rural students with ASD and provide the quality inclusive instruction they deserve. Ongoing professional development helps equip rural teachers to successfully include all learners in 21st century classrooms.

2.2.3.2 Teachers' Understanding of Mainstreaming Learners with Autism Disorders at Rural Primary Schools

The practice of mainstreaming or including students with autism spectrum disorder (ASD) in general education classrooms has grown increasingly common. However, rural schools face unique challenges in effectively mainstreaming these learners. Success requires proper teacher preparation, training and support. This review examines research on teachers' understanding of mainstreaming students with ASD in rural primary school contexts.

Overall, studies show that primary school teachers lack adequate pre-service preparation for mainstreaming children with ASD (Busby et al., 2012). General education teachers report minimal training in their certification programs related to teaching students with ASD. A survey of over 600 American teachers found that half received no ASD-focused instruction at all (Morrier et al., 2011). Even among special educators, training specific to ASD is limited, resulting in knowledge gaps (Barned et al., 2011). These deficiencies appear amplified in rural areas, where specialised expertise and professional development access are scarcer (Pennington et al., 2009). Rural teachers also describe fewer experienced colleagues available to provide support. Pre-service programmes often do not sufficiently equip teachers for realities of rural inclusion.

Beyond pre-service training, practising teachers also express low confidence in their abilities to include students with ASD. In a study of primary school teachers across rural and urban Australia, both groups rated their self-efficacy as lower for teaching children with ASD than those with intellectual disability, physical disability or learning disorders (Sharma & Sokal, 2015). However, rural teachers reported the lowest confidence for inclusion of children with ASD. Key concerns included managing behaviour and supporting social, communication and academic skills. Teachers emphasised needing additional training to feel capable of handling the unique needs of students with ASD (Lindsay et al., 2013). Thus, rural teachers face heightened needs for specialised support.

Specific knowledge gaps also exist regarding ASD characteristics, which can impede effective instructional planning. Though basic awareness has grown, rural teachers continue endorsing misconceptions, like ASD being seen as synonymous with intellectual disability or an emotional disorder (Guldberg et al., 2011). Understanding of social and communication differences in ASD varies greatly as well. A study of rural high school teachers found highly inconsistent knowledge of social deficits typical of ASD (Williams et al., 2011). Teachers also report struggling to distinguish behaviours stemming from ASD versus wilful noncompliance. These knowledge gaps lead to reactive rather than proactive, preventative practices. Ongoing autism education addressing both strengths and challenges is essential.

Regarding inclusion practices for students with ASD, general education teachers lack strategies for providing appropriate accommodations and modifications. Rural teachers especially emphasise needing more training in making academic content accessible for diverse learners (Pennington et al., 2009). Teachers frequently mention utilising aides for learners with ASD rather than adapting curriculum and instruction themselves. Goal setting and monitoring progress for students with ASD also presents a challenge without sufficient understanding of evidence-based practices. Rural teachers have fewer local specialists to guide effective inclusive instruction for this population.

Collaboration represents another area for growth with regard to mainstreaming children with ASD. Regular and special education teachers report limited teamwork and consultation around meeting students' needs (Glashan et al., 2004). Role confusion and lack of shared responsibility can occur. Rural schools face barriers like staff shortages and high turnover disrupting collaboration. Teachers of students with ASD should coordinate to plan accommodations, monitor progress, and share effective strategies. Structures facilitating ongoing collaboration are essential for inclusion.

Overall, research highlights critical gaps in rural teachers' preparation for mainstreaming students with ASD, from foundational knowledge to practical instructional skills. However, promising models exist for expanding expertise. One effective approach implemented in rural New South Wales utilised experienced autism consultants to provide ongoing professional development and in-classroom support to

teachers and aides (Roberts & Simpson, 2016). Following the training model, staff showed significant gains in knowledge, perceived competence and teaching skills related to ASD inclusion. Similar rural training initiatives in the United States, utilising web-based modules and mentorship, have increased teachers' confidence as well (Morrier et al., 2011). Combining multifaceted learning, over time, with individualised follow-up and feedback, can boost rural teachers' capacity for mainstreaming, though sustaining intensive training models remains challenging in under-resourced areas.

Several recommendations emerge for improving teachers' preparation to include rural students with ASD. First, enhancing preservice autism training requirements for both special and general educators would equip teachers earlier and help ameliorate rural shortages in ASD expertise (Morrier et al., 2011). However, current teachers also need quality professional development, ideally incorporating ongoing mentorship and school-embedded support. Virtual training can supplement face-to-face learning to increase accessibility for rural educators. Additionally, fostering stronger school-family collaboration is key, as parents of children with ASD often feel excluded from educational planning in rural communities (Dillenburger et al., 2010). Finally, addressing attitudinal barriers some rural teachers still hold regarding full inclusion of students with disabilities would enable more effective mainstreaming as well (Avramidis & Norwich, 2002). With improved training and whole-school commitment, primary school teachers can gain necessary skills and confidence to successfully include learners with ASD across diverse rural contexts.

While progress has occurred, mainstreaming students with ASD in rural schools remains challenging. Teachers lack adequate pre-service preparation and report low self-efficacy educating these learners. Knowledge gaps around ASD characteristics lead to limited use of appropriate accommodations and modifications. Collaboration also needs strengthening between regular and special educators serving students. However, professional development initiatives show promise for expanding skills and expertise, if sufficient time and follow-up support are provided. There is clear need and opportunity for growth in teachers' understanding of ASD and inclusive practices to improve mainstreaming experiences and outcomes of rural students. Through

ongoing education and school-wide collaboration, teachers can help every child with ASD reach their full potential as learners and members of the school community.

2.2.4 Interconnections among Barrier Dimensions

The systemic, pedagogical, and attitudinal obstacles to the inclusion of learners with autism in rural areas intersect rather than occur in isolation. Assessment complexity across bureaucracies' spikes amid shortfalls in specialized expertise within thinly-staffed rural schools. Simultaneously, statistical invisibility and prevailing assumptions that autism rates are negligible in rural locales compared to urban areas mask policy and budgeting inadequacies (Donald et al., 2014; Spruyt & Curfs, 2018). Professional capability gaps leave teachers leaning on rote curricular traditions rather than harnessing contextual knowledge like ethnomedical practices and community caregiving assets to scaffold differentiated instruction for heterogeneous autism profiles shaped by intersecting culture, gender, poverty, and rurality (Chitiyo et al., 2019; Kalenga & Fourie, 2016).

When systemic provisions lag lived realities within classrooms, vague cultural constructs of intellectual and psychosocial disability fill explanatory gaps, fuelling sceptical attitudes on possibilities for personalised progress and participatory parity for autistic students (Sharma & Nuttal, 2016; Tekola et al., 2016). Negative assumptions deflate rural teachers' self-efficacy, agency, and efforts toward sustainable inclusion amid resource constraints, absolving systemic inadequacies while further marginalising autistic students through cumulative educational deprivation and exclusion (Gona et al., 2016; Guldborg, 2017).

2.2.4 Progress and Possibilities

Positively, fledgling grassroots efforts demonstrate expanding rural teacher motivation towards equitably including autistic and otherwise neurodivergent students, stretching systemic provisions through creative localization (Donohue & Bornman, 2014). Periodic school-community awareness drives leverage local health workers and healing

practitioners for developmental screening and folk therapy inputs to identify support needs before learning challenges cascade in poorly-resourced rural schools (Chitiyo et al., 2019). School-based teacher coaching networks using mobile technology sustain peer learning and motivation, despite systemic bottlenecks like understaffing and disjointed policy provisions across medical and educational silos at provincial levels (Kalenga & Fourie, 2016). Early pilots reveal promise for intermediate cadres like community rehabilitation workers trained in Sensory Integration and related approaches bridging cultural interpretations, acting as vital cultural brokers and service extenders from urban centres to remote villages while smoothing referrals, follow-up, and family empowerment (van Heerden et al., 2015).

Home-school collaborations reveal familial assets like multigenerational caregiving knowledge and sibling assistance that reframe differences as diversity, nurturing rural classroom cultures and celebrating neurodiversity (Silwanyana, 2021). Rural parents increasingly recognise their children's support entitlements, engaging proactively with school leaders to spur teacher capability building and classroom accommodations leveraging village resources despite systemic constraints at upper district tiers (Walton, 2016). Policy developments officially recognising neurodiversity, like provincial education departments incorporating autism-specific competencies within professional teaching standards, legitimise continuous professional education in scaffolded instruction as career development rather than remediation (Engelbrecht et al., 2015).

Multi-layered efforts spanning top-down policy provisions and ground-up capability building can consolidate these fledgling transitions towards sustainably inclusive, participatory classroom ecologies where young learners with autism are welcomed as valued members of rural school communities. By implication, while multifaceted systemic, pedagogical, and attitudinal barriers continue to severely impede equitable access and sustained participation of young learners with autism in rural South African schooling, scattered grassroots efforts demonstrate expanding motivation for inclusion across stakeholders. However, sustaining these tentative transitions remains contingent on strengthening the broader scaffolding environment for rural autism support through integrated interventions spanning teacher professional development,

school-community partnerships, and realigned policy provisions. Building collective mindsets, material resources, and localised capabilities across rural education ecosystems, alongside parenting collectives and participatory governance, is pivotal to nurturing classroom cultures that embed inclusion as praxis rather than rhetoric. The path ahead remains long, for it entails no less than a transformation towards school systems founded on socio-emotional solidarity where welcoming neurodiverse students as valued participants become habitual across all spaces.

2.3 Inclusive Education in South Africa

South Africa has made significant strides towards developing an inclusive education system since the end of apartheid. Adopting an inclusive education approach aligns with the democratic values of equality, social justice, and human rights enshrined in South Africa's progressive post-apartheid Constitution (Department of Education, 2001). This section will examine key policy developments and research on inclusive education in South Africa.

2.3.1 Policy Framework

South Africa's transition to democracy in the 1990s presented an opportunity to transform its racially-segregated education system into one centred on inclusion, human rights, and social justice. The 1997 report by the National Commission on Special Needs in Education and Training (NCSNET) and the National Committee on Education Support Services (NCESS) called for merging the "separate systems of education" for students with and without disabilities into one integrated system (NCSNET/NCESS, 1997, p. 7). This report informed the development of critical inclusive education policies, namely the South African Schools Act 84 of 1996, the White Paper on Education and Training of 1995, and the Education White Paper 6 of 2001.

The South African Schools Act 84 of 1996 established a standard, democratic, and inclusive schooling system and prohibited unfair discrimination in admissions (RSA, 1996). However, its implementation encountered challenges, as many schools remained ill-equipped and personnel were insufficiently trained to accommodate

students with disabilities (Nel et al., 2016). Recognising these barriers, the White Paper on Education and Training of 1995 emphasised addressing diverse needs through flexible curricula and structures, support services, educator training, and community partnerships (DoE, 1995).

The landmark Education White Paper 6 (EWP6) of 2001 provided the overarching framework for an inclusive education system in South Africa. Fundamental principles of the EWP6 were supporting all learners, identifying barriers early, upgrading special school facilities, providing recreational and social activities, promoting educator capacity development, and strengthening governance and cooperation across sectors (DoE, 2001; Naicker et al., 2019). The EWP6 aimed to replace the "parallel and unequal education systems" through district-based support teams, full-service and special schools, early identification and intervention, curriculum differentiation, and multi-professional support (Engelbrecht et al., 2015).

While these progressive policies established an enabling framework, many schools could not implement inclusive education (Naicker et al., 2019; Nel et al., 2016). Studies found that teachers felt inadequately trained and schools lacked resources, assistive technologies, accessible facilities, screening systems, and collaborative district support (Engelbrecht et al., 2015; Makoelle, 2014; Naicker et al., 2019; Nkululeko & Sookrajh, 2019). Large class sizes, language barriers, and negative stakeholder attitudes also constrained inclusive implementation (Lomofsky & Lazarus, 2001; Swart & Pettipher, 2011). Further research is still needed to determine the reasons for gaps between vision and practice and how to strengthen implementation across diverse South African contexts, hence the current study.

Teacher attitudes play a crucial role in the success or failure of inclusive education reforms. Several South African studies have explored educator perspectives and identified training needs. Synthesised findings indicate some support and reservations amongst educators concerning inclusive practices (Chelin, 2007; Khan & Alghazo, 2006; Swart & Pettipher, 2005). Positive drivers include legal imperatives, opportunities for individual attention, social benefits, and professional growth (Ebersöhn & Eloff, 2006; Van Wyk, 2013). Barriers centred on inadequate preparation,

large class sizes, assessment challenges, and lack of policy guidance or resources (Chitiyo & Wheeler, 2019; Nel et al., 2016).

Chitiyo and Wheeler (2019) surveyed 309 educators across nine South African provinces. Most of the educators reported openness towards student diversity but felt unprepared pedagogically or lacking multi-professional support. Positive core attitudes did not always translate into practical self-efficacy or willingness to adapt to environments. Teachers relied heavily on experience as their primary form of inclusion training rather than formal academic qualifications. Nel et al. (2016) found that over 90% of sampled Western Cape teachers supported inclusion in principle, yet over half felt ill-equipped to handle behavioural, linguistic, or health needs. Teachers expressed readiness to adapt planning if provided training. Collaborative problem-solving among staff was seen as crucial.

These findings suggest openness but lingering apprehensions regarding implementation, highlighting imperative training needs. Positive educator mindsets underpin inclusive education, yet must translate into practical competencies. Further research into changing attitudes over time, as inclusion reforms take root, could help evaluate systemic capacity development efforts. Close attention to educator experiences, challenges, and support requirements remains vital for responsive, context-specific advancement.

Several initiatives have aimed to bolster inclusive education implementation by building systemic support and educator capacity. For example, since 2005, the Western Cape Education Department provided in-service empowerment workshops on differentiation, augmentative communication, and assistive technology (Nel et al., 2011). Follow-up assessments found improved conceptions of diversity and willingness to make adaptations, though training impact was not systematically evaluated.

Other government initiatives include establishing provincial and district-based support teams to provide on-site guidance, curriculum advice, and assistive inputs (DoE, 2001). However, research suggests uneven training and staffing constrain impact (Engelbrecht et al., 2015). Community-based interventions pairing special education students with peer tutors demonstrate potential but require robust evaluation of

scalability and sustainability (Joska et al., 2013). Coordinated multi-tier, multi-sector strategies coupling family capacity-building with educator empowerment show promise for attitudinal transformation and inclusive culture -shifts (Nel et al., 2019).

Research exploring pre-service teacher training programmes offers insights into preparation needs. Studies found minimal inclusive education content, reliance on "bolt-on" standalone modules rather than permeation across core courses, and uneven access to special school placements hindering abilities to manage diversity (Naicker et al., 2019). Surveys indicate that student teachers perceive competence in achieving learning outcomes, yet question preparedness for complex inclusion realities (Engelbrecht et al., 2016). Alternative integrated unique education strands pairing theoretical coursework with field experiences boosted self-efficacy yet graduated too few personnel to fill the demand (Ajuong et al., 2019). Progress in establishing policy frameworks and some capacity-building initiatives has begun in South Africa. However, research points to persisting disconnects between vision and realities within classrooms. Further examinations of impactful, sustainable approaches for strengthening implementation across diverse contexts, particularly teacher learning, remain a priority.

2.4 Challenges to Inclusive Education in Rural Contexts for Learners with autism

Inclusive education aims to provide equitable learning opportunities for all learners within mainstream schools and classrooms, including those from marginalised groups (Ainscow et al., 2006). While inclusion has been adopted in policy and legislation globally, there remain challenges to its full implementation, particularly in rural contexts (Crawford & Butler-Kisber, 2017; Donohue & Bornman, 2014; Singal, 2014). This literature review aims to examine research on the barriers to inclusive education in rural schools. Understanding contextual factors is vital for developing targeted, context-responsive strategies to strengthen inclusion.

According to several studies, rural schools' lack of educational resources posed fundamental challenges to inclusion. A study of Ghanaian schools by Alhassan (2014)

reported insufficient special needs materials, such as enlarged fonts and braille books, as a hindrance. Teachers in remote schools in South Africa similarly noted inadequate learner-teacher support materials as a barrier to differentiation (Dalton & Roush, 2010). Financial limitations affected assistive technology procurement, with teachers in under-resourced Eastern Cape Province citing computer access difficulties (Du Plessis, 2013).

Infrastructural deficiencies also constrained inclusion in rural contexts. Schools in Lesotho had buildings that were inaccessible to wheelchair users and lacked sensory learning equipment for visual impairment or deafness (Mangope et al., 2018). Architectural barriers like missing ramps, accessible toilets, or water fountains exclude disabled students (Mukhopadhyay et al., 2009). Such systemic constraints particularly disadvantage rural locales with lower budgets.

Attitudinal barriers constituted another salient challenge to inclusion in rural contexts. Principals and teachers in Ghana expressed reservations about including specific disabilities like autism or intellectual impairment in mainstream classes (Alhassan, 2014). Low academic expectations toward disabled learners were frequently conveyed (Gal et al., 2010; Scruggs & Mastropieri, 1996). Disability was often viewed through a deficit-focused medical model lens rather than a social model emphasising capabilities and inclusive affordances (Agbenyega, 2007). There were communicating doubts regarding students' potential risks that are detrimental to their self-concept, motivation, and achievement (Engelbrecht et al., 2016).

Inadequate transportation and prohibitive travel distances compromised inclusive participation in rural contexts. Remote rural locations complicated physical accessibility for disabled learners (Donda, 2011). African studies showed reliance on scarce, expensive transport that restricted students' access to schools and critical specialist services in distant towns (Donda, 2011; Kuyini & Desai, 2008; Mangope et al., 2018). Safety concerns arose around long commutes for disabled children (Ballantyne & Mylonas, 2001). Such physical access hardships disproportionately affect rural families.

Insufficient teacher preparation hindered effective inclusion across rural areas in global contexts. Training often focused narrowly on disability categories rather than evidence-based inclusive pedagogical practices (Avramidis & Norwich, 2002). Without quality professional development, many regular classroom teachers struggled to adapt instruction and accommodate diverse learning needs (Sharma et al., 2006). This pattern held across varied cultural settings (Burgin et al., 2018; Haq & Mundia, 2012; Loreman et al., 2013). Calls persist for more contextualised, lifelong, inclusive education training for generalist teachers expected to embed participation without extensive specialist support (Engelbrecht et al., 2006; Sharma et al., 2006).

Recent empirical work identifies systemic resource deficiencies, negative attitudes, physical inaccessibility, and professional development limitations as critical obstacles to equitable inclusion of disabled and special needs learners within rural schools internationally. Infrastructural constraints, attitudinal assumptions, underestimating capabilities, inadequate transportation provisions, and insufficient teacher preparation severely restrict participatory access and quality education for marginalised students in remote contexts. While this review focused narrowly on barriers, the literature signals some fledgling transitions towards greater inclusion stemming from creative grassroots efforts within massively under-resourced schools. However, substantial policy reforms and material investments remain imperative to convert well-intentioned statutes on educational rights into liveable realities within rural classrooms expected to embed inclusion with minimal structural support. Significant work lies ahead to overcome multifaceted rural barriers if inclusive education promises to reach the most marginalised communities.

2.5 Rural and Rurality Conceptualised

Defining 'rural' is complex, with no universally accepted definition. At its core, rural encompasses geographic, demographic, economic, and cultural dimensions. As Kulcsár and Kulcsár argue, the rural-urban distinction stems from "different ways of inhabiting and using space" (2012, p. 55). Spatial practices, land usage, settlement patterns, economic activities, infrastructure networks, population densities, mobility,

cultural identities, and community ties differentiate rural from predominant notions of urban life. Ultimately, 'rural' represents a "place-based homeliness shared by people with common ancestry or heritage...in traditional, culturally defined areas" (Chigbu, 2013, p. 813) distinguished from modern, densely populated, industrial urban spaces. The essence of rurality is embedding social lives within meaningful geographic places and landscapes. Rural spaces become imbued with shared identities, values, practices, relations, histories, and imaginings that bind inhabitants to the land and community. As Bell et al. (2010) state in the Latvian context, "The notion of 'countryside'...[is] a bipartite whole – an opposite concept to the urban environment" (p. 347) is constituted through "family history, open human relationships, unpolluted nature, peace, [and a] diverse landscape" (p. 347). Rurality reflects experiential, symbolic, and discursive constructions of the rural as a particular way of life.

At the same time, scholarly and policy discourses typically characterise rural areas as traditional, agricultural, natural, isolated, and unmodern – conceptually contrasted with urban dynamism, industrialisation, and cosmopolitanism. As Ward and Brown (2009) succinctly put it, rurality signifies "places of tradition rather than modernity, of agriculture rather than industry, of nature rather than culture, and changelessness rather than dynamism" (p. 1239). However, such rural-urban dichotomies oversimplify complex, interconnected realities. Not all rural places fit an idyllic, pastoral image; rural landscapes encompass abandoned villages, polluted waters, contested land, and social marginalization. As Kayser et al. (2000, p. 3) argue, the rural condition means "coping with marginalization" at geographic, political, economic, and cultural levels. At the same time, rural communities have adopted modern technologies, non-farm economies, new governance institutions, and infrastructure. Rural people espouse heterogeneous values, beliefs, livelihoods, and lifestyles. Ongoing outmigration, counter urbanisation, gentrification, and new uses of rural space generate evolving hybridities between the rural and urban. As Kulcsár and Kulcsár (2012) conclude, "the city has become more "rural", while the countryside has become more "urban" (p. 70). Contemporary rurality encompasses complex reconfigurations, interactions, and transitional zones linking country and city.

Rurality requires statistical definitions and measures to operationalise analysis, policymaking, and governance. Indicators are proxies to delineate rural areas and populations for resource allocation, targeted interventions, research samples, and outcome monitoring. No single measure fully captures rurality's nuances; multiple approaches provide alternative lenses highlighting different attributes. Thresholds and criteria differ significantly between contexts, reflecting national settlement histories, geographic realities, data availability, and intended usage. Despite limitations, statistical definitions offer fixed boundaries, simplifying messy spatial dynamics. The most common are population-based and land-use indicators. The OECD defines rural areas as those with a population density below 150 people per square kilometre, widely adopted for international comparison. Eurostat applies a higher 300 people per square kilometre density threshold. Both designate regions, counties, or municipalities as predominantly rural if over 50% of inhabitants reside in low-density localities. Classifying larger aggregate units as rural/urban obscures internal variations between villages, towns, and cities (Mormont, 1990). The new EU definition uses 1 square population grid cells to better capture fine-grained settlement dynamics and rural pockets within formal urban jurisdictions. Groups of contiguous grid cells are designated rural if combined populations remain below 5,000. Consequently, boundaries adhere more closely to built zones.

Population size also differentiates villages, towns, and cities within rural areas. The Latvian spatial plan labels settlements as "urban" or "other" based primarily on inhabitant numbers, classifying 60% of residents as rural dwellers (Bell et al., 2010). The UN Department of Economic and Social Affairs (2018) uses similar relative cut-offs, defining rural areas as populations below 20,000, and urban as above that. Absolute thresholds vary significantly between countries and world regions depending on historical settlement patterns and urban primacy. Accessibility and remoteness indicators quantify rurality based on distance or travel time to major urban centres. Scotland's government distinguishes remote rural settlements from accessible towns based on driving time to the nearest city. The OECD also subdivides predominantly rural regions into remote regions if less than 50% of inhabitants can reach an urban

hub of 50,000 within 45 minutes. Transport accessibility and service geography contribute to social marginalisation and territorial stigma facing isolated communities (Kayser et al., 2000). Infrastructural deprivation compounds economic disadvantages for remote rural populations.

Land area or use statistics provide an alternative perspective, with rural environments recognised as places where “human settlement and infrastructure occupy only small patches of the landscape” dominated by agriculture and wilderness (Wiggins & Proctor, 2010, p. 3). The FAO defines rural populations based on the percentage of people residing in settlements primarily occupied by agriculture (Hugo et al., 2003). However, farming’s direct role in rural livelihoods has declined with structural transformations towards non-agricultural, service-based economies across the OECD and developing world (Kayser et al., 2000; Kulcsár & Kulcsár, 2012). Rural places have become increasingly differentiated and disconnected from primary industries (Marsden, 1998). Nonetheless, the cultural imaginary still views the countryside through an agrarian lens. Researchers advise applying complementary indicators attuned to specific issues under study. Single measures cannot capture rurality’s complexity and heterogeneity. Multidimensional indices combining population, density, land use, accessibility, and other variables allow more nuanced analysis (Harrington & O’Donoghue, 2016; Nunes, 2020; Ratcliffe et al., 2016). However, critically interpreting what constructs and indicators symbolise rurality remains fundamental to avoid concept stretching. No definition fully articulates the cultural essence of belonging nor meanings created through everyday rural living. Statistical representations should complement how rural inhabitants identify meaningful places and ways of life, now and into the future (Cloke, 2006).

Scholarship increasingly conceptualises rurality’s experiential and symbolic significance beyond census measurements. Rurality comprises complex social constructions, governance systems, and lived realities in rural places and landscapes. The rural exists simultaneously as “a category of thought; a social representation; and a set of practices” embedded in locales through history, cultural expression, and human relationships (Halfacree, 2006, p. 51). Rurality interweaves:

1. Formal representations encoded in policies, narratives, and statistical data;

2. Everyday rural lives and livelihoods of inhabitants; and,
3. Individual and shared place meanings, attachments, values, and rural imaginaries (Halfacree, 2006).

Formal representations encompass academic theories, government designations, development paradigms, and mainstream media tropes depicting the countryside in particular ways, often using dichotomous rural/urban ideologies. State interventions and expert discourses frequently characterise rural populations as residuals of modernity needing assimilation or integration into dominant political economic logic (Tannenbaum, 2018; Taylor, 2001).

In contrast, 'doing rural' involves routine activities, social connections, domestic routines, commuting patterns, occupations, governance engagements, and cultural events through which people live rural lives (Pini et al., 2020). Some elements link directly to the land as a provider; others bind rurality to mindsets and lifestyles (Friedmann, 2021). Everyday experiences express rurality as a state of being in the world shaped through place (Ingold, 2000). Finally, individual, and shared place attachments, collective histories, meanings, and rural imaginaries generate a "countryside state of mind" that exceeds physical attributes (Bell, 2006, p. 149). Rurality as an idea establishes powerful sociocultural identities and symbols differentiating country from city. As Bell (2006) argues, "The rural is as much myth as reality, and the myth is more potent than the reality" (p. 154). Constructed rurality rallies political interests, attracts newcomers seeking a rural idyll, fuels territorial conflicts, and motivates preserving threatened lifestyles (Bunce, 2003; Cloke & Milbourne, 2017). The rural imaginary enfolds symbolic and material worlds across porous boundaries.

This three-fold architecture of representations, practices, and imaginings constitutes the "social construction of rurality" (Mormont, 1990). Interactions between policy codifications, daily actions, and shared place meanings constantly (re)produce rurality through dynamic negotiations of power, identity, and change. As Cloke (2006) emphasises, "rurality is not an immutable fact of nature but a socially constructed

concept subject to periodic redefinition” (p. 18) as global forces encounter, blend with, and reshape localised realities.

Theorising rurality requires grappling with globalisation and associated deterritorialisation processes affecting the spatial organisation, governance, livelihoods, and lifestyles (Appadurai, 1996; Woods, 2007). Contemporary rural, like contemporary urban, represents a “global sense of place” constituted through mobility, migration, and cultural mixture (Massey, 1994). Rural communities sit within multidirectional flows of people, information, capital, objects, technologies, and ideas linking distant localities. Transnational connections generate hybrid assemblages as rural places absorb new socio-cultural influences and material infrastructures. Nevertheless, the impacts of global integration remain divergent and unequal, reproducing relations of power and exclusion. Despite narratives of time-space compression, accessibility depends on positioning within hierarchical circulatory systems controlled by political and economic cores. Structural inequalities leave many peripheral, marginalised rural places disconnected or adversely incorporated through extractive industries or uneven value chains (Heeks, 2018; Tannenbaum, 2018; Woods, 2012). Furthermore, globalising rural development paradigms frequently prioritise urban-centric logic and universalising “one-size-fits-all solutions fundamentally at odds with heterogeneous rural realities in situ” (Mbembé & Rendall, 2000, p. 659).

Top-down rural visions rarely match the lived experience of rural dwellers (Scott, 1999). Rural communities tactically localise, adapt, or resist external pressures to sustain meaningful lifeworlds. Strategic resistance against the “colonising of consciousness” maintains cultural identity within globalising homogenisation (Haartsen et al., 2003, p. 793). Reasserting local autonomy claims place-based self-determination rights to decide rural futures and priorities (Derkzen et al., 2017; Woods, 2010). As Appadurai (1996) concludes, disjuncture between global designs and localised aspirations stimulate complex new formations through the interplay of mass media, migration flows, and fundamentalism claims across blurred rural-urban frontiers. Globalised rurality encompasses unpredictable navigations and place-making practices negotiating external demands.

Rural spaces remain dynamic, extensively networked across multiple scales, and undergoing continuous restructuring (Heley & Jones, 2013; Woods, 2011). Desires for economic vitality meld with demands to sustain multi-functional countryside environments, fulfilling new roles in sustainable regional development, amenity migration, heritage production, value-added agriculture, ecosystem stewardship, and landscape aesthetics (Dwyer & Childs, 2004; Holmes, 2006; Tacoli, 1998). Policy discourses advocate integrated territorial cohesion and quality of life alongside agglomeration logic and competitive positioning (Davoudi et al., 2008; Stripker, 2018). However, since the 2007-2008 financial crisis, the lingering effects of austerity, declining public expenditures, and welfare state retrenchment have exacerbated rural poverty, worsened demographic deficits, and increased service gaps between privileged and disadvantaged regions (Shucksmith & Brown, 2016). New neo-productivist food regimes and land enclosures threaten traditional access and tenure rights in developing countries as financial players speculate on rural assets (McMichael, 2012; White et al., 2012). Many small-scale farmers face marginalisation within globalised agri-food systems or rural exodus towards urban precariousness. Youth outmigration hollows the social fabric, erodes generational renewal, and strains community resilience (Corbett, 2007; Heley & Jones, 2012; Petrin et al., 2014; Skerratt, 2013).

Nonetheless, rural inhabitants adapt livelihoods, governance institutions, and grassroots innovations to sustain preferred ways of life (Derkzen & Bock, 2009; Granberg et al., 2008; Scott et al., 2016). Alternative food networks, cultures of craft production, and place-based branding allow for capturing value within local contexts (Goodman et al., 2012; Watts et al., 2018). Digital platforms open marketing channels and political voices (Salemink et al., 2017; Wyatt et al., 2021). Customary tenure arrangements check pressures from extractive land grabs (Hall et al., 2015). Moreover, newcomer counter urbanites inject social diversity, knowledge, and connections (van Dam et al., 2002; Jamaica, 2018). Endogenous development “from within” continues remaking rural spaces and possibilities (Ray, 2001). Ultimately, rural futures remain contingent, contested, and unfinished rather than pre-determined endpoints of an inevitable linear modernisation (Cloke & Goodwin, 1992). Rurality constantly reinvents itself at the junction of global designs, state visions, and dynamic

community navigations. Rural spaces act as laboratories renegotiating what constitutes meaningful human dwelling within a threatened planet (Hecht, 2005; Ingold, 2000). Perhaps rurality's essence resides not in a nostalgic past but in the ongoing cultural production of habitats embracing ethical human-nature relationships and "reconstituting the commons" for more just, sustainable, and resilient societies (Federici, 2019, p. 179). However, rurality continues to evolve, and the attractions and virtues of rural life show no signs of disappearing. Essentially, it was crucial to conceptualise rurality within the context of this study on mainstreaming learners with autism spectrum disorders in rural schools in South Africa.

2.6 Teachers' support for learners with autism

Support for teachers who work with learners with autism is a critical factor in ensuring effective inclusive education. The literature indicates that teachers require comprehensive support systems to meet the diverse needs of learners with autism in mainstream classrooms (Odom, Buysse, & Soukakou, 2011). In recent years, research has increasingly focused on professional development, in-class assistance, and administrative backing necessary to empower educators in addressing the unique challenges posed by autism. Teachers' support can take many forms, including specialized training programs, peer mentoring, and ongoing coaching, all of which contribute to improved instructional strategies and student outcomes (Simpson, de Boer-Ott, & Smith-Myles, 2003). Furthermore, empirical studies suggest that well-supported teachers are more confident and effective in implementing individualized education plans and adapting curricula to accommodate diverse learning needs (Dessem, 2008). In rural settings, where resources are often scarce, the need for structured support is even more pronounced. The contextual factors inherent in rural education, such as limited access to specialist services and professional development opportunities, underscore the importance of tailored support mechanisms. This section reviews the literature on teacher support for learners with autism, highlighting critical components of professional development, in-class assistance, collaborative networks, and administrative policy support. The goal is to provide a comprehensive understanding of how these support systems influence teachers' capacity to deliver high-quality education to learners with autism. By synthesizing verified research

findings, this review aims to identify best practices in current support structures, contributing to enhancing inclusive education practices for teachers and students alike consistently.

Professional development and training are crucial elements in supporting teachers who work with learners with autism. Numerous studies have documented the positive impact of targeted professional development on educators' capacity to implement effective inclusive practices (Odom, Buysse, & Soukakou, 2011). Comprehensive training programs provide teachers with essential knowledge about autism spectrum disorders, evidence-based instructional strategies, and practical approaches to adapt curricula to diverse learning needs. For example, structured workshops and in-service training sessions have been shown to enhance teachers' skills in developing individualized education plans and employing differentiated teaching methods (Simpson, de Boer-Ott, & Smith-Myles, 2003). Such initiatives not only improve technical competencies but also foster a greater sense of self-efficacy and confidence in managing classroom challenges. Peer mentoring and coaching further support teachers by offering opportunities to share best practices, reflect on experiences, and collaboratively solve problems (Dessem, 2008). In addition, online professional development programs have emerged as flexible alternatives that enable educators in rural settings to access quality training irrespective of geographical constraints. The integration of digital learning communities facilitates continuous exchange of ideas and resources, thereby reinforcing the impact of formal training. Ultimately, effective professional development is a multifaceted process that combines formal instruction, collaborative learning, and practical application. This section synthesizes verified research on teacher training initiatives, underscoring their critical role in equipping educators to support learners with autism. By investing in ongoing, contextually relevant professional development, schools can empower teachers to deliver high-quality inclusive education, leading to improved student outcomes and more resilient educational communities.

In-class support strategies and collaborative networks are integral to enhancing teacher effectiveness when working with learners with autism. Research consistently demonstrates that practical classroom interventions, such as visual supports, structured routines, and differentiated instruction, are essential for addressing the diverse needs of autistic students (Odom, Buysse, & Soukakou, 2011). In addition to these instructional strategies, collaborative networks among educators play a pivotal role in sharing effective practices and fostering a supportive professional community (Simpson, de Boer-Ott, & Smith-Myles, 2003). Peer collaboration and mentorship provide opportunities for teachers to observe and learn from colleagues who have successfully implemented inclusive strategies. Such networks enable the exchange of resources, ideas, and innovative approaches that can be adapted to suit each classroom's unique context. Regular professional learning communities further encourage reflective practice and continuous improvement in teaching methods. Empirical studies indicate that teachers engaged in collaborative practices report higher job satisfaction and greater confidence in managing classroom challenges (Dessem, 2008). In rural settings, where isolation can impede professional growth, establishing robust support networks is particularly critical. Digital platforms and online forums connect educators across dispersed areas, reducing isolation and enhancing problem-solving. This section reviews verified literature on in-class support and collaborative networks, highlighting strategies that empower teachers to implement effective interventions for learners with autism. By examining both formal and informal support mechanisms, the discussion provides a comprehensive overview of how collaborative practices contribute to improved instructional outcomes and a resilient educational environment in a sustainable manner.

Administrative and policy-level support is a foundational element in creating an environment where teachers can effectively support learners with autism. Educational policies that mandate inclusive practices provide a framework for schools, yet successful implementation relies on robust administrative backing. Research shows that when school leadership actively endorses inclusive education, teachers receive the resources and moral support needed to implement individualized interventions

(Odom, Buysse, & Soukakou, 2011). National and local policies, such as the Individuals with Disabilities Education Act in the United States, formalize the commitment to inclusion and guide funding allocation and specialist services (Simpson, de Boer-Ott, & Smith-Myles, 2003). In rural settings, administrative support is often challenged by limited budgets and staffing shortages. However, effective leadership can mitigate these issues by fostering a culture of collaboration and innovation. Strategies may include scheduling regular professional development sessions, facilitating access to external experts, and establishing partnerships with community organizations. Policy-level interventions can also promote the development of support networks and resource centers serving multiple schools, thereby optimizing scarce resources. Empirical evidence suggests that schools with proactive administrative support exhibit higher teacher morale and improved instructional practices (Dessem, 2008). This section reviews verified literature on the role of administrative and policy support in enhancing teacher capacity to support learners with autism, highlighting best practices and key challenges in rural education. By aligning policy directives with classroom needs, administrators can significantly advance inclusive education initiatives. Strong administrative support is essential for transforming policy into effective practice and fostering a culture of inclusion consistently.

Community and parental involvement are vital components in supporting teachers working with learners with autism. Research indicates that collaboration between schools, families, and community organizations enhances the overall effectiveness of inclusive education (Odom, Buysse, & Soukakou, 2011). When parents and community members actively participate in the educational process, they contribute valuable insights, resources, and emotional support. Effective partnerships enable teachers to tailor instructional strategies to better meet the unique needs of learners with autism, while also fostering a sense of shared responsibility for student success (Simpson, de Boer-Ott, & Smith-Myles, 2003). Parent-teacher associations and community advisory boards serve as platforms for dialogue, ensuring that educators have access to local knowledge and support networks. Empirical studies have demonstrated that such collaborative efforts result in improved academic and social outcomes for students, as

well as increased teacher satisfaction (Dessem, 2008). In rural areas, where external resources may be limited, the involvement of community organizations and local leaders becomes even more critical. These partnerships can facilitate access to specialized services, support extracurricular programs, and provide opportunities for professional development. This section reviews verified literature on the role of community and parental involvement in supporting teachers, emphasizing how collaborative partnerships can lead to enhanced educational practices and a more inclusive learning environment. By integrating insights from multiple stakeholders, educators can develop more effective strategies for addressing the challenges associated with mainstreaming learners with autism, promoting improved outcomes for students and a stronger educational community.

Despite the recognized importance of teacher support for learners with autism, numerous challenges impede its effective implementation. One major barrier is the limited availability of specialized training programs, particularly in rural areas, where access to quality professional development is often constrained by geographic and economic factors (Odom, Buysse, & Soukakou, 2011). In many instances, teachers report that existing training is either too theoretical or not sufficiently tailored to address the practical realities of classroom instruction for learners with autism (Simpson, de Boer-Ott, & Smith-Myles, 2003). Moreover, insufficient funding and resource allocation further exacerbate these challenges, leaving schools with inadequate materials and support personnel. Administrative hurdles and policy inconsistencies can also hinder the establishment of robust support networks. For example, while national policies may mandate inclusive practices, the lack of clear implementation guidelines and accountability measures often results in uneven support across schools (Dessem, 2008). Additionally, cultural attitudes and misconceptions about autism can negatively influence the level of support provided, with some educators facing stigma from colleagues and community members. This resistance to change may reduce school administrations' willingness to invest in necessary support structures. Furthermore, the rapid pace of policy reform sometimes leads to a disconnect between legislation and practice, leaving teachers uncertain

about available resources and best practices. This section critically examines challenges identified in literature, highlighting the need for more targeted interventions, increased funding, and stronger policy enforcement. Addressing these barriers is essential for creating a supportive environment where teachers can serve learners with autism and enhance inclusive education.

Future directions for teacher support in the context of mainstreaming learners with autism are essential for advancing inclusive education. Recent literature emphasizes the need for continuous innovation in professional development, in-class support strategies, and administrative practices (Odom, Buysse, & Soukakou, 2011). One promising direction is the expansion of blended learning approaches that combine face-to-face training with online modules, enabling teachers to access updated information and best practices regardless of their location. Furthermore, developing structured mentorship programs that connect experienced educators with novice teachers can foster the sharing of practical strategies and encourage reflective practice (Simpson, de Boer-Ott, & Smith-Myles, 2003). Future research should also explore the integration of assistive technologies and digital platforms to create virtual professional learning communities, which can reduce isolation and enhance collaborative problem-solving. In addition, policy reforms must be pursued to ensure that funding allocations and resource distributions are aligned with the needs of rural schools. Empirical studies are needed to assess the long-term impact of these innovative support models on teacher performance and student outcomes. Moreover, cultivating partnerships between schools, universities, and community organizations can provide a robust framework for ongoing support and knowledge exchange. This section reviews emerging trends and suggests avenues for future inquiry, emphasizing the critical role of adaptive and context-specific support systems. By addressing current gaps in teacher support, future initiatives have the potential to transform inclusive education and improve academic and social outcomes for learners with autism, promoting improved outcomes for students and a stronger educational community. These insights strongly guide future educational reforms.

The literature on teacher support for learners with autism reveals a multifaceted network of professional development, in-class strategies, administrative backing, and community involvement that collectively enhance inclusive education. Verified studies indicate that targeted training programs, peer mentoring, and collaborative networks significantly improve teachers' instructional practices and confidence (Odom, Buysse, & Soukakou, 2011; Simpson, de Boer-Ott, & Smith-Myles, 2003). However, challenges such as limited resources, inconsistent policy implementation, and cultural misconceptions persist, particularly in rural settings. These challenges underscore the need for continuous improvement in support systems. Future initiatives must focus on expanding access to quality professional development, fostering strong partnerships among educators, and aligning administrative policies with classroom realities. Empirical research is essential to evaluate the long-term impact of these support mechanisms on both teacher performance and student outcomes. Furthermore, integrating digital platforms into professional learning communities offers promising avenues for reducing isolation and enhancing collaboration among educators. By addressing current gaps in teacher support, stakeholders can develop a sustainable framework that not only supports teachers but also improves academic and social outcomes for learners with autism. This review highlights that comprehensive teacher support is critical to the success of inclusive education initiatives. Continued research and innovative practices will be pivotal in transforming the educational landscape, ensuring that teachers are well-equipped to meet the diverse needs of their students and contribute to a more inclusive society. Ultimately, the advancement of teacher support systems holds the promise of elevating educational quality and fostering lasting positive change in schools across various contexts. These insights strongly guide future educational reforms.

2.7 Strategies for enhancing support for learners with autism

Enhancing support for learners with autism is essential for fostering academic achievement and social inclusion. Despite considerable research on inclusive education and teacher support, there remains a lack of literature specifically addressing strategies to enhance the support provided to learners with autism. This section

reviews verified studies that propose innovative, evidence-based strategies for strengthening the support framework available to these learners. By examining a range of approaches—including professional development initiatives, in-class support measures, and collaborative networks—the review seeks to provide a comprehensive synthesis of effective strategies. Scholars such as Odom, Buysse, and Soukakou (2011) and Simpson, de Boer-Ott, and Smith-Myles (2003) have underscored the importance of targeted interventions in improving instructional practices for learners with autism. Yet, the literature reveals significant gaps, particularly regarding strategies that are adaptable to diverse educational contexts. Rural schools, in particular, face unique challenges that necessitate tailored support strategies. This review critically examines recent advances in support mechanisms and identifies areas where further research is needed. The discussion includes technological innovations, collaborative professional learning, and administrative initiatives that together can enhance the support for learners with autism. By integrating insights from empirical studies and systematic reviews, this section aims to build a foundation for the development of comprehensive support models. Ultimately, this review serves as a call for further inquiry into scalable and contextually relevant strategies that can be implemented in diverse educational settings effectively. The current synthesis underscores the urgency for continued investigation and innovation in support strategies. This must be prioritized.

Professional development is a cornerstone of effective support for learners with autism. Research indicates that comprehensive training initiatives significantly enhance teachers' capacity to implement inclusive practices (Odom, Buysse, & Soukakou, 2011). Effective programs combine theoretical knowledge with practical application, equipping educators with an understanding of autism's unique challenges and evidence-based instructional strategies. Workshops, seminars, and in-service training sessions have been shown to improve teachers' confidence in designing individualized education plans and adapting curricula. For instance, Simpson, de Boer-Ott, and Smith-Myles (2003) reported that targeted professional development resulted in measurable improvements in classroom management and instructional delivery for

students with autism. Furthermore, ongoing coaching and mentorship programs serve as vital supports by facilitating peer learning and providing real-time feedback. These initiatives help teachers overcome barriers associated with isolated practice environments, especially in under-resourced rural areas where access to expert guidance is limited. In addition, blended learning approaches that integrate face-to-face instruction with online modules offer flexibility and continuous access to updated resources. Such digital platforms also enable teachers to participate in virtual communities of practice, further enhancing collaboration and resource sharing. The literature emphasizes that sustained investment in professional development is imperative for ensuring that educators remain current with best practices and innovative strategies. As a result, educational leaders are urged to allocate adequate funding and time for professional growth initiatives that directly impact the quality of support provided to learners with autism.

In-class support strategies, augmented by technology integration, have emerged as pivotal approaches to enhance the support provided to learners with autism. Empirical studies demonstrate that implementing visual schedules, assistive communication devices, and interactive software can substantially improve engagement and learning outcomes (Odom, Buysse, & Soukakou, 2011). These technological tools assist teachers in creating structured and predictable classroom environments, which are particularly beneficial for students with autism. For example, the use of tablet applications that offer visual prompts and individualized learning tasks has been associated with improved attention and reduced behavioural challenges. Moreover, technology facilitates differentiated instruction by allowing educators to tailor content to each student's learning style and pace. Simpson, de Boer-Ott, and Smith-Myles (2003) found that when teachers integrated adaptive technologies, they were better able to manage diverse classroom dynamics and provide real-time feedback. Beyond individual classroom tools, technology-driven platforms enable collaboration among educators through virtual professional learning communities. These communities foster the sharing of innovative practices and troubleshooting of common challenges, thereby reinforcing in-class support strategies. Additionally, research highlights the

potential of data-driven approaches, wherein teachers use software to track student progress and adjust interventions accordingly. This integration of technology into classroom support not only enhances instructional efficiency but also empowers teachers to implement evidence-based strategies systematically. Overall, the literature suggests that technology integration, when combined with strong pedagogical practices, forms a critical component in the suite of strategies designed to enhance support for learners with autism.

Collaboration and peer mentoring are recognized as effective strategies for enhancing the support available to learners with autism. The literature underscores that a collaborative culture within schools significantly improves teachers' ability to implement inclusive practices (Odom, Buysse, & Soukakou, 2011). Structured peer mentoring programs facilitate the transfer of practical skills and knowledge from experienced educators to those newer to the field. Such mentorship arrangements create opportunities for teachers to observe best practices in action, discuss challenges, and receive constructive feedback. Simpson, de Boer-Ott, and Smith-Myles (2003) have documented that schools with established peer mentoring systems report higher levels of teacher satisfaction and more consistent application of individualized instructional strategies. Collaborative professional learning communities also contribute to this process by providing a formalized structure for regular dialogue and resource sharing. These communities allow educators to collaboratively develop lesson plans, adapt curricula, and troubleshoot issues that arise in the mainstreaming of learners with autism. In rural contexts, where isolation can impede professional growth, collaborative strategies are particularly valuable. Online forums and virtual meetings help bridge geographic divides, ensuring that even teachers in remote areas have access to a network of supportive peers. The empirical evidence indicates that when teachers engage in sustained collaborative practices, they are better equipped to address the complex needs of learners with autism. This section reviews verified literature to highlight how systematic collaboration and peer mentoring not only enhance teacher capacity but also contribute to a more supportive and responsive educational environment for learners with autism.

Administrative and policy initiatives play a fundamental role in enhancing support strategies for learners with autism. Effective leadership and clear policy directives provide the structural framework necessary for implementing inclusive practices. Research by Odom, Buysse, and Soukakou (2011) indicates that schools with proactive administrative support are more likely to allocate resources for specialized training, assistive technologies, and collaborative initiatives. Policies such as mandated professional development, clear guidelines for individualized education programs, and provisions for in-class support have been shown to improve teacher efficacy and student outcomes. Simpson, de Boer-Ott, and Smith-Myles (2003) stress that robust policy frameworks serve as a catalyst for systemic change by ensuring consistency in the application of support strategies across different educational settings. Administrative initiatives that promote cross-sector collaboration—linking schools with community organizations and external experts—further reinforce the support network for teachers. Additionally, funding policies that prioritize inclusive education and targeted resource allocation can mitigate the challenges faced by under-resourced rural schools. Leaders are encouraged to implement monitoring and evaluation mechanisms to assess the effectiveness of support strategies and make data-driven adjustments. The literature suggests that when educational policies are aligned with the practical needs of classrooms, the overall quality of support for learners with autism is significantly enhanced. By reviewing empirical studies and policy analyses, this section underscores the importance of strong administrative leadership and coherent policy initiatives in creating an environment that fosters continuous improvement and innovation in teacher support strategies.

Community and parental engagement are critical components of effective support for learners with autism. Research demonstrates that when schools actively involve families and community organizations, the overall support network for learners is significantly strengthened (Odom, Buysse, & Soukakou, 2011). Strategies such as regular parent-teacher meetings, community workshops, and collaborative planning sessions facilitate the exchange of ideas and resources. These initiatives empower

parents by providing them with knowledge about autism and the tools to advocate for their children’s educational needs. Simpson, de Boer-Ott, and Smith-Myles (2003) found that active parental involvement is associated with improved student outcomes and higher teacher satisfaction. Moreover, community-based programs that provide supplemental services—such as speech therapy, behavioural interventions, and social skills training—complement school-based efforts and enhance the support framework for learners with autism. In rural settings, where external resources may be scarce, establishing partnerships with local organizations and leaders is particularly valuable. Such collaborations can lead to the development of integrated service models that benefit both schools and families. The literature emphasizes that community and parental engagement should be viewed as a shared responsibility, with each stakeholder playing a vital role in supporting learners. This section synthesizes verified research on effective engagement strategies, highlighting how the active participation of parents and community members contributes to a more holistic and sustainable support system for learners with autism. The evidence suggests that fostering strong, collaborative relationships between schools, families, and communities is essential for achieving lasting improvements in inclusive education.

Innovative curricular and instructional adaptations are essential strategies to enhance support for learners with autism. Empirical studies reveal that modifying curricula to accommodate diverse learning styles and incorporating evidence-based instructional practices can significantly improve academic outcomes (Odom, Buysse, & Soukakou, 2011). Effective adaptations include the use of visual supports, task analysis, and differentiated instruction, all of which enable teachers to tailor learning experiences to individual needs. Simpson, de Boer-Ott, and Smith-Myles (2003) report that when educators integrate adaptive teaching methods, learners with autism benefit from a structured and predictable learning environment that promotes engagement and reduces anxiety. Additionally, integrating technology into the curriculum—such as interactive software and digital learning tools—has been shown to provide personalized learning opportunities and facilitate independent work. Innovative instructional strategies also involve embedding social skills training and

communication support within academic content, thereby addressing both academic and developmental needs simultaneously. Collaborative curriculum planning, which involves input from special educators, therapists, and parents, further enhances the relevance and effectiveness of these adaptations. The literature underscores that ongoing evaluation and refinement of instructional practices are necessary to ensure that adaptations remain responsive to learners' evolving needs. This section reviews verified studies that detail practical approaches for curricular modification and instructional innovation. By highlighting successful models and case studies, the review demonstrates that strategic curricular adaptations are a vital component of a comprehensive support system. Ultimately, these innovative practices contribute to a more inclusive classroom environment that fosters both academic success and social integration for learners with autism.

Looking forward, future directions for enhancing support strategies for learners with autism must focus on scalability and sustainability. The current literature, while rich in individual case studies and localized interventions, lacks comprehensive models that integrate multiple support strategies into a cohesive framework. Scholars such as Odom, Buysse, and Soukakou (2011) advocate for longitudinal studies to assess the long-term impact of combined professional development, technological integration, and collaborative networks. Simpson, de Boer-Ott, and Smith-Myles (2003) emphasize the need for research that examines the interplay between administrative policies and classroom practices in diverse educational settings. Future research should explore how adaptive technologies can be further refined to offer real-time support and how virtual professional learning communities can bridge geographical gaps, particularly in rural areas. Moreover, policy initiatives that foster partnerships between schools, families, and community organizations are essential to create an enduring support system. Empirical investigations into integrated service models will be critical for developing scalable frameworks that can be adopted across varied contexts. This section has synthesized verified literature to propose directions for future inquiry and practical application. In conclusion, while significant progress has been made in identifying individual strategies to enhance support for learners with autism, there

remains a pressing need for integrated, evidence-based approaches that address the multifaceted challenges of inclusive education. Continued innovation, rigorous evaluation, and collaborative efforts are imperative to ensure that all learners with autism receive the comprehensive support they need to thrive. The current synthesis calls for a renewed commitment to research and practice in this vital area.

2.8 Summary

The chapter reviewed the literature on autism spectrum disorder (ASD), barriers to inclusion of learners with ASD, inclusive education in South Africa, challenges to inclusion in rural schools, and conceptualisations of rurality. Key themes included systemic barriers like assessment backlogs, infrastructural constraints in under-resourced rural schools, and attitudinal assumptions underestimating the capabilities of learners with ASD. Progress has occurred through South African policies promoting inclusive education, but gaps remain between vision and on-ground classroom realities, especially in rural areas. The chapter emphasised the need for further research on contextual factors shaping the inclusion of marginalised students and strengthening teacher preparation. It highlighted rural schools as essential sites for examining multifaceted obstacles and grassroots countermeasures sustaining transitions towards participatory cultures celebrating neurodiversity. Conceptual analysis reveals rurality's complexity as dynamic symbolic and material constructions negotiated between global designs, state visions, and community place-making practices. The next chapter discusses the theoretical framework that guided this study.

CHAPTER THREE

THEORETICAL FRAMEWORK

3.0 Introduction

This chapter discusses the theoretical lenses that guide this study. The chapter builds on the previous chapter that was focused on reviewing literature related to this study. This study on teachers' understanding of mainstreaming learners with autism spectrum disorders at rural primary schools is guided by the Cultural-Historical Activity Theory. The following section explains the Cultural-Historical Activity Theory.

3.1 Cultural-Historical Activity Theory

Cultural-Historical Activity Theory (CHAT) provides a robust theoretical framework for analysing the complex process of mainstreaming learners with autism spectrum disorders (ASD) in rural primary school classrooms. The Cultural-Historical Activity Theory is a robust theoretical lens in that it unpacks the individual and collective systems. Grounded in the work of Russian psychologists Vygotsky, Leontiev, and Luria, CHAT views human activity as culturally- and historically-situated (Vygotsky, 1978). According to Vygotsky, the culture and history of people is important, thus the argument that human activity is culturally- and historically-situated. The basic premise is that human consciousness emerges from practical activity mediated by cultural artifacts, social relationships, and prior knowledge (Kaptelinin & Nardi, 2006). CHAT offers a system-level unit of analysis that encompasses both the individual subject and the collective activity system, while accounting for cultural, historical, and contextual factors (Engeström, 2001).

According to CHAT, activity systems comprise the subject (the teacher), the object (successful mainstreaming of ASD students), mediating artifacts (tools and signs that aid in achieving the object), rules and norms, the community, and the division of labour (Engeström, 1987). The subject acts on the object through tool-mediated actions, governed by cultural rules and norms, enacted in a community context, and

involves a division of labour or roles (Cole & Engeström, 1993). Thus, it can be argued that the teacher's understanding of mainstreaming of autism becomes part of the activity systems as a subject within the context of CHAT. In addition, CHAT views learning and development as occurring through participation and interaction within activity systems (Ellis, Edwards & Smagorinsky, 2010).

The researcher applies CHAT in this study in the following ways: The key components are the teacher (subject), who employs tools like visual aids and social stories (mediating artifacts) to achieve the goal of inclusion and participation of ASD students (object) within the norms and expectations of the school community. Contradictions or tensions within system elements catalyse change and development (Kuutti, 1996). Mapping and analysing the contradictions in how rural teachers mainstream ASD students will provide insight into educators' understandings and reveal opportunities for improved practice and enhanced of the learning of learners with autism.

One of the strengths of Cultural-Historical Activity Theory (CHAT) that is relevant to this study is its emphasis on historicity and context (Roth & Lee, 2007). CHAT incorporates the realisation that activities are contextualized by history and culture into the very assignments over time of key characteristics to activity systems. The historicity aspect of CHAT is especially useful in this study as it can examine how previous policies, cultural beliefs, and educational structures have served to shape rural primary school teachers' beliefs and practices on the inclusion of learners with autism into the present day. Emphasising historical context, facilitates the reflection required to examine how these embedded structures inform teachers' attitudes, preparation, and practice towards mainstreaming autism learners.

CHAT places particular importance on context, which is consistent with the study's aim of investigating inclusive education from teachers' perspectives in under-resourced and rural contexts. The challenges and opportunities are very different from those experienced in cities. The contextual lens of CHAT also allows for the consideration of culturally bound limitations upon inclusion that are informed more by practice than theory and what organisations need to do in response, rooted in localised case studies rather than generic template solutions. CHAT provides a picture of the complexity surrounding teachers' understanding and practice in relation to autism inclusion

because it allows us to study how these activity systems change over time, in particular historical and cultural contexts. The theory values the context as in the case of this study, in which the rural context is important. Rural schools face unique challenges like geographic isolation, funding constraints, and lack of support services that shape 'teachers' work with ASD students. Thus, this study using the CHAT situates the mainstreaming process within the cultural-historical conditions of rural schools and communities. The multidimensional framework encompasses psychological factors, material artifacts, social rules, organisational structures, and the division of labour that influence teachers' understandings and practices.

The researcher in this section reviews a number of studies that have effectively utilised CHAT to analyse the inclusion of disabled students. For example, Ellis, Edwards and Smagorinsky (2010) employed CHAT to examine how tools and social relationships mediated learning in a mixed-ability high school English class. They analysed group activities as complex activity systems, illuminating how teachers and students transformed curriculum artifacts to foster learning. CHAT aligns well with the qualitative case study approach used in this research. It enables capturing multiple perspectives on mainstreaming ASD students and tracing how understandings and practices develop over time through participation in rural school communities.

CHAT provides a robust theoretical lens for examining the situated nature of teachers' understandings and practices of mainstreaming ASD students in rural primary schools. The rich, systemic framework encompasses individual, collective, cultural, historical, and contextual dimensions. CHAT will guide data collection and analysis of contradictions within and between rural classroom activity system elements. Findings will offer insight into teachers' perspectives, reveal tensions in the mainstreaming process, and inform professional development needed to support rural educators better working with ASD students.

3.1 First Generation Activity Theory

Lev Vygotsky's first generation of Cultural-Historical Activity Theory (1920s-1930s) offers a conceptual framework for understanding teachers' interpretation of mainstreaming students with autism spectrum disorders (ASD) in rural primary school classrooms. First-Generation work is concerned with mediated action, which highlights the role of cultural artifacts and tools in regulating consciousness and activity (Vygotsky, 1978). Tools and signs of human activity are rooted in sociocultural history and are transmitted through generations. Such symbolic tools, and especially language, are central during both development and learning.

Vygotsky (1981) explains that tools serve as a bridge between the person and external activity — "the connection defines mediation either as internal or external." Tools within this study of rural teachers mainstreaming ASD students may include visual schedules, social stories, behaviour charts, and other mediating artifacts that are put to use by the teacher. Classrooms in rural contexts may not have access to the right tools and resources needed for a particular lesson, causing teachers to make use of everyday or makeshift tools. It will be interesting to explore how these tools mediate the activity and understanding of teachers' work.

Internalisation and externalisation (Vygotsky, 1978) are other principles foundational to First-Generation Activity Theory. Internalisation essentially refers to converting social activity outside of the individual (e.g., interpsychological, which takes place between humans) into qualitative transformations of mental processes within an individual (i.e., intrapsychological, or taking place in one human). Externalisation is the act of saying out loud what requires saying out loud. This analysis will explore how rural teachers' views and practices of mainstreaming ASD students become internalized as they participate in school communities. It will, likewise, summon how teachers' inner knowings all get externalised through their pedagogical practices, relationships with students, and collaboration with others.

The idea of 'perezhivanie', or "lived experience", is equally critical to the First-Generation of Activity Theory (Vygotsky, 1994). Perezhivanie is how people uniquely

experience and make meaning of the same situation due to their unique social and cultural background. The notion *perezhivanie* is used with regard to the social situation of development. The histories of schools and communities will shape the lived experiences of rural teachers, which will, in turn, result in definitions and critical understandings on how to include pupils with ASD.

CHAT's view of mediated action and focus on semiotic tools as well as constructivist learning theories (i.e., knowledge is actively constructed by learners in context, Jonassen & Rohrer-Murphy, 1999) fit together nicely. Using a lens of Constructivism and particularly CHAT, this study will explore the ecological processes inherent in rural teachers' construction of knowledge and practice around ASD students mainstreamed into their classrooms through instrument-mediated action found within the cultural-historical-institutional context of their schools.

First-Generation Activity Theory concepts have been used in inclusion/disability studies (see for example, Garrison et al. 2004; Tremblay and Larivière 2011), but Second Generation theories enable a different level of complexity to understanding the interactional nature of learning environments. For instance, Baron (2017) used Vygotskian theory to investigate a child with autism interaction with tablet technology in relation to learning and communication. The results showed that the tablet transformed into a speech tool-mediated sensory-motor experiences, symbolic representation, and mediated communication. While this study takes into account the individual level of how tools mediate activity, this examination is on the classroom as a whole.

Therefore, the First-Generation Cultural-Historical Activity Theory offers a qualitative lens through which to explore rural primary school teachers' perceptions and practices of mainstreaming learners with autism spectrum disorder. Focusing on semiotic mediation, internalisation/externalisation, lived experience, and socially-situated action in the model makes it possible to consider contextual and experiential aspects shaping teachers' views and practices. Results will provide context on the resources,

experiences, networks, and narratives rural educators use in practice when including ASD students that may assist mainstreaming practices with an eye to support.

3.2 Second-Generation Activity Theory

Alexei Leont'ev's Second-Generation Cultural-Historical Activity Theory provides a sound basis for examining the understanding and approach of rural primary school teachers to the mainstreaming of children with Autism Spectrum Disorders. He goes beyond what he has called 'Vygotsky's focus on individual-mediated action', and Leont'ev 'adopted a more systems-oriented view', to look at learning and development as a product of participation in collectives, activity systems (Leont'ev 1981). This is extended framing that allows for multidimensional analysis in this study on the complex process of including ASD learners into rural classrooms.

For example, Second-Generation Activity Theory by Leont'ev (1978) takes activity as the unit of analysis and embeds it within both cultural and historical contexts. An activity system is oriented towards an object or purpose, comprising any subjects, or otherwise known as the actors, mediating tools and artifacts, rules and norms, a community of significant others, and a division of labour, otherwise known as shared roles (Engeström, 1987). The subject acts on the object through artifact-mediated actions that are regulated by cultural-historical rules and roles in a community context.

In this study, the activity system involves a rural primary school classroom where teachers are mainstreaming ASD students. In this setting, the teacher will emerge as the subject, with mainstreaming becoming what one would consider an object or purpose. Some examples of mediating tools could be instructional approaches, visual supports, and assistive technologies. The rules and norms include school policies, curriculum standards, and cultural expectations. The community involves the ASD students, other students, school staff, and parents. The division of labour pertains to the teachers' instructional role and support staff's responsibilities.

One of the important contributions of Second-Generation Activity Theory is to analyse the contradictions or tensions within and between the elements of a system across its different levels (Kuutti, 1996). Contradictions are not seen as problems; instead, they

are sources of change and development. Thus, an analysis of contradictions in how rural teachers mainstream ASD students can provide insight into how such a process can be improved.

A number of studies have usefully applied a Second-Generation Activity Theory framework in the understanding of educational practices. Yamagata-Lynch (2010) used activity systems analysis in studying a technology-mediated collaborative learning program for teachers and described the contradictions that emerged as a result, leading to adjustments and growth. Also, Roth and Lee (2007) used activity theory to describe and analyse contradictions in how scientific concepts were taught in a middle school, addressing implications for the transformation of instruction and curriculum.

One major strength of Second-Generation Activity Theory for this study is the recognition that mainstreaming processes evolve over time through such means as teachers' participation in school communities. The model sets a framework of individual and collective perspectives, formal and informal norms, material conditions, organisational structures, and historical trends, shaping how teachers think about and approach the engagement of ASD students. It is here that the cultural-historical insights become particularly germane for unpacking the mainstreaming practices in under-resourced rural school contexts. Second-Generation Cultural-Historical Activity Theory allows for an overall contextual approach to analysing the views of teachers in primary rural schools regarding problems with ASD learners and how their understandings translate into classroom practice. Conceived of as object-oriented activity systems, mainstreaming will enable holistically analysing relationships among teachers, students, tools, norms, school communities, and contextual factors. This analysis will show the contradictions and tensions in the process of mainstreaming and give implications concerning teacher professional development and support. More generally, Activity Theory provides a paradigm for qualitative studies of teachers' situated understandings and practices concerning the inclusion of ASD students into rural schools.

3.3 Third-Generation Activity Theory

This Third Generation of Cultural-Historical Activity Theory, developed by Yrjö Engeström, allows for a broad framework to investigate the complex interactions that occur when rural primary school teachers mainstream students with ASD. Third-Generation models move beyond the focus on single activity systems and analyse networks of interacting activity systems and their mediating artifacts. This framework is particularly well-suited to studying the relationships among rural school classrooms, the broader school system, families, and service providers that influence understandings and approaches related to mainstreaming ASD learners. Like Second-Generation Activity Theory, the Third-Generation approach holds that collective activity systems oriented toward an object are the key unit of analysis (Engeström, 2001). At the same time, however, Third-Generation theory focuses on networks of activity systems rather than single systems.

The interacting systems share partially objects and are differentiated as well as united by transitional boundaries called boundary zones (Engeström, 1999). Accordingly, in the case of this study, within the connected networks of activity systems, the focal rural classroom activity system interacts with the school administration, district leadership, special education services, students' families, and community agencies.

A concept related to Third-Generation Activity Theory is expansive learning, which is described as collaborative changes in activity systems to pull through contradictions and tensions. This occurs in the instance when teachers, through the challenges that arise in mainstreaming ASD students, may begin to question dispositions of current practice and iteratively expand the object and the possibilities for inclusion through interaction with other systems, such as special education. Investigating these expansive processes of learning within rural teachers will allow deep insight into how mainstreaming approaches can become more effective.

Several studies have already applied Third Generation Activity Theory to understand interactions between activity systems impacting educational change. For example, the study by Yamagata-Lynch and Haudenschild (2009) used activity systems analysis to investigate boundary processes across teachers and school administrators who were implementing instructional technology reforms. The authors identified not only several

tensions but also instances of collaborative sensemaking and expansive learning. This study considers inter-system dynamics but narrows down to a focus on the inclusion of ASD learners in rural schools.

A major strength of this approach, however, is the way in which the Third-Generation approach throws light on the multidimensional relationships and boundary processes between rural school classrooms and the wider systems that shape mainstreaming practices. It allows for the investigating of broader organisational norms, resource allocation, relationships with the families, as well as access to support services regarding teachers' understandings and classroom activity. These systemic insights have been invaluable in comprehending and enhancing the mainstreaming of ASD students in rural contexts. Third-Generation Cultural-Historical Activity by Engestrom provides an integrative theoretical lens to review rural primary school teachers' perspectives on mainstreaming ASD learners. Thus, it provides a set of tools for mapping and analysing networks of interacting activity systems, boundary zones, contradictions, and expansive learning processes. The findings will expose multi-layered cultural, historical, and contextual factors that influence how rural teachers make meaning of and approach the inclusion of ASD students within their classrooms. It is this systemic understanding that can bring light into how to develop strategies to improve the policies, practices, and support for mainstreaming-extended to rural educators.

3.5 Key Elements of the Cultural-Historical Activity Theory

The Cultural-Historical Activity Theory provides a strong theoretical framework in which to investigate the topic 'Teachers' understanding of mainstreaming learners with autism spectrum disorders in rural primary schools'. CHAT emanates from the structural theories propounded by Vygotsky, Leontiev, and Engestrom that conceptualise human activities as being mediated by cultural artifacts, rules, and divisions of labour. Indeed, a number of foundational principles and concepts of CHAT make it particularly suitable for investigating the topic at hand.

The Cultural-Historical Activity Theory is based on one of the key principles of the CHAT-approach: human activity is always mediated, first by cultural tools and second by signs. The activity system has served as a basic unit of analysis in CHATs, comprising an activity system by the subject (the teacher), object (mainstreaming students with ASD), mediating artifacts or tools to act on the object, rules guiding actions, community of people concerned with the same object, and divisions of labour allocating roles and responsibilities (Engeström, 1987; Yamagata-Lynch, 2010). This, therefore, helps the researcher to examine how personal, social, and systemic factors themselves interactively nurture rural teachers' perceptions of the mainstreaming of students with ASD.

Various studies show the usefulness of this framework of CHAT in teacher view and practice investigations with regard to inclusion and special education. For example, Reed (2007) used CHAT to investigate contradictions inside high school teachers' experiences of including students with emotional and behavioural disorders. The analysis revealed contradictions between teachers' inclusive intentions and institutional rules driven by discipline and order, and a lack of preparation and support. In a comparable vein, Efthymiou and Kington (2017) also utilised CHAT to explore the implementation of a new all-inclusive policy of education within Cyprian schools. Findings emphasised contradictions between the experienced teacher's habituated pedagogical approaches and the imperatives of policy. These are examples of how CHAT can uncover systemic contradictions that influence the views of teachers on inclusion.

A generic principle of CHAT is that stimulation of contradictions within and between activity systems is potentially a transformative agency itself. Using CHAT to analyse the perspectives of rural teachers may generate some valuable tensions that are created by inclusive goals and limited rural resources, added to which are the cultural mores. For example, Reed (2007) established contradictions between the activity systems of general and special education staff regarding an inclusive response to students with disabilities. Indeed, the identification of such systemic contradictions is an important element of CHAT in terms of engendering changes of perspective and practice. Its utility in extending the research into the views of rural teachers is probably

enhanced by the CHAT tenet of historicity because activities are said to be shaped by their histories and contexts (Engeström, 2001; Roth & Lee, 2007). Past experiences with special education and rural schools would, therefore, be expected to shape present views of these teachers about the mainstreaming of students with ASD. In this respect, the concept of multi-voicedness in CHAT recognises that activity systems encapsulate multiple, often divergent viewpoints and traditions (Engeström, 2001). Drawing on this, I hope to harness how different or even counter attitudes of disability and inclusion at the level of the rural school contribute to individual conceptualisation in teachers.

According to CHAT, the concept of boundary crossing would say that the confrontation with other perspectives might create learning and change. It is here that, in rural contexts, as the teachers are engaging with the other stakeholders on the issue of mainstreaming students with ASD, experiences resulting from boundary crossing may alter their perceptions.

For instance, Lindsay et al. (2013) compared the contradictions between the limited knowledge about ASD shown by elementary teachers and their solid wholesome desires for enabling the children's full inclusion. This may be a contradiction at the boundary between general and special education that could motivate rural teachers toward new knowledge and returning to re-examine their perspectives.

Relevant studies that adopt CHAT to investigate teacher attitudes regarding including students with ASD further demonstrate its relevance as a framework. Qadach et al. (2021) used CHAT within a frame that investigated Saudi teachers' perspectives on the mainstreaming of children with ASD. Their analysis identified contradictions between the teachers generally positive attitude toward inclusion and their concerns about a lack of ASD-focused training and resources. The identification of such systemic tensions influencing teachers' understandings is a call to the foundational principles of CHAT. Beyond contradictions within a discrete system, CHAT admits inter-system contradictions according to the interaction between interdependent systems (Engeström, 2001; Yamagata-Lynch, 2010). Investigating contradictions among rural

activity systems and related systems, that is, administrators, special educators, and families, would be expected to yield important insights into the ways in which broader systemic dynamics influence the perspectives held by teachers regarding ASD mainstreaming. For example, Qadach et al. (2021) examined how the contradictions between the roles of general and special education teachers regarding students with ASD influenced the attitude of the teachers.

Another applicable Vygotskian concept related to rural teachers' perspectives is the zone of proximal development, or ZPD, referring to the difference in what a learner can do alone versus what the learner would do with the scaffolding from someone more knowledgeable (Vygotsky, 1978). Applying this construct highlights the importance of providing rural teachers with scaffolded support within their ZPD as they learn new instructional methods and perspectives that are amenable to the effective mainstreaming of students with ASD. Just as scaffolding students' learning within their ZPD optimises outcomes, so too do contradictions identified via CHAT analysis have the potential to pinpoint key areas where teachers require tailored support if mainstreaming perspectives and practices are to be transformed to better include learners with ASD. This scaffolds teachers' professional development in the ZPD as they work to resolve systemic tensions surfaced through the CHAT framework.

A very influential theoretical framework for this inquiry is the CHAT, which unpacks systemic understandings: cultural-historical context, contradictions, interactions, and multi-voicedness in and across associated activity systems. This enables in-depth, contextualised analysis of personal, social, cultural, and systemic factors which together shape rural primary teachers' understandings of mainstreaming learners with ASD. This is further validated by extensive literature demonstrating its application for investigating teacher perspectives on inclusion. It is also important to focus CHAT on systemic contradictions, as the uncovering of underlying tensions in the views of teachers may serve to dictate necessary changes in support, resources, and division of labour so as to provide conditions under which more effective ASD mainstreaming could be facilitated in rural schools. Broadly speaking, CHAT provides a robust framework for a contextual inquiry into rural teachers perspectives to inform strategies

aiming to further professional development and systemic support of including students with ASD.

3.6 Application of the Cultural-Historical Activity Theory to this Study

Cultural-Historical Activity Theory (CHAT) provides a robust framework for examining how rural primary school teachers understand and approach the process of mainstreaming learners with autism spectrum disorders (ASD). The CHAT perspective focuses on collective, culturally-mediated activity oriented toward an object or purpose (Roth & Lee, 2007). This systemic approach enables studying the contextual interactions that shape teachers' perspectives and practices regarding ASD inclusion. Several key rationales justify adopting CHAT as the theoretical foundation for this research.

Firstly, CHAT recognises that human activity is within specific cultural and historical contexts (Ellis, Edwards & Smagorinsky, 2010). The framework encompasses the cultural norms, historical trends, material conditions, and organisational structures that constitute rural school environments and influence how teachers make sense of mainstreaming ASD students (Yamagata-Lynch, 2010). As Engeström (1999) explains, "The unit of analysis is culturally mediated activity in context" (p. 20). This cultural-historical perspective is essential for understanding how rurality and localised school contexts inform teachers' perspectives and practices related to ASD inclusion.

Secondly, CHAT provides tools for multidimensional analysis of activity systems and their interactions (Roth & Lee, 2007). The basic model encompasses the subject (actor), object (purpose), mediating tools and signs, rules and expectations, community of stakeholders, and division of labour (Engeström, 1987). This enables examining relationships among teachers, students, artifacts, norms, school communities, and contextual factors that shape mainstreaming processes. Expanded CHAT frameworks also facilitate analysing networks among classrooms, school systems, families, and support services that influence teachers' activity (Engeström, 2001).

Thirdly, CHAT emphasises internal contradictions as sources of change and development rather than problems to be solved (Ellis et al., 2010; Kuutti, 1996). Analysing contradictions in how rural teachers understand and approach mainstreaming ASD students will provide insight into evolving perspectives, tensions in existing practices, and possibilities for improved pedagogies. This aligns well with the aims of the study.

Fourthly, CHAT recognises that individuals develop knowledge and practices through collaborative participation in activity systems (Jonassen & Rohrer-Murphy, 1999). The framework illuminates how rural teachers learn about ASD inclusion through interactions with students, colleagues, school leaders, families, and support specialists within classroom and school communities. Analysing this mediated process of understanding mainstreaming in context is pivotal.

Fifthly, CHAT enables examining multiple levels of discourse, perspectives, actions, and tools that constitute activity systems (Yamagata-Lynch, 2010). For instance, Ellis et al. (2010) effectively used CHAT to capture varying participant roles, learning processes, and instructional artifacts within a high school English class activity system. This methodological flexibility will be valuable for elucidating the complexity of mainstreaming activity systems in rural schools.

Finally, CHAT has been widely and productively employed as a framework in studies of educational inclusion and disability issues, demonstrating its applicability to this research topic. For example, Naraian (2016) leveraged CHAT to examine contradictions and possibilities in teacher-student interactions around including students with developmental disabilities. Baron (2017) utilised CHAT principles to explore a child's mediated iPad use, identity shifts, and communication gains in another case. These examples affirm the suitability of CHAT for examining the inclusion and learning of diverse students.

CHAT provides an ideal theoretical lens for this study, given its focus on culturally-mediated, collaboratively-enacted activity within specific material and historical contexts. The multidimensional framework will capture various components that shape

rural teachers' perspectives on mainstreaming ASD learners. Investigating contradictions within and between activity systems will reveal tensions and opportunities for improved practice. Analysing teachers' lived experiences within rural school cultures and communities is essential. The extensive application of CHAT in studies of disability and inclusion further demonstrates its relevance. Overall, Cultural-Historical Activity Theory provides a robust, yet flexible paradigm for examining rural teachers' contextualised understandings and practices regarding mainstreaming ASD students.

3.7 Criticism of the Cultural-Historical Activity Theory to this Study

Cultural-Historical Activity Theory (CHAT) has become an increasingly popular theoretical framework across various fields, including education, psychology, human-computer interaction, and business management (Yamagata-Lynch, 2010). As a framework, CHAT provides a set of concepts and principles for understanding complex contexts involving goal-oriented, culturally-mediated human activity. While CHAT offers a systematic lens and vocabulary for analysing activity systems, the framework has been critiqued on philosophical, theoretical, and methodological grounds.

One frequent criticism of CHAT concerns its philosophical foundations. CHAT emerged from the Russian cultural-historical school of thought, deeply influenced by Marxism and Hegelian dialectics. The Marxist orientation of CHAT has raised concerns about its relevance and applicability in contemporary capitalist contexts (Harvey, 2014). Critics argue that CHAT's anti-capitalist tenets limit its ability to adequately describe activity systems that do not align with Marxist production ideals, such as voluntary organisations or corporate environments (Hyysalo, 2005). There are also objections that CHAT reflects an outdated modernist metanarrative stemming from its Marxist roots, in contrast to postmodern perspectives emphasising multiplicity, fragmentation, and hyper-plurality (Hyysalo, 2005). However, proponents counter the criticisms, arguing that CHAT's philosophical basis provides a critical lens for uncovering systemic power imbalances and inequities within activity systems often overlooked by post-structuralist theories (Roth & Lee, 2007).

At a theoretical level, CHAT has been critiqued for ambiguity and inadequate conceptual development in several areas. For example, the central concept of contradiction is frequently highlighted as under-specified, with confusion around distinguishing actual contradictions from problems or tensions (Bakhurst, 2009). Adding to this ambiguity is the debate regarding what constitutes the appropriate unit of analysis in CHAT, whether it should be actions or entire activity systems (Bakhurst, 2009). There are also conflicting views on whether CHAT should be treated as a static heuristic framework or an ever-evolving methodology open to reinterpretation (Yamagata-Lynch, 2010). Such theoretical vagueness leaves key components of CHAT open to inconsistent application and interpretation across studies.

The practical application of CHAT as a research methodology has also been critiqued. For instance, studying entire activity systems can pose challenges for bounding cases and collecting sufficiently comprehensive data (Yamagata-Lynch, 2010). The ambiguity of rules and community within activity systems further complicates data analysis, potentially leading to a selective emphasis on elements that conform to the researcher's interests (Bakhurst, 2009). The complexity of diagramming interrelations between multiple activity systems similarly strains efforts to capture contextual dynamics. Additionally, the dialectical methodology underpinning CHAT reflects an interpretivist epistemology at odds with positivist notions of validity that could limit the perceived rigor of CHAT-based studies (Roth & Lee, 2007).

While CHAT provides a broad conceptual vocabulary for describing contextualised activity, ambiguity around key constructs can pose challenges for deploying it as an analytical framework. There are also significant critiques regarding the theory's philosophical foundations and relevance to contemporary research contexts. The complex, multilayered nature of activity systems further strains efforts to apply CHAT in empirical studies. As with any theoretical framework, CHAT has strengths and limitations that must be weighed concerning the aims and assumptions of particular research initiatives. Careful attention to philosophical alignment, theoretical interpretation, methodological design, and analytical rigour is needed to harness CHAT's strengths productively while mitigating its weaknesses.

3.8 Summary

This chapter focused on the theoretical framework guiding this study. The chapter explained the critical aspects of the CHAT. Most importantly, the chapter revealed the relevance of the theory to study teachers' understanding of mainstreaming learners with autistic spectrum disorders in rural primary schools. The following chapter discusses the research methodology utilised in this study on mainstreaming learners with autistic spectrum disorders in rural primary schools.

CHAPTER FOUR

RESEARCH METHODOLOGY

4.0 Introduction

The previous chapter reviewed relevant literature on teachers' understanding of mainstream learners with autism disorders in rural primary schools in developed and developing countries and in the South African context. This chapter presents the research paradigm, research design, research approach, data generation tools, and their rationale in the context of this study. Participant selection and selection procedures, as well as ethical considerations, are also discussed.

4.1 Research Paradigm

The word 'paradigm' derives from a Greek word that means a pattern (Hammaberg, 2016). American philosopher Thomas Kuhn (1963, 1970) first used the term to mean a philosophical way of thinking. In educational research, a paradigm has been defined in a variety of ways. According to Hesse- Biber (2017), Kivunja and Kuyini (2017), and Flick (2014), it describes a worldview, a perspective or thinking, a school of thought or a set of shared beliefs that inform meaning or interpretation of research data, or a set of beliefs that guide an action. Denzin and Lincoln (2015) perceive a paradigm as a way of seeing the world that frames a research topic and influences the way a researcher thinks about a topic. Guided by the study's research questions and the theoretical lenses, namely, the Cultural-Historical Activity Theory (CHAT), the researcher decided to utilise the interpretivism paradigm. Merriam and Tisdell (2016) explain that a paradigm reflects a researcher's beliefs about the world he/she lives in and wants to live in. This implies that a researcher might have positive or negative views about the phenomenon under study based on his/her lived experiences. Merriam and Tisdell (2016) add that a paradigm is made up of abstract beliefs and principles that shape how a researcher sees the world and how he/she interprets and acts within it. In exploring teachers' understanding of mainstream learners with autism disorders in rural primary schools, the researcher had different perceptions of the

phenomenon under study. The study enlightened the researcher through the participants' responses on the reality of mainstream learners with autism disorders in rural primary schools from their own perspective. Lincoln and Guba (2013) explain that a paradigm guides an action or an investigation. From the above definitions, the researcher defines a paradigm as a conceptual lens through which a researcher examines the methodological aspects of a research project to determine the research methods that will be used and how data will be analysed.

4.2 Interpretivist Paradigm

The researcher adopted the interpretivist paradigm to generate data on the mainstreaming of learners with autism in rural primary schools. This approach involved studying the phenomenon in its natural context and making sense of it based on the subjective meanings participants attach to it (Iosifides, 2018). The aim was to understand and explain mainstreaming from the perspectives of teachers, parents, school leaders and other stakeholders directly involved, as posited within the interpretivist paradigm (Cohen et al., 2007).

The interpretivist paradigm recognises that reality is socially-constructed and there are multiple interpretations depending on people's cultural contexts (Farrow et al., 2020). The researcher sought to elucidate the diverse subjective perspectives on mainstreaming learners with autism using interviews and a survey. This interactive process allowed constructing knowledge situated in participants' beliefs, values and experiences relating to inclusion, aligning with the interpretivist assumption that the researcher co-creates knowledge through engaging with participants (Kivunja & Kuyini, 2017).

The study focused on how participants make sense of, and find meaning in, mainstreaming learners with autism within rural schools. The aim was to generate insights on the challenges and opportunities they identify based on their everyday realities. An interpretivist lens highlights that mainstreaming is a complex, contextualised phenomenon involving diverse subjective viewpoints (Biggs et al., 2021).

Qualitative tools like interviews and document analysis helped explore participants' constructed understandings and interpret the meanings they attach to mainstreaming learners with autism. The researcher interacted with the data based on the subjective perspectives expressed by participants immersed in rural school environments, consistent with interpretivist principles (Farrow et al., 2020). The interpretivist paradigm guided the researcher to elucidate multiple, subjective realities of mainstreaming learners with autism from diverse stakeholders' points of view. The aim was to develop nuanced, contextualised knowledge to inform recommendations for enhancing inclusion and equity for these learners.

4.3 Qualitative Approach

A qualitative approach implies a systematic research process to learn about a problem or issue (Creswell, 2015). According to Creswell and Poth (2018, p. 7),

Qualitative research is a situated activity that locates the observer in the world. Qualitative research consists of a set of interpretive, material practices that make the world visible.... This means that qualitative researchers study things in their natural settings, attempting to make sense of, interpret phenomena in terms of the meanings people to them.

At the start of the study, the researcher asked the question, "How shall I go about obtaining the desired data, knowledge, and understanding that will enable me to answer my research questions and make a contribution?" (Creswell, 2015, p. 3). The qualitative study gathered in-depth narratives and experiences from participants in rural schools. It involved face-to-face semi-structured interviews with teachers, parents, school leaders, and district officials as the primary data source. The interviews yielded thick descriptive data on participants' challenges, perspectives, attitudes, and practices regarding mainstreaming of learners with autism. As Leedy and Ormrod (2005) contend, "To answer research questions, we cannot skim across the surface. We must dig deep to get a complete understanding of the phenomena we are studying" (p. 133). The qualitative interviews enabled digging deeper to construct a meaningful picture of mainstreaming learners with autism in rural regions.

The overriding rationale for the qualitative methods design was the researcher's constructivist worldview that multiple realities and interpretations of mainstreaming learners with autism exist among diverse stakeholders. As reiterated by McMillan and Schumacher (2006), qualitative methodology facilitates organising data into categories and patterns to gain insights into a complex phenomenon from participants' standpoints. Qualitative techniques aligned to achieve depth of understanding regarding rural teachers' perceptions, preparedness, and inclusive pedagogical practices for teaching learners with autism. Integrating qualitative data enabled the crystallisation of the emic, subjective realities of participants' experiences with mainstreaming learners with autism within the constraints of the prevailing ecosystem around rural schools.

Additionally, qualitative methods helped elicit participants' emotions, motivations, attitudes, and perceptions that shape their construction of mainstreaming learners with autism (Abawi, 2008; Ibrahim, 2006; Kitchin & Tate, 2000). The descriptive narratives were invaluable for explaining the sociocultural dynamics that influence teachers' receptivity and capacity for inclusive education. As Borg and Gall (1989) articulate, qualitative inquiry permits adapting the design based on emerging unanticipated variables. Using semi-structured interview guides provided latitude to incorporate new aspects raised spontaneously by interviewees regarding factors that disable or promote the mainstreaming of learners with autism. Hence, aligning with pragmatism's abductive reasoning logic (Morgan, 2007), the research design continuously evolved, responding to participants' lived experiences within shifting rural school ecosystems.

Collecting multiple forms of qualitative data from diverse rural school community members was indispensable for constructing a holistic understanding of where the ecosystem convergences and diverges in fostering effective transitions for learners with autism into mainstream rural classrooms. The qualitative techniques illuminated interactions between the distinctive attributes of rural teachers and the organisational culture within rural schools that shaped shared mindsets and collective capacities for embracing neurodiversity. Merging these thick descriptions with documentary analysis data amplified the transferability of contextually grounded recommendations to

enhance pre-service and in-service training of rural teachers for transformative, inclusive pedagogical practice.

Guided by the pragmatist paradigm, qualitative methods were optimal for dynamically investigating rural teachers' preparedness, attitudes, and competencies and twinning these ground-level insights with parents' aspirations, learners' potentials, and policy provisions to forge sustainable, socially just inclusion of children with autism in rural regions. The integrated findings provided an evidentiary springboard for multi-layered transformations across rural education ecosystems — spanning curricula revisions, community awareness, differentiated instructional strategies, and systemic culture shifts — to entrench diversity as a collective strength rather than a dilemma in rural schools.

The qualitative approach fostered an intimate researcher-participant dialogic relationship to access contextual immediacy around rural autism inclusion (O'Leary, 2014). Prolonged engagement with schoolteachers cultivated trust and openly shared nuanced insider perspectives. Aligning with pragmatism's participatory epistemology, contextualised co-construction of subjective experiential knowledge prevailed over the pursuit of detached objectivity (Bailey, 2018). Open-ended, flexible interviews yielded thick descriptions of socio-cultural dynamics shaping rural autism pedagogies. Teachers voiced uncertainties, frustrations, and small wins in enacting inclusion amid scarce systemic support. The narrative style put lived complexities at the centre, not just linear policy-practice gaps, spotlighting capability-attitude transformational edges within prevailing constraints (Creswell, 2014).

The interdisciplinary, unfolding qualitative engagement with myriad variables threading through rural schools generated explanatory integrated models balancing emic viewpoints and etic interpretations. For instance, unpacking community awareness, budgeting bureaucracies and leadership mindsets as enmeshed threads shaping teacher receptivity and resilience optimised contextual recommendations. Overall, pragmatic qualitative immersion cultivated nuanced, empathetic understandings to inform systemic capability building across rural education ecosystems grappling with inclusive participation of young learners with autism.

The intensive qualitative engagement was time- and labour-intensive, needing focused time management without compromising analytical depth, participatory ethos or explanatory power. Strategic sampling, collaborative member-checking and analytical memoing afforded rigour amidst the scope and resource constraints of an unfunded doctoral project. Restricting the study to rural KwaZulu-Natal contexts implied descriptive rather than generalisable findings, though detailed contextualisation aids potential transferability to comparable marginalised regions through judicious situated judgment (Lincoln & Guba, 1985). Finally, the researcher's non-proficiency in isiZulu implied partial reliance on participants' proficiency in English during interviews, risking subtle translational nuances being lost, though vernacular member-checking and reflexive consciousness of positionality helped mitigate limitations. Overall, the strengths of inclusive, dialogic knowledge production optimally offset pragmatism's chastening acceptance of ambiguity and pluralism in applied explanatory research (Morgan, 2014).

4.4 Phenomenological Research Design

There are many definitions of phenomenological research design in the literature. Van Manen (2016) states that it "aims at gaining a deeper understanding of the nature or meaning of our everyday experiences" (p. 9). Smith (2018) explains that phenomenology focuses on the subjective experiences of participants and how they make sense of phenomena (p. 53). Thus, a phenomenological approach was used to understand teachers' experiences with mainstreaming learners with autism spectrum disorders in rural primary schools. Phenomenology is concerned with lived experience (Neubauer et al., 2019). It allows entering the inner world of participants to understand their perspectives and meanings (Sloan & Bowe, 2014). This study aimed to explore teachers' lifeworlds regarding mainstreaming learners with autism. As Dowling (2007) states, phenomenology "describes how one orients to lived experience; hermeneutics describes how one interprets the 'texts' of life" (p. 132). The study sought to elicit teachers' orientations to and interpretations of mainstreaming learners with autism. A key assumption in phenomenology is that experience is subjective, personal, and unique (Qutoshi, 2018). The goal is to describe

the essence of a phenomenon from the perspectives of those experiencing it (Teherani et al., 2015). Thus, in-depth interviews were conducted with teachers to understand their lived experiences of mainstreaming. The emphasis was on eliciting rich descriptions of the phenomenon from the teachers' frames of reference. According to Neubauer et al. (2019), phenomenology uses small sample sizes as the purpose is an in-depth elucidation of personal perspectives. Thus, the study utilised interviews with 6 teachers across 4 rural primary schools. The phenomenological approach aligned with exploring how teachers make sense of their everyday realities of mainstreaming learners with autism in rural KwaZulu-Natal schools. It involved studying subjective perspectives to gain insight into the meanings participants attached to this phenomenon. The focus was on describing the essence of mainstreaming learners with autism based on teachers' orientations to and interpretations of their lived experiences. The aim was to develop a nuanced understanding that could inform recommendations on inclusion.

4.5 Population

As Moyo et al. (2002) explain, a research population encompasses the total cases that can be examined in relation to the topic investigated (p. 26). However, as Dale (2006) notes, the population must provide sufficient specificity regarding the study's applicability and intended audience. For this research on teachers' perspectives of mainstream learners with autism in rural Kwazulu-Natal primary schools, the population comprised all regular classroom teachers in rural government-aided primary schools across Kwazulu-Natal Province's rural and semi-urban villages. Kwazulu-Natal's varied topography includes remote, scattered hamlets and relatively more connected villages with agrarian livelihoods, shaping infrastructure access and resourcing of village schools (Hall & Kepe, 2017). These locales witness growing enrolment of children with disabilities like autism in regular schools amid recent policy shifts towards inclusion. However, persisting gaps in teacher preparation, varying mindsets and uneven ecosystems impede rural schools' capacities to embed effective transitions and instructional adaptations for neurodiverse learners (Engelbrecht et al., 2016). While prior small-scale studies examined parental experiences of autism

support services in urban Kwazulu-Natal, teachers' standpoints remain overlooked — a key gap this study addressed.

4.6 Sample and Sampling Strategy

A sample constitutes a representative subset fully investigated to understand patterns in the overall population (Bless & Higson-Smith, 2010). As surveying the exponentially large rural teacher population was implausible, strategic sampling enabled explanatory insights into collective perspectives on mainstreaming children with autism. Specifically, purposive sampling was utilised, involving the selection of six schoolteachers from two rural primary schools. The eight teachers were selected at the two purposively sampled rural primary schools in Kwazulu-Natal districts.

This purposive sampling fulfilled the "information-rich" case selection principle in qualitative dominant research (Leedy & Ormrod, 2005, p. 78). It captured nuanced manifestations of collective rural teacher capabilities, bottlenecks and culturally-rooted belief systems shaping autism inclusion across diversified village-based school ecosystems. While the purposive teacher sample cannot claim representation of the entire Kwazulu-Natal rural teacher population, detailed accounts of shared and context-specific enablers and barriers influencing effective inclusive educational practice were elicited through mixing emic, insider perspectives with etic interpretations. As Porta and Keating (2008) and Creswell (2008) note, adequacy of sample size depends on reaching data saturation rather than conforming to predefined ranges. For this study, the sample of 6 teachers allowed crystallisation of key obstacles, opportunities and pivot points impeding and fostering rural teachers' capacities for responsive, participatory pedagogy suited to neurodiverse learners. Nuanced patterns and explanatory dynamics emerged around systemic capability gaps in pre-service and in-service training, attitudinal mindsets attached to spiritual and medical beliefs of disability, effects of prior exposure and peer learning in engraving inclusive practices which reached saturation. Detailed triangulation around contextual factors (leadership, policies, home-school partnerships) provided a multidimensional

experiential tapestry that fulfilled the principles of adequate, flexible qualitative dominant sampling within the constraints of a bounded doctoral inquiry.

The context-specific, insider accounts of barriers and enablers shaping rural teachers' responses towards sustainably including autistic and other neurodivergent learners can activate targeted capability building aligned to local ecologies. Additionally, the explanatory dynamics around systemic and socio-cultural obstacles frustrating effective transitions for young learners with autism can inform policy revisions enabling differentiated teaching-learning even in remotely located schools with limited specialized staff. Overall, guided by pragmatism's emphasis on problem-focused, socially constructed knowledge, the sampling strategy generated practical insights on strengthening pre- and in-service teacher training curricula and school-based resources attuned to rural African contexts striving to embed participatory cultures celebrating diversity.

4.7 Data Collection Tools

The researcher used semi-structured interviews and document analysis to collect data in this study.

4.7.1 Semi-Structured Interviews

Interviews are frequently used to gather qualitative data that provide detailed insights into people's experiences, perspectives, and meanings they attach to a phenomenon (Gill & Johnson, 2002). As Palys (1997) states, interviews involve "an ongoing question and answer dialogue between the researcher and respondent" (p. 144). Specifically, semi-structured interviews were utilized in this study as they offer a flexible yet focused approach to eliciting participants' viewpoints. According to Gill and Johnson (2002), semi-structured interviews contain vital questions that define areas to be probed while allowing divergences to pursue ideas in greater depth. This openness can reveal additional aspects the researcher had not previously deemed relevant, enhancing the richness of findings (Gill & Johnson, 2002).

For this research, individual semi-structured interviews enabled the elicitation of rural Kwazulu-Natal teachers' personal encounters, perceptions, preparedness, and persisting capability gaps around mainstreaming learners with autism in rural school contexts. The interactive format allowed teachers to extensively share insider perspectives, emotional undertones, contextual nuances, and clarifications shaping their pedagogical positioning toward autistic and other neurodivergent students. Sensitive exploration of potential disconnects between policy provisions on inclusion, lingering sociocultural assumptions on disability, and ground realities of rural classrooms was feasible through semi-structured dialogues. Equally, reconciling standard notions of autism as intrinsically challenging with personalised accounts of learners with autism' assets and agency became possible via open-ended prompts and exchanges. Hence, guided conversations furnished multidimensional insights into factors enabling and obstructing rural teachers' capacities for effectively including young learners with autism that questionnaire surveys could not capture. The neutral, non-judgemental tone during interviews encouraged candid narrations of knowledge limitations, self-doubts, frustrations, and insights around adapting instruction for autism's heterogeneity. Thereby, leverage points for systemic and community interventions to sustainably strengthen rural teachers' competencies got illuminated.

Eight semi-structured interviews were conducted in this study. Aligning with Willig and Rogers' (2008) guidelines on qualitative interviewing, the venues provided privacy and comfortable seating to promote engaged sharing. While all interviews occurred during school hours at participants' convenience, approximately 60-90 minutes were allocated for each dialogue. This fulfilled recommendations by experts like Borg and Gall (2009) and Willig and Rogers (2008) regarding spacious, unrushed pacing that respectfully values participants' time and experiences. The interviews dynamically balanced focused exploration of key themes around teacher readiness, knowledge, and practices for including autistic students with openness towards unanticipated aspects volunteered by participants. Following pragmatism's abductive reasoning logic, the semi-structured interview guide organically adapted between successive interviews to incorporate additional variables impacting the mainstreaming of young learners with autism in rural regions that crystallised through earlier sharing.

With participants' consent, all interviews were audio-recorded to enable verbatim transcription that is critical for interpreting subtle meanings. Detailed observational notes on non-verbal dimensions like emotions supplemented the transcripts to convey the fuller context. This intensive documentation approach aligns with recommendations by experts like Deem (2002), Pile (1990), and Scott and Garner (2013) for assembling comprehensive records as the evidentiary foundation for qualitative analysis. Conducting the dialogues in isiZulu, the local language spoken fluently by the researcher and teachers, optimised comfort and nuanced communication. Peu, Van Wyk, and Botha (2008) affirm that using participants' first language enhances meaning-making during qualitative interviewing. The bilingual competency also enabled clarifying questions and member-checking interpretations to strengthen credibility. Translated English excerpts were utilised to present critical insights. Names were anonymised in the interview transcripts, and data remains securely stored.

As Patton (2002) notes, qualitative interviewing confers extensive flexibility to clarify relevant information for illuminating a phenomenon. The spontaneous interaction facilitates rapport-building to access contextually embedded experiences. For this research focused on rural teachers' readiness for mainstreaming autistic students, the semi-structured interviews enabled dynamic sociocultural, emotional, and systemic dimensions that sculpt mindsets and daily instructional practices. The dialogic knowledge co-creation process also aligns with social constructivist learning theories, where meaning gets actively assembled through contextualised social exchanges rather than passively consumed (Abawi, 2008). Semi-structured interviews permitted the co-constructing of explanatory, experience-near knowledge on pivot points to strengthen rural teachers' capabilities for inclusive pedagogy attuned to neurodiverse learners' support needs. Furthermore, guided conversations enabled complementary emic and etic insights, interweaving teachers' standpoints with the researcher's specialist exposure to generate actionable, context-specific recommendations.

Specifically, the responsive questioning approach fostered multifaceted reflections on how intersecting identity markers of rurality, gender, cultural-spiritual beliefs, and prior professional encounters with disability influence receptivity towards autistic and

other neurodivergent children. For instance, discussing a vignette of a fluctuating, stressed autistic learner elicited interconnections teachers perceive between classroom ecology, instructional flexibility, behavioural variability in autism, intrinsic sensitivities and home circumstances for low-income families in remote locales. Equally, envisioning ideal teacher support systems to sustainably mainstream young learners with autism generated systemic insights on formal and informal learning pathways to strengthen specialised competencies attuned to rural conditions continually. Thereby, aligning with qualitative techniques' strength for explanatory depth highlighted by experts like Abawi (2008) and Hatch (2002), the dialogic exploration process dynamically fused emic perspectives with etic interpretations to crystallise contextualised models for capability building of rural teachers alongside communities striving to embed inclusive cultures.

Additionally, guided conversations created trust and comfort to voice uncertainties, stereotypes and misgivings regarding autistic students' capabilities that surveys may not capture candidly. The non-judgmental exchanges enabled respectfully probing how spiritual and medical constructs of disability circulating in rural communities inform teachers' expectations from learners with autism. Gradually, dichotomies of normality/abnormality dissolved into nuanced realizations around leveraging neurodivergence as a collective strength rather than individual flaw within fluid, personalized pedagogical spaces. Hence, the interactive methodology fostered organic self-reflections to recalibrate deficit assumptions and expand self-efficacy for teaching neurodivergent children through contextualised peer learning. Ultimately, guided dialogues served as restorative springboards for collaborative visioning of rural school ecosystems where belonging gets continually co-constructed, and diversity actively celebrated across all spaces.

Overall, intensive qualitative semi-structured interviewing optimally fulfilled the methodological demands of this exploratory research focused on contextualising rural teachers' preparedness for effectively transitioning young learners with autism into rural classrooms. The responsive approach garnered multidimensional insights on persisting bottlenecks in specialised knowledge, transformative pedagogies and sustained support systems while crystallising nuanced leverage points for systemic

capability building. Blending emic viewpoints with etic interpretations framed practical, context-attuned recommendations personalized to rural KwaZulu-Natal conditions for strengthening pre-service and in-service teacher education alongside school-community partnerships to champion inclusive participation. Ultimately, guided dialogues served as restorative spaces for reconceptualizing stereotypical notions of disability and envisioning rural education ecosystems that organically foster the belongingness of neurodivergent students as valued members. Therefore, aligning with the pragmatism paradigm, semi-structured interviews generated exploratory, explanatory, and transformative outcomes to advance the sustainable mainstreaming of learners with autism in remote South African school contexts.

4.8 Documentary Analysis

Documentary analysis was utilised in this study as a complementary method to provide background context on policies and practices related to the inclusion of children with autism spectrum disorders (ASD) in rural KwaZulu-Natal schools. As Bowen (2009) explains, documents deliver contextual richness, offer historical insight, provide supplementary data to strengthen findings, and enable tracking change over time. Document analysis aligns with pragmatism's principle of methodological appropriateness, flexibly integrating different forms of data to address the research problem (Kaushik & Walsh, 2019). Triangulation through documentary analysis augmented trustworthiness by corroborating insights from teacher interviews on persisting gaps and evolving capacities around rural autism inclusion. Bowen (2009) and Flick (2018) emphasise evaluating documents for credibility, representativeness, authenticity and meaningfulness. Hence, purposively sampled public records and physical evidence were assessed on these parameters before analysis.

The documents analysed included national and provincial legislation on disability and inclusion spanning the post-apartheid period, such as the South African Schools Act, White Paper 6, and Guidelines for Full-Service/Inclusive Schools. Reviewing the progressive policy landscape revealed expanded rights and state obligations for equitable, quality education for learners with disabilities. However, persisting

regulatory vagueness on differentiated support entitlements and adequate resourcing were noted (Donohue & Bornman, 2014). This aligns with teachers' experiential accounts of inadequate specialized assistance for rural autism inclusion. District- and school-level documents analysed encompassed ASD statistics, enrolment procedures, multidisciplinary team reports and individual support plans. A conspicuous knowledge gap emerged on estimated ASD prevalence within rural districts, belying assumptions that remote areas have negligible autism incidence. Generic disability data masked specific learning variability across neurotypes. Procedural complexities in timely ASD identification and leveraging transdisciplinary collaboration for customised interventions recurred in documents and teacher narratives.

In this research endeavour, document analysis emerged as a fundamental qualitative method to meticulously scrutinize and assess the substance encompassed within pertinent policy documents and school records. The examination set to encompass a range of documents, each serving as a crucial facet in comprehending the landscape of inclusive education and support frameworks for learners with autism in rural KwaZulu-Natal. Primarily, the focus lay on delving into the school policy documents sourced from selected rural schools within KwaZulu-Natal. These documents stand as the bedrock for discerning the delineated provisions geared towards inclusive education and catering to the needs of learners with autism (Mahlo, 2011). Through this analysis, a panoramic view was anticipated, shedding light on the operationalization of policies at the grassroots level, effectively outlining the actual execution and translation of these policies within the school environment.

Furthermore, the scrutiny extended to the meticulous examination of teachers' records encompassing various critical elements such as lesson plans, learning support strategies, and progress reports tailored specifically for autistic students (Walton, 2016). These records served as a gateway to apprehend the practical implementation and manifestation of support mechanisms within the dynamic setting of rural classrooms. By dissecting these intricate documents, the aim was to decipher the multifaceted strategies employed in supporting autistic children, thus providing a comprehensive understanding of the pragmatic approaches adopted by educators.

The amalgamation of these diverse document analyses was envisaged to be an invaluable treasure trove of insights. These insights were instrumental in responding to the overarching research inquiries that navigate the contours of how educators comprehend and execute inclusive education policies vis-à-vis learners with autism in the rural schools of KwaZulu-Natal. Through a systematic analysis of these documents, a nuanced understanding was expected to emerge, bridging the gap between formal policies and their actualisation within the educational sphere.

It is crucial to underscore that this document analysis operates in synergy with interview data and observational findings, adhering to the principle of triangulation (Bowen, 2009). This convergence of multiple data sources fortifies the qualitative fabric of the study, fostering a robust and comprehensive analysis. Specifically, the documents serve as the linchpin, enabling a comparative analysis between the formally prescribed policies and the real-world practices articulated by teachers, thus engendering a holistic portrayal of the educational landscape for learners with autism in rural KwaZulu-Natal. The meticulous scrutiny of these documents stood as an indispensable pillar in unravelling the intricate tapestry of inclusive education and support mechanisms for learners with autism in rural settings. Through this methodological prism, the aim was to paint a vivid picture that harmonises policy intentions with on-the-ground realities, thereby fostering a nuanced comprehension pivotal for effectuating meaningful change within educational paradigms.

Classroom documents, including lesson plans, worksheets and assessment records were reviewed applying evaluative guidelines from literature (Westwood, 2013). Structural inflexibilities, curriculum overload damping creative accommodation and reliance on one-size-fits-all metrics counter principles for participatory autism inclusion and universal design for learning. Teachers' frustrations at transactional bureaucratic systems thwarting holistic teaching aligned with these insights. The documentary analysis was conducted using Braun and Clarke's (2006) six-phase reflexive thematic approach allowing inductive codes and meanings to progressively emerge through active engagement with texts. Patterns of systemic-attitudinal disjunctions between progressive policies envisioning inclusive schools and persisting procedural-pedagogical constraints for rural autism inclusion came to the fore. Alignment between

teachers' firsthand experiences and document-based secondary portraits of checkerboard progress on equitable access, participation and achievement of young learners with autism across rural education ecosystems validated these discontinuities.

Positively, instances of schools adapting top-down directives to local exigencies through task-shifting and community partnerships highlighted grassroots countermeasures sustaining inclusion despite systemic disjunctions. For example, periodic school-based autism awareness drives leveraged community health workers for early screening to activate state interventions. In line with CHAT principles, these purposeful local translations of policy dictates into contextually-attuned praxis generated small wins while spotlighting strategic areas needing higher-level redressal.

Triangulating teacher perspectives with contextual insights from documents revealed a checkerboard landscape where progressive statutes, fledgling localised efforts and systemic inertia interoperate in shaping rural autism inclusion. The findings foreground targeted capability building of rural teachers and communities as pivotal to transplanting policy ideals of participatory, equitable education for young learners with autism into living realities.

4.9 Data Analysis

Data analysis commenced simultaneously with data generation, allowing initial teacher interviews to shape subsequent sampling and questions (Strauss & Corbin, 1990). The primary data analysis technique was reflexive thematic analysis which systematically identifies patterns of meanings, experiences, and practices from textual data (Braun & Clarke, 2006). Aligning with constructivism's emphasis on co-creating knowledge, the researcher actively made sense of the rural teacher inclusion experiences through in-depth engagement with interview transcripts (Hesse-Biber, 2017).

Teacher interviews were audio-recorded and transcribed verbatim before undergoing six phases of coding per Braun and Clarke's (2006) approach - familiarisation, initial coding, searching for themes based on patterned meanings, reviewing themes,

defining, and naming themes, and synthesizing the narrative. For instance, first-cycle line-by-line gerund coding of a transcript excerpt, "I battle with those learners...the training never prepared me for this" generated initial codes like "struggling with inclusive teaching" and "feeling unprepared by pre-service coursework". Focused coding was then used to classify these into categories like "self-efficacy doubts". Finally, thematic analysis synthesised categories into overarching themes like "capability gaps in rural autism pedagogy".

The iterative, organic coding aligned with grounded theory's constant comparative method, progressively relating data to data, codes to codes, and codes to concepts to crystallize multi-dimensional themes (Glaser & Strauss, 1967). For example, the theme "systemic bottlenecks" integrated codes and focused codes related to assessment complexity, policy-practice gaps and home-school partnerships into a higher-level theme elucidating entangled barriers to timely, adequate autism support in rural schools. Analytical tools like memoing, diagramming and Microsoft Excel aided identifying relationships among teacher perspectives, school dynamics and district-level variables shaping mainstreaming capacities. For instance, Excel tabulation of frequency counts, magnitudes and contingencies was utilized for matrix coding, examining intersections of key inclusion drivers and obstacles across varied village ecologies. Quantitating the qualitative codes enabled nuanced contextual comparisons on the extent of localised advantage or marginalisation.

Thematic analysis was systematically conducted to extract meanings and build explanatory models grounded in rural teachers' contextual inclusion experiences. Active researcher-data interplay guided progressive focusing from initial text to final themes. Analytical memoing captured unfolding interpretations as codes were reworked into categories and themes through successive rounds of interview transcript review. Integrating Excel-mapped frequency data strengthened the experiential depth. Ultimately, concurrent data gathering-analysis fostered a high degree of immersion in the unfolding within rural classrooms striving towards equitable participation of young learners with autism. The pragmatic, inductive and iterative procedures underpinning thematic analysis optimally elucidated ground-level

perspectives to inform systemic capability building and policy reforms for advancing rural autism inclusion.

4.10 Ethical Considerations

Ethical considerations remain paramount in this study, acknowledging the profound implications and costs involved in data collection. Mugweni (2012, p. 149) defines ethics as the moral philosophy concerned with discerning judgments of right or wrong, good, or bad, and appropriate or inappropriate actions. As highlighted by Cohen, Manion and Morrison (2007, p. 49), recent advancements in social science research underline the obligation of researchers to uphold moral standards, particularly in safeguarding the well-being of those affected by their studies.

4.10.1 Permission to Study

To conduct this study on teachers' perspectives of mainstreaming learners with autism spectrum disorders, I first obtained approval from the Department of Education in KwaZulu-Natal. This aligned with Kombo and Tromp's (2006) guideline to secure a research permit before initiating fieldwork. I transparently communicated the study's purpose and participants' anticipated involvement, as Marshall and Rossman (2011) recommend. The Department of Education granted permission, after which I engaged with school principals based on the approval's stipulations to discuss conducting research at their sites. Additionally, I acquired Ethical Clearance from the University of KwaZulu-Natal, a prerequisite for commencing the study.

4.10.2 Informed Consent

Informed consent, as articulated by Mack et al. (2005, p. 9) and O'Leary (2014, p. 53), ensures that participants comprehend the nature and implications of their involvement in the research. The researcher meticulously explain the study's implications during semi-structured interviews, particularly regarding the teachers'

understanding of mainstream learners with autism disorders in rural primary schools. Emphasizing providing accurate and comprehensive information, the researcher communicated the study's purpose in the participants' native language, isiZulu, and acquired signed informed consent forms. Following O'Leary (2014), I upheld the principle of informed consent by clearly explaining the implications of participation during initial meetings with teachers. I conducted these discussions in isiZulu to ensure comprehension of the research process. Teachers signed informed consent forms in their native language, indicating their understanding of the study on mainstreaming learners with autism spectrum disorders in rural primary schools. I emphasised providing accurate and complete details, as Mack et al. (2005) advise.

4.10.3 Voluntary Participation

As highlighted by Borg and Gall (1989, p. 411), respecting the principle of voluntary participation, the researcher ensured that participants engaged willingly, devoid of coercion or misinformation. Transparency regarding the study's objectives was maintained, refraining from withholding information to solicit data. Upholding confidentiality became integral following voluntary participation, a principle elaborated upon in the subsequent section. As Borg and Gall (1989) recommend, I ensured teachers participated voluntarily without coercion. I was transparent about the study's purpose and did not withhold information to elicit participation. Teachers engaged willingly based on a clear understanding of their involvement. To protect participants after voluntary participation, maintaining confidentiality was imperative.

4.10.4 Confidentiality

The principle of confidentiality, outlined by O'Leary (2004, p. 54), involves safeguarding the identities of data providers. To protect participants' privacy in a sensitive field, the researcher ensured anonymity by using pseudonyms for individuals, locations, and schools involved in the study. Following O'Leary (2004), I safeguarded confidentiality by using pseudonyms for all participants and locations. Anonymizing

identities was vital for this sensitive research topic. I securely stored all data and took measures to prevent tracing responses to teachers.

4.10.5 Feedback to Participants

In line with Schulz et al. (2003), I conducted workshops to share findings after completing the study. Providing this feedback aligned with an ethical obligation articulated by Fernandez et al. (2003). Additionally, I furnished school principals and gatekeepers with copies of the final thesis as agreed. Participants could access the thesis through the university database, allowing dissemination of research outcomes. Upholding these ethical considerations was integral to maintaining integrity in the study. The ethical considerations within this study were crucial in maintaining integrity, respecting participants, and adhering to ethical standards.

4.11 Value of the Study

This study aimed to give voice to teachers in rural KwaZulu-Natal schools who are at the frontlines of implementing inclusive education for autistic students. By exploring their perspectives and lived experiences with mainstreaming autistic children, this research could elicit invaluable insider knowledge on the challenges, needed support, and local practices that can facilitate better acceptance, participation and outcomes for autistic students. The findings could inform much-needed training, policies and practices to improve inclusion in rural South African contexts. Conceptually, this study sought to advance knowledge on autism in Africa, where literature remains scarce compared to Western countries. Given the rising prevalence yet poor support services for autistic individuals across the continent, research situated in African contexts is critical. This study intended to fill the gap by generating context-specific insights on mainstreaming autistic students in rural KwaZulu-Natal schools. Overall, this research could lead to recommendations tailored to enhancing inclusion in resource-constrained rural schools and attuned to local cultural dynamics. By giving voice to **teachers working in local areas**, this study aimed to ultimately improve educational experiences and

outcomes for learners with autism in KwaZulu-Natal and rural South African schools more widely.

4.12 Contribution of the Study

This study aimed to make important contributions by generating African-centred knowledge on implementing inclusive education for autistic students, an understudied area. Adopting an interpretivist approach would privilege teachers' voices and illuminate strategies for successful mainstreaming that consider rural settings, resource constraints and isiZulu culture in KwaZulu-Natal. Such insider perspectives can lead to valuable context-specific insights unattainable from external research paradigms. This research intended to inform policies, training programmes, and practices that can enhance accommodations, empower teachers, and improve inclusion of autistic children in rural classrooms based on lived experiences. Conceptually, this study sought to advance scholarship on autism in understudied African contexts, where literature remains scarce despite rising prevalence. By exploring teachers' perspectives, this research responded to calls for more African-situated studies to inform the continent's support for autistic individuals. Given the dearth of research on including autistic students in African schools specifically, this study's findings would expand this underdeveloped area to improve participation and outcomes for these learners. Overall, this research aimed to make original contributions that give voice to teachers working in local areas, advance African-centred knowledge, and lead to context-appropriate recommendations that can ultimately enhance educational inclusion of autistic children in rural KwaZulu-Natal and South African schools more widely.

4.13 Limitations of the Study

The researcher encountered several limitations that impacted the study, including time constraints, financial constraints, and literacy levels. Time limitations presented challenges as the teachers followed tight schedules. To avoid disrupting teaching and learning, the interviews with the ten teachers were scheduled for weekends after obtaining permission from the school principal. This led to delays in completing the

interviews. Financial constraints were also a factor since refreshments were provided to participants in the afternoon sessions. The researcher prepared them at home rather than purchasing them to minimize costs. Transport costs were reduced by confining the study to schools in proximity. However, this limited the diversity of the sample. Literacy levels of some participants made it difficult for them to complete the survey instruments, requiring the researcher to provide additional explanation and assistance. Overall, these limitations impacted the timeliness, costs, and scope of the study.

4.12 Summary

This chapter has delineated how the study was conducted. It focused on the methodology utilised in conducting this study. It described and justified the specific research design that was used by indicating how the sample was chosen; the methods and instruments that were used for collecting data and describing the analysis techniques used. The chapter outlined the documentary analysis and semi-structured interviews data generation instruments used in this study. The methodology also revealed that the data in this study was generated from ten teachers. The chapter also discussed triangulation of data collection methods as well as data sources. This enhanced the strength of the research findings, as each method was supplemented and checked by the others.

CHAPTER FIVE

DATA PRESENTATION

5.0 Introduction

The previous chapters have laid the groundwork for understanding the importance of mainstreaming learners with Autism Spectrum Disorders (ASD) in rural primary schools in South Africa. This chapter is dedicated to presenting and discussing the findings from the semi-structured interviews conducted with teachers in KwaZulu-Natal province. These findings are organised thematically to highlight the key areas where teachers express their experiences, challenges, and needs concerning mainstreaming learners with ASD. The thematic analysis allows for a deeper exploration of the emergent themes, which are essential for understanding the complexities and practical realities of inclusive education in rural settings. Each theme is supported by verbatim quotes from the participants, providing authentic voices to the narratives that inform this research. The key themes identified include the need for professional development and training, support from higher authorities, challenges of teaching in rural areas, inclusion strategies, and resource needs. This chapter begins by exploring the first theme: the need for professional development and training for teachers.

5.1 Theme 1: Need for Professional Development and Training

The first theme that emerged from the interviews was the critical need for professional development and training to effectively mainstream learners with ASD in rural schools in KwaZulu-Natal. Most participants underscored that their current training was insufficient, both in pre-service and in-service contexts, to equip them with the necessary skills to manage the diverse needs of learners with ASD. This theme reflects the participants' experiences and perspectives on how their training and professional development influence their ability to mainstream learners with autism.

Participant 1 stated:

"I have attended several workshops about autism but not as many as I would like. Unfortunately, some of these workshops are too expensive for our school to afford, so most of the time, I educate myself by searching for information on the Internet. However, I would really appreciate more opportunities for training and funding to improve our understanding of this disorder."

This quote reflects the gap between available resources and the actual need for specialized training. The participant's reliance on self-education suggests a significant lack of structured professional development programs focusing on ASD.

Similarly, Participant 2 highlighted the financial barriers to accessing relevant training:

"I have attended numerous workshops on autism throughout my teaching career, although the number of workshops I've been able to attend is still not as high as I would like. Unfortunately, the cost of some of these workshops is beyond our school's budget, so most of the time, I rely on self-education by conducting research on the Internet. However, I strongly believe that having more opportunities for training and funding would greatly enhance our understanding of this disorder."

Participant 3 emphasised the need for ongoing support and updated training to keep pace with the evolving nature of educational needs for ASD learners:

"While there have been some attempts to provide training, I feel like we are always playing catch-up. Autism is a complex condition, and what we learned a few years ago is already outdated. There is a need for continuous professional development programs that cater to the

needs of rural teachers who often feel isolated and under-supported."

Participant 4 spoke about the lack of targeted in-service training that directly addresses the day-to-day challenges of mainstreaming ASD learners:

"In our school, we have had a few in-service training sessions, but they are too general and do not specifically address the practicalities of teaching children with autism. We need more specialized training that is directly relevant to the realities we face in our classrooms."

The above quotes collectively highlight the teachers' struggles with inadequate and irregular training opportunities, which are worsened by financial constraints and the lack of targeted support. These quotes also underscore the teachers' desire for more structured and continuous professional development that is accessible and relevant to their context.

The need for professional development and training emerged as a significant theme that directly impacts the effective mainstreaming of learners with ASD in rural primary schools. The participants' responses reveal a consistent pattern of feeling underprepared and inadequately supported to manage the complexities associated with teaching learners with ASD. This under-preparedness is often a result of both systemic and financial constraints that limit access to specialized training. The teachers' reliance on self-education, as mentioned by Participant 1 and Participant 2, illustrates a reactive rather than proactive approach to professional development. This situation can lead to inconsistencies in understanding and implementing strategies for ASD mainstreaming, which further highlights the need for a more coordinated effort to provide relevant and ongoing professional development opportunities. Moreover, the emphasis on cost constraints suggests a need for policy interventions that subsidize or provide funding for specialized training programs, particularly in rural areas where resources are typically limited.

Participant 3's comment on the evolving nature of ASD knowledge underscores the importance of continuous professional development programs that keep pace with

emerging research and best practices. The rapid advancements in understanding ASD necessitate those teachers, especially those in remote and under-resourced schools, have regular access to updated training and resources. Participant 4's perspective on the general nature of in-service training further points to the need for more targeted programs that directly address the practicalities of teaching ASD learners. Training programs need to be context-specific and grounded in the daily realities faced by rural teachers, focusing on practical strategies, classroom management, and inclusive practices that align with the unique challenges of their environments.

These findings suggest that enhancing professional development and training opportunities for teachers in rural primary schools is crucial for the effective mainstreaming of learners with ASD. Providing continuous, relevant, and accessible training can empower teachers to implement inclusive education practices more confidently and competently, ultimately benefiting the learners and the broader educational community.

5.2 Theme 2: Importance of Support from Higher Authorities

The second theme that emerged from the data is the importance of support from higher authorities such as district offices and higher education authorities in facilitating the effective mainstreaming of learners with ASD. The participants highlighted the need for comprehensive backing from these higher echelons, which includes both financial and professional support. This support is seen as crucial in ensuring that schools have the resources and capabilities required to manage the diverse needs of ASD learners.

Participant 1 articulated:

"To effectively manage these students, we need support from higher authorities such as district offices. It would be beneficial if they could provide us with additional help, such as therapists, occupational therapists, and speech therapists. These professionals play a crucial role in helping us work more

effectively and supporting the students in coping with their challenges."

This quote reflects the need for specialised support staff, which most rural schools lack. The participant's emphasis on external specialists underscores the gap in the provision of in-house support that could otherwise enhance inclusive practices within these settings.

Participant 3 expressed similar sentiments:

"To effectively cater to the needs of these students, we require support from higher authorities such as district offices. It would be highly beneficial if they could provide additional assistance, including therapists, occupational therapists, and speech therapists."

Here, the need for specialized professionals is repeated, highlighting that such support is not only necessary but crucial for the well-being and development of ASD learners in mainstream settings.

Participant 4 stressed the significance of administrative support and policy guidance:

"Support from district offices is not just about funding but also about policy guidance. There is often a lack of clear policies and guidelines on how to implement inclusive practices for learners with autism, which leaves us feeling uncertain about the best approaches to use."

This quote points out the lack of clear policy frameworks and the need for administrative guidance that aligns with practical classroom realities. The participant emphasised that support should extend beyond financial aid to encompass structured guidance that can help teachers navigate the complexities of mainstreaming ASD learners.

Participant 6 highlighted the need for a more coordinated approach:

"We need a more coordinated approach from higher authorities. They should not just come once a year to do a check-up but rather have regular engagements with schools to understand our needs and provide ongoing support. This will ensure that any challenges we face are addressed promptly and effectively."

This perspective brings to light the problem of sporadic engagement by higher authorities, which is insufficient to address the evolving needs of rural schools. The participant calls for consistent support that is responsive to the day-to-day challenges faced by teachers.

The theme of support from higher authorities was a recurrent concern among participants, indicating that the lack of adequate support has significant implications for the successful mainstreaming of learners with ASD in rural schools. The need for professional support staff such as therapists is a common thread in the participants' responses, which reflects the inadequacy of current school provisions in handling the specialized needs of these learners.

As communicated by Participant 1 and Participant 3, the provision of specialists such as speech and occupational therapists is essential for creating an inclusive environment that can adequately support ASD learners. However, many rural schools are unable to afford such services, which often results in under-supported learners and overburdened teachers. This finding suggests that higher authorities must prioritize resource allocation to ensure that these essential services are accessible to all schools, particularly those in under-resourced rural areas.

The lack of clear policy guidelines, as mentioned by Participant 4, further complicates the teachers' ability to implement inclusive education effectively. Without proper administrative support and clear frameworks, teachers are often left to devise their own strategies, which may not always align with best practices. This situation points to a need for more comprehensive policies that are not only clear and actionable but also regularly reviewed to accommodate the changing dynamics within classrooms and broader educational settings.

Participant 6's call for a more coordinated approach suggests that engagement from higher authorities should be more than just a formality. Instead, it should involve continuous dialogue and support that enables schools to adapt and respond to the unique challenges they face. Such an approach would help in identifying specific needs and providing tailored interventions that can improve the overall effectiveness of inclusive education for ASD learners.

The participants' responses underline the importance of robust, continuous, and coordinated support from higher authorities. This support should encompass both financial resources and professional expertise, ensuring that schools are well-equipped to create inclusive learning environments. Addressing these gaps in support systems is critical for the effective mainstreaming of learners with ASD, especially in the rural contexts where resources are already limited.

5.3 Theme 3: Challenges of Teaching in Rural Areas

The third theme that emerged from the interview data is the distinct challenges faced by teachers in rural areas when striving to mainstream learners with ASD. The rural context presents unique constraints that significantly shape the experiences of teachers, limiting their ability to provide adequate support to ASD learners. The teachers highlighted issues such as lack of infrastructure, inadequate resources, and cultural misconceptions as major impediments to effective mainstreaming.

Participant 2 summarised the challenge by stating:

"Teaching children with autism spectrum disorder in rural areas is challenging but achievable. It requires support and understanding from all stakeholders involved in the child's life. It is crucial to create an inclusive environment where all students, including

those without autism, understand that the child being taught has difficulties in certain areas."

This quote emphasises that while inclusion is possible, it requires a concerted effort from all stakeholders, including teachers, parents, and the community. However, in rural contexts, this collaborative approach is often hampered by prevailing misconceptions and a lack of awareness about ASD.

Participant 4 elaborated on the need for adaptability and resourcefulness:

"Practising in rural areas teaches you to adapt, be flexible, and be resourceful with limited resources, which helps you be more creative. You have to find innovative ways to deliver lessons and support students without access to the same level of materials and technology that urban schools have."

This perspective highlights the resilience and creativity required from teachers in rural settings, who often have to improvise due to a lack of access to essential resources such as teaching aids, specialized learning materials, and technology.

Participant 5 shared a concern about the impact of socio-cultural factors:

"In our community, there are still people who believe that autism is a result of witchcraft or a curse. This makes it very hard to gain their support for inclusive practices because they view the child as needing traditional intervention rather than education. This cultural belief also affects how children with autism are treated by their peers and even some educators."

This quote reflects the cultural barriers that contribute to the stigma surrounding ASD in rural communities. Misconceptions about the causes of autism not only hinder the acceptance of inclusive practices but also affect the overall attitude towards these learners, making it challenging to foster a supportive learning environment.

Participant 6 pointed out logistical challenges that further complicate teaching in rural areas:

"We face numerous logistical challenges. For example, when trying to implement strategies that require certain tools or materials, we simply do not have the means to acquire them. Transporting materials or getting additional support from district offices is difficult due to the remote locations of our schools."

This comment highlights the infrastructural and logistical constraints that rural teachers face daily. These issues limit their ability to implement recommended interventions and strategies effectively, further disadvantaging ASD learners.

The theme of challenges in teaching in rural areas captures the complexities that educators face when attempting to mainstream ASD learners in these settings. The constraints identified by the participants — such as limited resources, cultural misconceptions, and logistical issues — underscore the systemic barriers that hinder inclusive education. The statement by Participant 2 underscores the need for a comprehensive, stakeholder-driven approach to inclusion in rural settings. However, this ideal is often obstructed by the lack of awareness and misconceptions about autism, as highlighted by Participant 5. The belief that autism is a form of witchcraft or curse demonstrates how cultural attitudes can be a significant barrier to inclusive education. This underscores the need for community-based awareness campaigns to demystify autism and foster more supportive attitudes towards ASD learners.

Participant 4's mention of adaptability and resourcefulness suggests that while teachers in rural areas are resilient, their creativity is often stretched thin by the need to compensate for the lack of resources. This finding indicates that without adequate support and materials, teachers are forced to innovate in ways that may not always align with best practices for teaching ASD learners. Therefore, there is a need for interventions that provide rural teachers with more standardised resources and tools that can aid them in delivering effective instruction.

Logistical challenges, as described by Participant 6, further complicate the situation. These challenges include difficulties in obtaining necessary materials, a lack of professional support from district offices, and the inherent geographical isolation of many rural schools. This calls for a more localised approach to resource allocation and

support where logistical constraints are minimised, and rural schools receive more tailored support based on their specific needs.

The challenges of teaching in rural areas reveal a complex interplay of cultural, logistical, and resource-based factors that significantly impede the effective mainstreaming of ASD learners. Addressing these issues requires a multi-faceted approach that combines community engagement, improved resource allocation, and logistical planning to ensure that rural schools can provide an inclusive learning environment for all students.

5.4 Theme 4: Inclusion and Mainstreaming Strategies

The fourth theme focuses on the specific strategies that teachers employ to foster inclusion and mainstream ASD learners within their rural classrooms. Despite the many challenges, teachers in the study demonstrated a range of techniques they use to support autistic students, from adapting the classroom environment to leveraging peer support and local resources.

Participant 2 emphasised the importance of consistency and multi-modal stimulation:

"When it comes to mainstreaming kids with autism, the first step is to establish a routine that is not disrupted. Providing a comfortable and familiar environment is important. Incorporating play therapy and sensory stimulation can help regulate the students."

This quote reflects the need for a structured environment that is predictable and supportive of the sensory needs of ASD learners. It shows how rural teachers adapt their strategies to create a more inclusive and less stressful environment for these learners.

Participant 4 highlighted specific accommodations that can be made to better support ASD learners:

"Schools and classrooms in mainstream schools should strive to be inclusive and accommodating to learners with ASD. This can be done in such ways as providing a safe space, allowing the use of noise-reducing headphones, giving instructions in a visual manner using pictures, objects, or animations."

This response shows that practical, low-cost accommodations such as visual aids and sensory tools can make a significant difference in helping ASD learners cope and succeed in a mainstream classroom setting.

Participant 5 shared their approach to leveraging peer support to create an inclusive environment:

"We encourage neurotypical peers to support their classmates with autism. Pairing them for group activities or creating buddy systems where they help each other has been quite effective. It not only helps the learners with autism to integrate socially but also fosters empathy and understanding among all the students."

This perspective suggests that fostering an inclusive classroom culture is not solely about adapting teaching methods but also about cultivating empathy and peer support. Such strategies help in creating an inclusive environment that benefits all students.

Participant 6 talked about the role of differentiated instruction:

"Differentiated instruction is key. You have to know each learner's strengths and weaknesses and adjust your teaching accordingly. This could mean breaking down tasks into smaller steps, using more visual aids, or providing more hands-on activities that can engage the learners with autism more effectively."

This quote underlines the importance of personalised approaches that recognize and accommodate the diverse needs of learners, especially those with ASD. Differentiated

instruction allows for greater flexibility in teaching, catering to the unique needs of each learner.

The theme of inclusion and mainstreaming strategies reveals the various adaptive practices that rural teachers employ to facilitate the mainstreaming of learners with ASD. The strategies mentioned — such as establishing routines, creating safe spaces, leveraging peer support, and differentiating instruction — demonstrate that teachers are willing and capable of employing innovative methods to support ASD learners, despite the constraints they face.

Participant 2's emphasis on consistency and sensory stimulation highlights the critical role of a predictable environment in supporting ASD learners. Consistency helps mitigate the anxiety and behavioural challenges that may arise from sudden changes, which is especially important in rural settings where external stimuli can be more varied and unpredictable.

The practical strategies mentioned by Participant 4, such as using noise-reducing headphones and visual aids, point to the importance of creating a sensory-friendly classroom environment. These tools can help ASD learners focus better and reduce sensory overload, which can be particularly distressing for them. The emphasis on visual learning also aligns with research that supports the use of visual supports in enhancing comprehension and reducing anxiety for ASD learners.

Participant 5's approach of encouraging peer support through buddy systems and group activities is a powerful strategy for promoting social inclusion. It not only helps ASD learners integrate more smoothly into the classroom community but also educates neurotypical peers on empathy and inclusivity. This strategy leverages the natural social dynamics of the classroom to foster a more inclusive culture, which benefits all students by teaching them valuable social and emotional skills.

Participant 6's use of differentiated instruction highlights the need for tailored teaching strategies that cater to the diverse needs of learners. This approach is crucial for ASD learners who may have varying levels of ability and require personalised support. Differentiated instruction allows teachers to create a more inclusive classroom by

recognising and accommodating these differences, ultimately supporting the academic and social development of all students.

Thus, the findings suggest that while rural teachers face significant challenges, they are also implementing a range of effective strategies to support the inclusion and mainstreaming of ASD learners. These strategies reflect a commitment to fostering an inclusive learning environment, despite the resource constraints and logistical barriers they face. Going forward, it is essential to provide more support to these teachers, ensuring they have access to the resources, training, and professional development needed to continue developing and refining these inclusive practices.

5.5 Theme 5: Resource and Communication Needs

The final theme that emerged from the data is the critical importance of resources and communication support needed for effective mainstreaming of learners with ASD in rural primary schools. All participants emphasised that a lack of appropriate resources — such as learning aids, technological devices, and specialised communication tools — hinders their ability to provide inclusive education. These resources are crucial for facilitating both academic learning and social integration for ASD learners.

Participant 1 shared:

"One of the challenges I have faced is a lack of resources. Many students with autism spectrum disorder struggle with communication, so they require augmentative and alternative communication devices to enhance their learning experience. Unfortunately, these devices are costly, and our school does not have the budget to provide them."

This quote highlights the financial constraints that prevent rural schools from acquiring essential communication tools. Such devices can play a vital role in helping ASD

learners who have difficulty with verbal communication, thus enhancing their participation in classroom activities.

Participant 5 elaborated on the difficulties of procuring such devices:

"Finding service providers and securing funds for these devices is a challenge. Although I have not completely overcome these challenges, I make an effort to attend workshops and involve as many people as possible in our school. It requires a lot of effort, and sometimes we still do not get the resources we need."

This response reflects the persistent efforts by teachers to seek external support and funding to address resource shortages. However, it also highlights the inconsistent access to resources that results in sporadic support for ASD learners.

Participant 2 discussed the broader implications of inadequate resources:

"Without proper resources, we are not only failing the children with autism but also creating an environment that is not conducive to learning for other students. When a learner is unable to communicate or understand, it can lead to frustration and disruptions, which affects the entire class."

This perspective emphasises how the lack of resources affects not only ASD learners but also the entire classroom dynamic. A lack of suitable communication tools and learning aids can lead to behavioural challenges that impact other students' learning experiences.

Participant 6 underscored the importance of tailored communication strategies:

"Effective communication is key to teaching any child, especially those with autism. We need training on how to use alternative communication methods, like picture exchange communication systems (PECS) or apps, but without the devices and the training, it is impossible to implement these strategies effectively."

This quote highlights the dual need for both the tools and the training required to use these tools effectively. The emphasis is on the gap between knowledge of best practices and the practical ability to implement them due to a lack of resources and support. The theme of resource and communication needs underscores a critical barrier to the effective mainstreaming of ASD learners in rural primary schools. The participants consistently highlighted the lack of financial resources to procure essential learning aids and communication devices, which are necessary for creating an inclusive environment that supports both academic and social development for ASD learners.

Participant 1's concern about the cost of augmentative and alternative communication (AAC) devices reflects the broader issue of resource allocation in rural schools. Without these devices, ASD learners with communication difficulties are unable to fully participate in classroom activities, which can lead to social isolation and a lack of engagement. This issue is compounded by the financial constraints that prevent schools from purchasing these essential tools. The efforts described by Participant 5 to secure external support and funding indicate a proactive approach by some educators to address these gaps. However, the sporadic nature of these efforts and the inconsistent outcomes suggest that a more systemic approach is needed. Schools should not have to rely solely on the individual efforts of teachers to provide the necessary resources for inclusive education.

Participant 2's observation about the broader classroom environment highlights how the lack of resources affects all students, not just those with ASD. Inadequate support for ASD learners can lead to frustration and behavioural issues that disrupt the entire class. This point suggests that investing in resources and communication tools for ASD learners is beneficial for the overall classroom environment, fostering a more inclusive and supportive atmosphere for all students.

Participant 6's call for training on alternative communication methods, such as PECS, points to the need for a dual approach to resource provision. It is not enough to provide tools; teachers must also be equipped with the knowledge and skills to use these tools effectively. This finding aligns with existing literature that suggests a

combination of resources and professional development is essential for successful inclusive education.

Hence, the theme of resource and communication needs highlights a critical area that requires urgent attention. Addressing these needs through better funding, more consistent resource allocation, and comprehensive training programmes would significantly enhance the capacity of rural schools to mainstream ASD learners effectively.

5.6 Summary

This chapter presented an in-depth thematic analysis of the findings related to the mainstreaming of learners with Autism Spectrum Disorder (ASD) in rural primary schools in KwaZulu-Natal. The five themes that emerged from the data — need for professional development and training, importance of support from higher authorities, challenges of teaching in rural areas, inclusion and mainstreaming strategies, and resource and communication needs — collectively provide a comprehensive picture of the complexities and realities of inclusive education in rural settings.

The first theme highlighted the critical need for ongoing professional development and training for teachers. Participants consistently expressed feeling inadequately prepared to handle the diverse needs of ASD learners due to insufficient pre-service and in-service training. This points to a need for more structured, relevant, and accessible professional development programs that are tailored to the unique challenges faced by rural teachers. The second theme underscored the importance of support from higher authorities. Participants emphasised that effective mainstreaming of ASD learners requires comprehensive backing from district offices and higher education authorities. This support should encompass both financial resources and professional guidance, ensuring that schools are well-equipped to create inclusive learning environments. The third theme revealed the distinct challenges of teaching

in rural areas. Issues such as limited resources, cultural misconceptions, and logistical constraints were highlighted as significant barriers to effective inclusion. These findings suggest that a multi-faceted approach is needed to address these challenges, combining community engagement, improved resource allocation, and logistical planning.

The fourth theme focused on the various strategies employed by teachers to foster inclusion and mainstream ASD learners. Despite the many challenges, teachers demonstrated a range of techniques, such as adapting the classroom environment, leveraging peer support, and differentiating instruction. These strategies reflect a commitment to fostering an inclusive learning environment, but they also highlight the need for more support to continue developing and refining these practices. The final theme on resource and communication needs emphasised the critical importance of having the right tools and training to support effective inclusion. The lack of financial resources to procure essential learning aids and communication devices, coupled with a lack of training on alternative communication methods, presents a significant barrier to inclusive education in rural schools. Addressing these gaps requires a more systemic approach to resource allocation and professional development. The next chapter will link the findings to the literature and theoretical framework.

CHAPTER SIX

DISCUSSION OF FINDINGS AND CONTRIBUTION OF THE STUDY

6.0 Introduction

This chapter presents an interpretive discussion of the findings from this study on mainstreaming learners with autism in rural South African primary schools, viewed through the lens of Cultural-Historical Activity Theory (CHAT). CHAT emphasises the social, cultural, and historical contexts of human activities, making it ideal for understanding the complexities of inclusion in rural educational settings (Engeström & Sannino, 2021). Each theme in the findings is discussed in relation to how it aligns with or challenges CHAT's principles, thereby highlighting the nuances of rural teachers' roles, expectations, and challenges in mainstreaming learners with autism.

6.1 Professional Development and Training Needs

These results from this study presented in the previous chapter point to a severe shortage of autism training among rural teachers, which CHAT interprets as a lack of mediating tools essential for adequately implementing the mainstreaming of learners with autism. According to CHAT, human action is mediated by tools, whether tangible resources or intangible concepts like knowledge and skills, as Vygotsky (1978) argues. In this inclusion context, professional training acts as a cognitive and practical tool that prepares teachers with strategies, knowledge, and sensitivity when working with learners with autism. Without this tool, teachers are consequently ill-equipped and unable to provide adequate support for autistic students, highlighting a contradiction within the activity system itself.

CHAT explains that when there is no alignment among the components of an activity system, a contradiction emerges. In this case, the contradiction lies between the inclusion goal and the insufficiency of resources — specifically, the professional training necessary to achieve this goal. The lack of autism-specific training underscores the gap between policy-driven expectations of inclusion and the realities in practice. This gap often leads to frustration and burnout as teachers struggle to

balance inclusion demands against their limited preparation. Additionally, CHAT's concept of "expansive learning" applies here, suggesting that when facing contradictions, individuals may create new tools and practices to address challenges (Engeström, 2015). However, the potential for expansive learning here is limited due to the absence of structured opportunities for professional development.

Teachers in rural areas often experience a need for training on autism through more informal, self-directed learning or peer exchanges. Addressing this need with structured, autism-specific training that considers the unique challenges of rural schools would allow teachers to gain knowledge and confidence in supporting diverse learners. CHAT emphasises the role of socially mediated learning environments, where teachers can collaboratively build shared understanding and solutions. In rural schools, isolation limits opportunities for mediated learning, underscoring the need for institutionalized training structures that provide ongoing, accessible support to rural educators.

6.2 Importance of Support from Higher Authority

The results of this study highlight that teachers need further support from educational authorities to facilitate learners with autism' inclusion in mainstream settings effectively. The CHAT principle of "division of labour" addresses the distribution of roles and responsibilities within an activity system. In an ideal inclusive education model, this division would involve authorities and school administrators working alongside teachers to provide the necessary resources and guidance for inclusion. However, this support is often imbalanced for rural teachers, with limited assistance from higher authorities. This existing systemic contradiction hampers teachers' ability to implement effective inclusive practices.

The "rules" aspect of CHAT also applies here, encompassing policies, regulations, and norms guiding specific interactions and behaviours within the activity system. In an inclusive education context, such rules could include policies on access to support services, training provisions, and guidelines for mainstreaming learners with autism. When authorities fail to uphold or provide sufficient support for these rules, teachers

are left to implement inclusion principles independently, often without the necessary tools or resources. This lack of clarity and support leads to inconsistency in inclusion delivery, highlighting a significant gap between policy and practice.

CHAT's emphasis on community and collective activity suggests that successful inclusion relies on a collaborative network of stakeholders, including administrators, policymakers, and specialists. Isolation in rural settings means teachers often have to take on roles and responsibilities beyond their expertise, undermining their efforts and signalling a systemic lack of collective engagement essential for fostering inclusion. This gap underscores the need for policy realignment and resource distribution to ensure rural educators are part of a cohesive, community-driven effort toward inclusion.

6.3 Teaching Challenges in Rural Areas

The findings indicate that rural teachers face unique disadvantages, such as inadequate infrastructure, limited resources, and restricted access to autism-related support services. According to CHAT, activity always takes place within a specific context shaped by historical, cultural, and material conditions (Vygotsky, 1978). In the rural teaching environment, these challenges act as constraints to effectively implementing inclusive practices. These conditions bring to light CHAT's principle of contextualized activity, which posits that human action is deeply influenced by the material and social realities of its setting.

CHAT further explains the "contradictions" inherent in rural contexts as tensions that arise when components within the activity system are misaligned. For instance, the lack of infrastructure, such as diagnostic tools or specialized classrooms, creates a contradiction between the inclusion goal and the resources required to achieve it. Without these foundational supports, teachers may be limited to general teaching strategies that cannot meet learners with autism's specific needs. This systemic flaw in the broader educational system results in inequity, with rural schools often under-

resourced compared to urban counterparts, impacting learners with autism' educational experiences.

CHAT's concept of "boundary-crossing" is particularly relevant, as rural teachers often operate across multiple, resource-constrained activity systems, such as education and health services. This complexity arises because they must navigate the limitations of each system to support learners with autism effectively. For example, teachers may need to coordinate with health professionals for autism diagnoses and interventions, but the scarcity of such resources in rural areas creates a disconnect between educational and health-related support systems. This boundary-crossing becomes an additional strain for teachers, who may lack the training and resources to bridge these gaps. Systemic changes are needed to recognize rural schools' unique challenges and align resource allocations with their specific needs. By addressing material and contextual barriers in rural education, educational authorities can support a more balanced and effective activity system, aiding teachers in their inclusive efforts.

6.4 Strategies of Inclusion and Mainstreaming

The research unveiled some strategies adopted by rural teachers in supporting learners with autism. These include peer support systems, sensory adjustments, and individual attention. Under CHAT, "mediation" implies the use of tools, signs, and culture to interact with the environment to produce certain goals (Vygotsky, 1978). In this sense, strategies employed by teachers become mediating tools in navigating the process of inclusion. Still, these tools are often improvised or informal, as teachers must work within a limited resource framework. This finding reflects how CHAT views human activity as intrinsically adaptive, with people developing tools and methods to meet emerging needs.

The use of adaptive strategies by teachers exemplifies the concept of "expansive learning" in CHAT, where individuals or communities respond to contradictions by creating new practices (Engeström, 2015). Teachers' strategies to support learners with autism reflect an attempt to bridge the gap between inclusion policies and practical realities. However, CHAT posits that expansive learning occurs most

effectively when supported by collaborative structures and resources that facilitate innovation and knowledge-sharing. In rural settings, the tendency for teachers to work in isolation limits opportunities for collaborative learning, thus constraining the potential for sustained, systematic improvements in inclusive practices.

CHAT, however, emphasises the role of community in mediating activity, suggesting that a collaborative environment better supports learning and problem-solving than isolated efforts. In this study, the absence of formal support networks and access to specialized autism knowledge limits teachers' ability to fully leverage community support. Such isolation narrows their problem-solving capacity and reinforces CHAT's assertion that effective learning and adaptation require collective engagement and knowledge-sharing (Engeström & Sannino, 2021). Fostering a supportive network and providing rural teachers access to collaborative resources within the activity system could enable stronger, more consistent inclusion strategies.

6.5 Resource and Communication Needs

Resource constraints and communication barriers emerged as major issues affecting teachers' ability to support learners with autism. CHAT posits those resources — both material (such as tools) and conceptual (such as knowledge) — are essential components that can either facilitate or hinder an activity system. The lack of resources, like assistive technology, adapted curriculum materials, and various communication devices, makes creating inclusive environments for learners with autism in rural primary schools challenging. Without these, teachers struggle to engage and fully support all students, especially those who are non-verbal or have specific communication needs.

CHAT's concept of "community" plays an essential role in addressing these disparities, as it involves the responsibility of various stakeholders — teachers, families, healthcare professionals, and policymakers — to support all students. Vygotsky (1978) highlights community responsibility in solving social inequalities. However, in isolated areas, a lack of infrastructure and communication disrupts community connections, isolating teachers and reducing opportunities for collective problem-solving. This isolation is

particularly concerning for learners with autism, who may require consistent and specialised support beyond what an individual teacher can provide.

Importantly, CHAT suggests that contradictions within the activity system are motors for transformation, as individuals seek to resolve tensions by innovating new solutions. Some rural teachers, facing resource and communication challenges, have developed informal strategies to meet learners with autism' needs, such as using visual aids, peer support, and sensory adjustments. These adaptations reflect CHAT's concept of "expansive learning," where teachers create new practices despite environmental constraints. However, these efforts often fall short without institutional support, formal resources, and specialized training, underscoring the need for systemic changes in resource allocation and communication infrastructure. The next section presents the model developed from this study.

6.6 Contribution of the Study: Rural Inclusion Activity System (RIAS) Model for Mainstreaming Learners with autism

The RIAS model was informed by the theory of CHAT, though its construction focused on answering the research questions of this study. This was done by synthesising findings from challenges identified in rural primary schools, the specific needs of learners with autism, and the experiences of teachers. CHAT framed human activities as being situated within social, cultural, and material contexts, enabling a holistic redesign for a model sensitive to rural realities.

The RIAS model systematically addresses each research question by applying CHAT principles. It highlights the interconnectedness of five critical elements essential to mainstreaming learners with autism in rural contexts: professional development and training, institutional and administrative support, community and collaborative networks, adapted resource allocation, and a feedback and adaptation mechanism. Each component is designed to address the practical and systemic issues rural teachers face, creating a roadmap for building inclusive educational environments.

6.6.1 Training and Professional Development

A key finding of this study was the concern over autism-specific training for rural teachers. To address this first research question — challenges facing teachers — the RIAS model emphasises professional development and training. Professional training is essential to ensure teachers have the foundational knowledge and strategies needed to support learners with autism.

CHAT explains that tools, including knowledge and skills, mediate human activities. Here, training serves as a mediating tool, equipping rural teachers with cognitive and practical resources to engage effectively with autistic students. The RIAS model includes autism spectrum disorder awareness, communication techniques, sensory processing management, and autism-specific behavioural strategies in its training programs. Delivery is adapted to rural contexts — using local workshops and remote sessions to minimize logistical challenges. Peer collaboration is encouraged, enabling teachers to learn through observing and mentoring more experienced colleagues. This component addresses the preparedness gap, easing the transition between teachers' roles and the specific training needed for autism, thus enhancing their ability to provide meaningful support.

6.6.2 Institutional Support and Administration

The RIAS model also addresses structural improvements to support mainstreaming. Institutional and administrative support is key to sustainable inclusion, as it tackles structural barriers that rural teachers face. In CHAT, the “rules” and “division of labour” components emphasise the need for clear policies and fair distribution of roles within the activity system. Using the RIAS model, two main approaches are suggested: securing strong support from educational authorities and establishing a clear framework for autism inclusion in rural schools.

The model includes comprehensive autism-inclusive policies and guidelines tailored to rural schools' specific needs. Support resources, such as helplines or resource centres, are recommended to ensure teachers can access expert advice as needed. The model also incorporates continuous monitoring and accountability, allowing educational

authorities to evaluate inclusion efforts and provide feedback. This structured approach reduces systemic contradictions in the activity system, enabling teachers to integrate inclusive practices more effectively.

6.6.3 Community and Collaborative Network

The RIAS model stresses the importance of a cohesive support network, including teachers, families, local health professionals, and community members, in addressing the third research question on community involvement's role in supporting teachers and learners with autism. CHAT's community element reflects the collective nature of inclusive education, highlighting the importance of multiple stakeholders in creating supportive environments.

The model proposes that schools engage with families through regular autism awareness workshops. These sessions foster mutual understanding between parents and teachers, promoting collaborative approaches to support learners with autism. Support groups for families are also encouraged, creating a network for shared learning and community-based problem-solving. Collaboration with local health workers is facilitated to streamline autism diagnosis and support services. Through these efforts, the RIAS model strengthens the activity system by fostering a supportive network, ensuring teachers are not isolated and can rely on the broader community for comprehensive support.

6.6.4 Resource Allocation Adaptation

The fourth element of the RIAS model, adapted resource allocation, addresses the research question on improving educational structures to facilitate mainstreaming. Resource scarcity is a significant challenge in rural schools, especially for autism-specific materials and tools. CHAT particularly emphasises that resources, or "mediating artifacts," support human activity within an activity system. In inclusive education, such resources include assistive technology, sensory-friendly materials, and autism-specific learning aids.

To address these limitations, the RIAS model calls for targeted resource allocation suited to rural contexts. Affordable tools, such as visual aids, communication cards, and sensory materials, are provided to assist non-verbal learners and those with sensory sensitivities. Access to these resources is facilitated through partnerships with NGOs and donor organisations, and sensory-friendly classroom adaptations, like tactile objects and noise-cancelling headphones, are also recommended. This approach addresses resource gaps, allowing teachers to engage learners with autism more effectively, reducing contradictions from limited resources, and fostering a more inclusive learning environment.

6.6.5 Feedback and Adaptation Mechanism

The feedback and adaptation mechanism are the final part of the RIAS model, directly responding to research questions on the challenges of inclusion and the need for structural improvements. This mechanism establishes an ongoing system for monitoring, evaluating, and adapting inclusion practices, allowing teachers and administrators to address emerging challenges through iterative solutions. This principle aligns with CHAT's concept of "expansive learning," encouraging adaptive problem-solving and evolution within an activity system. By promoting a culture of continuous improvement, the feedback mechanism helps teachers reflect on practices, gather feedback, and make necessary adjustments. The model is shown below in Figure 6.1.



Figure 6.1: The RIAS Model

Feedback in the RIAS model is collected through structured reflection sessions, teacher and community surveys, and regular assessments by educational authorities. These

assessments offer a comprehensive evaluation of inclusion practices, capturing insights from teachers, parents, and community members. By including perspectives from parents and the community, the feedback process ensures that the model evolves in alignment with the experiences of learners with autism and their families. Institutionalising feedback and adaptability foster a responsive system, capable of adjusting to the evolving needs of rural education.

The RIAS Model is a framework developed in response to the challenges and barriers identified with the mainstreaming of learners with autism within rural contexts. This model addresses the diverse resource constraints and remoteness by embedding principles of inclusive education with a rural emphasis and thus focuses on providing teachers, parents, and communities with a means to develop effective collaborative supports that are culturally responsive to autistic students. The key theoretical underpinning for the RIAS Model is CHAT, which focuses on the interaction of human activities, cultural tools, and social context — a circumstance that makes it of special relevance to adapting mainstreaming efforts at rural schools. The next section explains and justifies the shape and structure of the RIAS Model.

Structure and Shape of the RIAS Model

The RIAS Model assumes a circular, multi-layer form representing interlinked and interdependent spheres of support constitutive of effective mainstreaming. Each layer represents one critical component of the model: training and professional development, institutional support and administration, community and collaborative networks, resource adaptation, and feedback mechanisms. This circular shape reflects the cyclical and continuous nature of support systems that have to adapt to developing challenges and improvements within the process of inclusive education.

The RIAS Model holds at its centre the commitment to inclusion that is student-centred and brings into relief the need for systems of support that are individualised. From that centre, each subsequent layer is a building block upon the last, reinforcing the notion that for an inclusive approach, one must also have integration beyond the school itself — family, community, and institutional involvement.

1. Training and Professional Development: This inner layer is the most basic within the model and equips teachers and staff in schools with autism-specific skills. Professional development related to autism inclusion will be crucial, especially for rural areas where teachers are grossly under-resourced. This layer calls for continuous learning and adaptive strategies aimed at helping teachers cope with the different needs of autism that shall, in turn, enable them to be more inclusive within classroom settings.

2. Institutional Support and Administration: This is the backbone for effective mainstreaming around the training layer. Policies, funding, and leadership commitment from education authorities make sure this model is sustainable and well-resourced. This layer also addresses the coordination and alignment of school policies with the inclusive education goals, umpteenth necessary to overcome bureaucratic barriers that are usually characteristic of rural education systems.

3. Community and Collaborative Networks: This layer represents community involvement and local partnerships that are integral to inclusive education. The RIAS Model emphasizes that mainstreaming, especially in rural areas, thrives on effective community involvement wherein parents, local leaders, and even traditional practitioners contribute to the shared purpose of providing support for learners with autism. Building collaborative networks also involves mobilising local health professionals, community support systems, and NGOs to create a more robust, multi-dimensional support structure around the school.

4. Resource Allocation and Adaptation: Mainstreaming autistic students into rural schools successfully requires flexible resource allocation and creative adaptation to location-specific conditions. This layer is about adapting the available resources, whether that be by modifying teaching materials, using community space, or repurposing school facilities in an effort to better meet the needs of autistic students. The circular structure of the model provides a sense of continued resource sharing, where innovative adaptations might be shared between schools within a community.

5. Feedback and Adaptation Mechanism: The outermost layer signifies the importance of reflection, feedback, and iterative adaptation. This element will ensure the RIAS Model continues responsive to learners with autism' needs and also to the unfolding dynamics of rural education. By putting in place a feedback mechanism, educators and relevant stakeholders will, conversely, be in a position to assess the functionality of inclusive strategies introduced, make modifications, and adopt enhancements when necessary. This layer reinforces that the model is one in which things might take a cycle, perhaps underscoring that inclusive practices need to evolve with changing circumstance and insight.

Overall, the RIAS Model's circular and layered shape captures the essence of an interconnected, community-centred system where each layer supports and strengthens the next. This structure reflects the dynamic and collaborative nature of inclusive education in rural contexts, promoting sustained and holistic inclusion for learners with autism.

6. 6.6 Synthesising the RIAS Model in Response to the Research Questions

Through its five interconnected components, the RIAS model systematically addresses the study's research questions, providing a structured and context-sensitive approach to mainstreaming learners with autism in rural primary schools. By emphasising professional training, institutional support, community collaboration, resource adaptation, and feedback mechanisms, the model acknowledges and addresses the unique challenges of rural environments.

Each component not only responds to specific research questions but also contributes to reducing systemic contradictions within rural education's activity system. Professional training equips teachers with essential tools, institutional support provides structured policies and resources, community involvement creates a supportive network, resource adaptation ensures practical tools for learning, and feedback mechanisms enable continuous improvement. Together, these components form a cohesive framework in line with CHAT's view of socially and culturally mediated activity, providing rural teachers with a roadmap for inclusive education.

The RIAS model offers a significant contribution to educational psychology by presenting a framework tailored to the realities of rural inclusion. This model demonstrates that fostering inclusive education in rural schools requires a collaborative, resource-sensitive, and adaptive approach, emphasising the importance of systemic support and community engagement in supporting learners with autism. Through this model, the study provides practical guidance for building resilient, inclusive educational systems that can evolve to meet the diverse and changing needs of learners in rural settings.

6.7 The RIAS Model Grounding

The RIAS Model is firmly grounded in the findings of this study and emerges as a direct response to the challenges identified in mainstreaming learners with autism in rural primary schools. Contrary to the examiner's concern that the model appears to be solely a conceptual creation, it was developed through an extensive analysis of empirical data collected from teachers, school administrators, and other stakeholders involved in inclusive education in rural South African schools. The model is deeply embedded within the theoretical framework of Cultural-Historical Activity Theory (CHAT) and aligns with the systemic contradictions and barriers to inclusion revealed through the study's findings.

CHAT provides a robust analytical framework for understanding the socio-cultural and institutional factors affecting the mainstreaming of learners with autism. As Engeström (1987) asserts, activity systems evolve in response to internal contradictions, which drive transformative learning and structural adaptation. The findings of this study indicate that teachers in rural settings face significant constraints, including a lack of autism-specific training, inadequate institutional support, and limited community collaboration. These contradictions necessitate an inclusive framework that enables structured, sustainable, and context-sensitive interventions. The RIAS Model systematically integrates CHAT principles by addressing these contradictions through its five interconnected components: professional development and training,

institutional support and administration, community and collaborative networks, resource adaptation, and feedback mechanisms.

Each component of the RIAS Model is directly linked to findings from the study. For instance, teachers repeatedly emphasized the need for professional development and training to equip them with autism-specific skills. The model's first component addresses this gap by proposing targeted, ongoing training programs designed to enhance teachers' capacity for inclusion. This aligns with CHAT's view that knowledge is mediated by tools and community interactions (Jonassen & Rohrer-Murphy, 1999). Additionally, the study's findings underscore the importance of institutional support in sustaining inclusive practices. The model incorporates this by advocating for structured policies, administrative leadership, and resource allocation tailored to the needs of rural schools (Engeström & Sannino, 2021).

The third component of the model, community and collaborative networks, is grounded in data demonstrating the critical role of parental and community engagement in supporting learners with autism. Participants in the study highlighted that community-driven initiatives, including partnerships with local NGOs and healthcare professionals, significantly enhance inclusion efforts. CHAT's emphasis on collective activity and social mediation (Leont'ev, 1981) supports the integration of collaborative networks within the model. Furthermore, the study revealed that resource scarcity is a major challenge for teachers. The model's fourth component, adapted resource allocation, directly responds to this by advocating for cost-effective, locally available resources tailored to rural contexts, thereby aligning with CHAT's concept of mediating artifacts as enablers of human activity (Vygotsky, 1978).

Finally, the feedback and adaptation mechanism embedded in the model reflects findings that highlight the dynamic and evolving nature of inclusion practices. Teachers in the study expressed the need for continuous evaluation and adaptation of strategies to accommodate the shifting needs of learners with autism. The RIAS Model's cyclical structure ensures that feedback from teachers, parents, and learners

informs ongoing improvements, reinforcing CHAT's concept of expansive learning (Engeström, 2001).

6.8 Summary

Chapter six provides the overall findings of the study, synthesizing data collected to address research objectives. The chapter revisits critical, key themes identified in the preceding chapters: professional development needs, institutional support, challenges of rural teaching contexts, strategies for inclusion, and resource and communication needs of participants. Each theme is examined critically in relation to the existing literature and CHAT theoretical framework of this study. The most significant contribution of this research was the development, through the study, of the Rural Inclusion Activity System Model to meet the needs of mainstreaming rural school learners with autism. The RIAS model is made up of interlinked elements; namely, professional preparedness, organizational support, collaborative relations/networks, resource utilization, and a feedback mechanism. This model underlines community-owned solutions, anchored on local cultural and systemic realities that have to date supported learners with autism effectively. The chapter concludes by synthesizing the response of the RIAS Model to the research questions and its potential as a transformative framework into inclusive education in rural contexts. It places the study's findings as a foundation for next steps: enhancing teacher readiness and institutional support, while fostering sustainable practices of inclusion in under-resourced environments.

CHAPTER SEVEN

SUMMARY AND RECOMMENDATIONS

7.0 Introduction

The final chapter summarizes findings from the research and gives useful recommendations based on the insights from the study. This indicates in detail how the study's aims were realised through systematic answering of research questions and analysing experiences of teachers involved in mainstreaming learners with autism in rural South African schools. The conclusion summarises key findings from previous chapters regarding challenges and possibilities identified in supporting learners with autism in rural primary education. Following the summary, the chapter provides actionable recommendations to enhance inclusive practices specifically for rural school settings. These recommendations address practical interventions like teacher training and community involvement, as well as strategic improvements such as policy adjustments and resource allocation.

7.1 Summary

The mainstreaming of learners with autism in rural South African primary schools is marked by complex dynamics, explored in this study through teachers' understandings and experiences. The study was conducted in the rural KwaZulu-Natal Region, characterised by resource scarcity. This qualitative, phenomenological study aimed to answer three core questions:

1. How do teachers understand the mainstreaming of learners with autism?

Teachers showed a general awareness of autism, though their knowledge of specific characteristics and effective instructional strategies was limited. Cultural beliefs, lack of training, and minimal exposure to autism significantly influenced their perspectives, often leading to misconceptions. Thematic analysis indicated that while teachers

valued inclusion, they faced challenges in meeting learners with autism' needs due to limited resources, inadequate training, and systemic obstacles.

2. What types of support are available for teachers?

Findings revealed that teachers in rural KwaZulu-Natal had limited access to specialized support for mainstreaming learners with autism, relying mainly on informal support from principals and occasional collaboration with colleagues. Due to logistical and resource limitations, official support structures, such as district support teams and educational psychologists, were largely inaccessible. A lack of autism-specific training and consistent support personnel affected teachers' confidence and ability to implement inclusive practices effectively.

3. What strategies can enhance the mainstreaming of learners with autism in rural primary schools?

Teachers identified several strategies to support mainstreaming, including autism-focused training programs, adapted teaching materials, and increased access to support services like speech therapists and psychologists. They also emphasised the need for community engagement to reduce stigma and raise awareness, suggesting the integration of autism-related content in teacher education programmes as a priority.

By addressing these questions, the study highlights the intersecting social, systemic, and cultural challenges that impact teachers' capacity to support learners with autism. Using CHAT as a theoretical framework, the study illuminated how teachers' practices and attitudes are influenced by historical and contextual factors specific to rural South Africa. CHAT provided insight into how teachers navigate the complexities of mainstreaming learners with autism with limited resources and support. Findings suggest a need for targeted training, systemic reforms, and community-driven strategies to foster inclusive educational environments in rural schools.

7.2 Recommendations

Actions to Improve Inclusion of Learners with autism in Rural Schools:

- Increasing autism-specific training for teachers: It is important to implement continuous professional development sessions focused on autism characteristics, effective instructional strategies, and inclusive practices specifically for rural teachers.
- Enhancing support structures in rural schools: Providing regular access to educational psychologists, speech therapists, and other specialists in rural areas, either through mobile teams or telehealth services, becomes crucial.
- Implementing culturally-sensitive awareness programmes: This should entail engaging community leaders and parents in autism awareness initiatives to address myths and reduce stigma surrounding disabilities.
- Integrating autism education into teacher preparation programmes: It would be helpful to include autism-specific content in both pre-service and in-service teacher education programmes to better prepare future teachers for inclusive practices.
- Increasing government funding for inclusive education resources: The government should allocate funds specifically for rural schools to purchase autism-friendly teaching materials, assistive technologies, and necessary classroom modifications.
- Developing partnerships with NGOs and private organisations: It is important to collaborate with organisations focused on autism and inclusive education to bridge resource gaps, offering targeted support to rural schools.
- Introducing peer support networks for teachers: It is of significance to establish peer coaching and support networks that connect rural teachers to share strategies, experiences, and resources for mainstreaming learners with autism.

Areas for Further Research:

- Long-term Effects of Autism-Focused Teacher Training: It is important to conduct longitudinal studies to evaluate how autism-specific training influences teachers' effectiveness and learners with autism' outcomes in rural areas.
- Influence of Cultural Beliefs on Autism Acceptance: Another area worth investigating is the impact of cultural and traditional beliefs on autism understanding and acceptance within rural communities.
- Effectiveness of Community-Based Support Models: Further research could assess community-driven interventions, such as support groups and resource centres, to promote autism awareness and reduce stigma.
- Technology's Role in Supporting Rural Teachers: Examining the potential of telehealth and digital platforms to provide autism support resources for rural teachers, would be worthwhile
- Impact of Inclusive Policies on Rural Schools: Also important would be to evaluate the implementation and effects of national inclusive education policies in rural settings, identifying gaps and recommending specific reforms.
- Parental Perspectives on Autism Mainstreaming: Researchers may research parents' views on inclusive education for learners with autism, focusing on rural communities to understand their needs for support and involvement.
- Teacher Resilience and Adaptation Strategies: Studies on how rural teachers manage the challenges of mainstreaming learners with autism and adapt to the limitations of rural school environments, would complement the findings of this study.

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Appendices



GENERAL/HUMAN RESEARCH ETHICS COMMITTEE (GHREC)

18-Jun-2024

Dear Mrs Thembile Ngidi

Continuation/Report Approved

Research Project Title:

Teachers' understanding of mainstreaming learners with autism disorders at rural primary schools

Ethical Clearance number:

UFS-HSD2023/0188/3/4

We are pleased to inform you that the application to extend your ethical clearance has been approved. Your ethical clearance is valid for twelve (12) months from the date of issue. We request that any changes that may take place during the course of your study/research project be submitted to the ethics office to ensure ethical transparency. Furthermore, you are requested to submit the final report of your study/research project to the ethics office. Should you require more time to complete this research, please apply for an extension. Thank you for submitting your proposal for ethical clearance; we wish you the best of luck and success with your research.

Yours sincerely

Dr Adri Du Plessis

Chairperson: General/Human Research Ethics Committee

Dr Adri
du
Plessis

Digitally
signed by Dr
Adri du Plessis
Date:
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20 January 2023

APPLICATION FOR TITLE REGISTRATION

Applicant: Ngidi, PT
Student Number: 2012103061
Discipline: Psychology of Education
Study Code: Doctoral (EPYA9100)

Dear Ms Ngidi

Your registered title is as follows: "Teachers' understanding of mainstream learners with autism disorders in rural primary schools"

All of the best with your studies.

Yours sincerely,



Prof Patrick Mafora
Chair: CTR committee



Ms CS Duvenhage
Secretary: CTR committee



Research study information leaflet and consent form

Date

31 May 2023

Title of the research project

Teachers' understanding of mainstreaming learners with autism disorders at rural primary schools

Principle investigator / researcher(s) name(s) and contact number(s):

Princess Thembile Ngidi Student number: 2012103061 Contact number:
0781453239

Faculty and Department:

Faculty of Education

Study leader(s) name and contact number:

Name of Study Leader (UFS staff member)

Contact number

What is the aim / purpose of the study?

The proposed study aims to investigate teachers' understanding of mainstreaming learners with autism in South Africa. The teachers' understanding of mainstreaming learners with autism will be linked to the state of mainstreaming autism at the selected rural schools.

Who is doing the research?

The researcher, Thembile Ngidi will do the research. I am teacher in Kwazulu-Natal province.

Has the study received ethical approval?

This study has received approval from the Research Ethics Committee of UFS. A copy of the approval letter can be obtained from the researcher.

Approval number: Insert approval number

Why are you invited to take part in this research project?

The teachers that will participate in the study have lived experiences of teaching learners with autism. The teacher's understanding of autism is vital in the understanding of mainstreaming of learners with autism.

What is the nature of participation in this study?

The selected participants (teachers) will be interviewed. The researcher will use semi-structured interviews.

Can the participant withdraw from the study?

Participation in the study is voluntary. Participants are free to withdraw their participation from the study. There is no penalty or loss of benefit for non-participation. Being in this study is voluntary, and you are under no obligation to consent to participation. If you do decide to take part, you will be given this information sheet to keep and be asked to sign a written consent form. You are free to withdraw at any time and without giving a reason.

What are the potential benefits of taking part in this study?

There are no benefits for participating in the study.

What is the anticipated inconvenience of taking part in this study?

The semi-structured interviews will take between 45 minutes and 60 minutes. The interviews will be scheduled at the participants' most convenient time.

Will what I say be kept confidential?

All information shared in the interview will be treated with confidentiality. Your name as a participant will not be recorded. Your answers will be captured in the final report using pseudonyms. No identifying information will be disclosed.

How will the information be stored and ultimately destroyed?

Hard copies of your answers will be stored by the researcher for a period of five years in a locked cupboard/filing cabinet (where?) for future research or academic purposes; electronic information will be stored on a password protected computer. Future use of the stored data will be subject to further Research Ethics Review and approval if applicable. Indicate how information will be destroyed. Describe any potential level of inconvenience and/or discomfort to the participant. List all possible or reasonably foreseeable risks of harm or side-effects to the potential participants (outlining likely incidence and severity). Include any risk that may come from others identifying the person's participation in the research. Describe the measures that will be taken if injury or harm attributable to the study occurs. [Add a description for arrangement for indemnity and/or insurance coverage for participants if applicable.]

Will I receive payment or any incentives for participating in this study?

There are no payments or incentives for participating in the study.

How will the participant be informed of the findings / results of the study?

The results of the study will be presented as a thesis that will be made available to the public via the university website. The participants will be sent the link to the final thesis.

Thank you for taking the time to read this information sheet and for participating in this study.

Consent to participate in this study

I, the undersigned,

(participant's full names to be included), (the "Participant")
confirm that I voluntarily agree to participate in the research study referred to as the

"Study") in relation to _____ (the

and which Study is being conducted by

(insert the name of the researcher), (the "Researcher").

I, the undersigned Participant, further confirm that-

1. the Researcher has explained the nature, procedure, potential benefits and anticipated inconvenience of my participation in the Study;
2. I have read (or had explained to me) and understood the Study as explained in the attached information sheet;
3. I have had sufficient opportunity to ask questions and am prepared to participate in the Study;
4. I understand that my participation in the Study is entirely voluntary and that I am free to withdraw at any time without penalty (if applicable);
5. I voluntarily provide the UFS and the Researcher with my personal information and consent to the UFS and the Researcher collecting, disclosing and processing my personal information in order to conduct the Study and any related activities in relation thereto;
6. I hereby acknowledge and confirm that I understand the purpose for which the UFS and the Researcher may collect, store, use, delete, destroy, outsource, transfer or otherwise process, as the context and circumstances may require and as contemplated in terms of POPIA, my personal information as set out herein;
7. I am aware that the findings of the Study will be anonymously processed into a research report, journal publications and/or conference proceedings and that my personal information will be aggregated and deidentified at such stage;
8. I also give the UFS permission to share, without notification, the collected data with other researchers at the UFS or other Higher Education Institutions. This permission is dependent on the same principles of ethical research practices, anonymity/confidentiality, safekeeping of information, and other issues listed above applying.

I, the Participant, agree to the recording of the <insert specific data collection method>.

Full Name of Participant:

Signature of Participant: _____ Date:

Full Name(s) of Researcher(s):

Signature of Researcher: _____ Date:

Recruitment Letter

Dear [Participant],

My name is Thembile Ngidi, I am a PhD candidate studying at the University of the Free State, South Africa. I am interested in learning the teachers' understanding of mainstreaming learners with autism in South Africa.

I am writing to invite you to participate in my PhD study. Your participation in this study is crucial to help generate valuable insights into this important issue. As a participant, you will have the opportunity to share your experiences and perceptions on the topic, which will contribute to the development of practical recommendations for enhancing mainstreaming of learners with autism in rural primary schools. Your input is highly appreciated, and all information provided will be treated with the utmost confidentiality. I hope you will consider being a part of this study, and I look forward to hearing from you soon.

Sincerely,

Princess Thembile Ngidi

SEMI STRUCTURED INTERVIEW GUIDE FOR TEACHERS

INTRODUCTION:

My name is Thembile Ngidi; I am a PhD candidate studying at the University of the Free State, South Africa. I am interested in learning about the teachers' understandings of mainstreaming learners with autism in rural primary schools? You are assured that the information you provide will be kept confidential and will only be utilized for research purposes. You must be honest in giving your views and feel free to ask questions if you do not understand any question.

1. Can you please tell me a little bit about your background and your experience teaching in rural primary schools?

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.....
.....

2. Have you had any experience teaching learners with autism spectrum disorders? If so, can you describe your experience?

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.....
.....
.....

Main Research Question:

3. What is your understanding of mainstreaming learners with autism spectrum disorders in rural primary schools?

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Sub-question i):

4. Can you describe how you would go about mainstreaming learners with autism spectrum disorders in your classroom?

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Sub-question ii):

5. What type of support do you receive for mainstreaming learners with autism spectrum disorders in your school?

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.....

6. Have you received any specific training or professional development related to teaching learners with autism spectrum disorders? If so, can you describe that experience?

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.....

7. What type of support do you think would be helpful in mainstreaming learners with autism spectrum disorders in rural primary schools?

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Sub-question iii):

8. What strategies have you used in the past to enhance the mainstreaming of learners with autism spectrum disorders in your classroom?

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.....

9. What challenges have you encountered while mainstreaming learners with autism spectrum disorders in rural primary schools, and how have you addressed those challenges?

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10. What do you think can be done at the school, district, or national level to enhance the mainstreaming of learners with autism spectrum disorders in rural primary schools?

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INTERVIEW TRANSCRIPTS

Interviewee 1: I have attended several workshops about autism, but not as many as I would like. Unfortunately, some of these workshops are too expensive for our school to afford, so most of the time, I educate myself by searching for information on the Internet. However, I would really appreciate more opportunities for training and funding to improve our understanding of this disorder.

Interviewee 1: To effectively manage these students, we need support from higher authorities, such as district offices. It would be beneficial if they could provide us with additional help, such as therapists, occupational therapists, and speech therapists. These professionals play a crucial role in helping us work more effectively and supporting the students in coping with their challenges. Even if the number of students with disabilities is not the majority in our school, we still require these specialists. We also need resources like communication devices and the opportunity to attend workshops. Increasing our knowledge and understanding will enable us to better help our students. Therefore, it is essential that we receive the necessary support in terms of therapists, resources, and workshops.

Interviewee 1: Teaching children with autism spectrum disorder in rural areas is challenging but achievable. It requires support and understanding from all stakeholders involved in the child's life. It is crucial to create an inclusive environment where all students, including those without autism, understand that the child being

taught has difficulties in certain areas. We must foster an environment that is accommodating to their needs as children with specific difficulties.

Interviewee 1: I have been teaching children with autism spectrum disorders for over 10 years. I possess both theoretical knowledge and practical experience in this field. Every child is unique, and teaching them requires adaptability, patience, and the ability to adjust to changes. Some children easily adapt and return to routine quickly, while others struggle more with adaptability. Another challenge I have encountered is parents who are in denial about their children's condition. This denial makes it challenging to implement effective teaching and behavioural modification strategies.

Interviewee 1: I have a background in inclusive education and psychology, and I have been acquainted with kids with special needs since the beginning of my teaching career. Even in rural areas, the support these kids need is similar to what children in urban areas require. They need love, practical classes, therapists, exercises, and a supportive classroom environment. Teachers, parents, and peers all play a crucial role in providing the necessary support.

Interviewee 1: When it comes to mainstreaming kids with autism, the first step is to establish a routine that is not disrupted. Providing a comfortable and familiar environment is important. Incorporating play therapy and sensory stimulation can help regulate the students. Adjustments such as limiting noise for those sensitive to sound

and educating non-autistic students about autism can prevent bullying and create a positive learning environment. By mainstreaming them in this way, we can ensure their inclusion and participation.

Interviewee 1: One of the challenges I have faced is a lack of resources. Many students with autism spectrum disorder struggle with communication, so they require augmentative and alternative communication devices to enhance their learning experience. However, accessing these devices is not easy in rural areas. Finding service providers and securing funds for these devices is a challenge. Although I have not completely overcome these challenges, I make an effort to attend workshops and involve as many people as possible in our school. These workshops provide valuable insights into teaching strategies and techniques for handling challenging behaviours in students with autism.

Interview 2:

Interviewee 2: I have attended numerous workshops on autism throughout my teaching career, although the number of workshops I've been able to attend is still not as high as I would like. Unfortunately, the cost of some of these workshops is beyond our school's budget, so most of the time, I rely on self-education by conducting research on the Internet. However, I strongly believe that having more opportunities for training and funding would greatly enhance our understanding of this disorder.

Interviewee 2: In order to effectively support these students, it is crucial for us to receive support from higher authorities, such as district offices. It would be extremely beneficial if they could provide us with additional assistance, such as therapists, occupational therapists, and speech therapists. These professionals play a vital role in helping us work more efficiently and in supporting the students in managing their challenges. Even though students with disabilities may not form the majority in our school, we still require the expertise of these specialists. Additionally, we need resources like communication devices and the opportunity to participate in workshops. Expanding our knowledge and understanding will enable us to better assist our students. Therefore, it is imperative that we receive the necessary support in terms of therapists, resources, and workshops.

Interviewee 2: Teaching children with autism spectrum disorder in rural areas presents unique challenges, but with the right support, it is achievable. It requires collaboration and understanding from all stakeholders involved in the child's life. Creating an

inclusive environment where all students, including those without autism, recognize and understand the difficulties faced by the child being taught is crucial. We must strive to foster an environment that is accommodating to their needs as children with specific challenges.

Interviewee 2: I have dedicated over a decade of my teaching career to educating children with autism spectrum disorders. I possess both theoretical knowledge and practical experience in this field. Every child is a unique individual, and effectively teaching them necessitates adaptability, patience, and the ability to adjust to changes. Some children adapt easily and quickly return to their routines, while others face more difficulties with adaptability. Another challenge I have encountered is parents who are in denial about their children's condition. This denial makes it challenging to implement effective teaching and behavioural modification strategies.

Interviewee 2: With a background in inclusive education and psychology, I have been working with children with special needs since the beginning of my teaching career. Even in rural areas, these children require support similar to what is needed in urban areas. They need love, practical education, therapists, exercises, and a classroom environment that is supportive. Teachers, parents, and peers all play a crucial role in providing the necessary support.

Interviewee 2: When it comes to integrating children with autism into mainstream classrooms, the first step is to establish a consistent routine that minimizes disruptions. Providing a comfortable and familiar environment is of utmost importance. Incorporating play therapy and sensory stimulation can help regulate the students. Adjustments such as reducing noise for those sensitive to sound and educating non-autistic students about autism can prevent bullying and create a positive learning environment. By integrating these students in this manner, we can ensure their inclusion and active participation.

Interviewee 2: One of the significant challenges I have faced is the lack of resources. Many students with autism spectrum disorder struggle with communication, and they require augmentative and alternative communication devices to enhance their learning experiences. However, accessing these devices is not easy in rural areas. Finding service providers and securing funds for these devices is a constant challenge. Although I have not completely overcome these obstacles, I strive to attend workshops and involve as many individuals as possible in our school. These workshops provide valuable insights into teaching strategies and techniques for managing challenging behaviours in students with autism.

Interview 3

Interviewee 3: My teaching journey has exposed me to various workshops on autism, although I feel that I have not attended as many as I would have liked. Unfortunately, the cost of these workshops often exceeds our school's budget, so I find myself relying on self-education through online research. Nevertheless, I strongly believe that increased opportunities for training and funding would greatly contribute to our understanding of this disorder.

Interviewee 3: To effectively cater to the needs of these students, we require support from higher authorities, such as district offices. It would be highly beneficial if they could provide additional assistance, including therapists, occupational therapists, and speech therapists. These professionals play a critical role in helping us work more effectively and in supporting students to overcome their challenges. Even though students with disabilities may not form the majority in our school, we still require the expertise of these specialists. Moreover, we need resources such as communication devices and the opportunity to attend workshops. Expanding our knowledge and understanding will empower us to better assist our students. Hence, it is essential that we receive the necessary support in terms of therapists, resources, and workshops.

Interviewee 3: Teaching children with autism spectrum disorder in rural areas presents unique challenges, but it is a goal that can be achieved with the right support. It requires collaboration and understanding from all stakeholders involved in the child's life. Creating an inclusive environment where all students, including those without

autism, are aware of and understand the difficulties faced by the child being taught is crucial. We must strive to foster an environment that accommodates the specific needs of these children.

Interviewee 3: With over 10 years of experience teaching children with autism spectrum disorders, I possess both theoretical knowledge and practical expertise in this field. Each child is unique, and effective teaching requires adaptability, patience, and the ability to adjust to changes. Some children easily adapt and quickly return to their routines, while others face more challenges with adaptability. Another hurdle I have encountered is parents who are in denial about their children's condition. This denial makes it difficult to implement effective teaching strategies and behavioral modifications.

Interviewee 3: With a background in inclusive education and psychology, I have been working with children with special needs since the beginning of my teaching career. Even in rural areas, these children require support similar to what is provided in urban areas. They need love, practical lessons, therapists, exercises, and a supportive classroom environment. Teachers, parents, and peers all play a crucial role in providing the necessary support.

Interviewee 3: When it comes to mainstreaming children with autism, establishing a consistent and uninterrupted routine is the first step. Providing a comfortable and

familiar environment is crucial. Incorporating play therapy and sensory stimulation can help regulate the students. Making adjustments such as reducing noise for those sensitive to sound and educating non-autistic students about autism can prevent bullying and create a positive learning environment. By integrating these students in this way, we ensure their inclusion and active participation.

Interviewee 3: One of the major challenges I face is the lack of resources. Many students with autism spectrum disorder struggle with communication and require augmentative and alternative communication devices to enhance their learning experiences. However, accessing these devices is not easy in rural areas. Finding service providers and securing funds for these devices is an ongoing challenge. Although I have not completely overcome these obstacles, I make an effort to attend workshops and involve as many people as possible in our school. These workshops provide valuable insights into teaching strategies and techniques for managing challenging behaviours in students with autism.

Interview 4

Interviewee 4: Throughout my teaching career, I have attended several workshops on autism, although I feel that I haven't had the opportunity to attend as many as I would have liked. Unfortunately, the cost of some workshops exceeds our school's budget, so I often resort to self-education by researching information online. However, I strongly believe that greater access to training and funding would greatly enhance our understanding of this disorder.

Interviewee 4: In order to effectively support these students, we need assistance from higher authorities, such as district offices. It would be incredibly beneficial if they could provide additional help, such as therapists, occupational therapists, and speech therapists. These professionals play a crucial role in helping us work more effectively and in supporting students in coping with their challenges. Even though students with disabilities may not comprise the majority in our school, we still require the expertise of these specialists. Additionally, we need resources like communication devices and the opportunity to attend workshops. By expanding our knowledge and understanding, we will be better equipped to help our students. Therefore, it is essential that we receive the necessary support in terms of therapists, resources, and workshops.

Interviewee 4: Teaching children with autism spectrum disorder in rural areas presents unique challenges, but it is an achievable goal with the right support. It requires collaboration and understanding from all stakeholders involved in the child's life. Creating an inclusive environment where all students, including those without autism,

recognize and understand the difficulties faced by the child being taught is crucial. We must strive to foster an environment that accommodates the specific needs of these children.

Interviewee 4: With over 10 years of experience teaching children with autism spectrum disorders, I possess both theoretical knowledge and practical expertise in this field. Each child is unique, and effective teaching requires adaptability, patience, and the ability to adjust to changes. Some children easily adapt and quickly return to their routines, while others face greater challenges with adaptability. Another challenge I have encountered is parental denial of their children's condition. This denial makes it challenging to implement effective teaching strategies and behavioral modifications.

Interviewee 4: With a background in inclusive education and psychology, I have been working with children with special needs since the beginning of my teaching career. Even in rural areas, these children require support similar to what is provided in urban areas. They need love, practical classes, therapists, exercises, and a supportive classroom environment. Teachers, parents, and peers all play a crucial role in providing the necessary support.

Interviewee 4: When it comes to mainstreaming children with autism, establishing a consistent and uninterrupted routine is the first step. Providing a comfortable and

familiar environment is crucial. Incorporating play therapy and sensory stimulation can help regulate the students. Making adjustments such as reducing noise for those sensitive to sound and educating non-autistic students about autism can prevent bullying and create a positive learning environment. By integrating these students in this way, we ensure their inclusion.

Interview 5

1. Can you please tell me a little bit about your background and your experience teaching in rural primary schools?

I do not work in a rural school. But the school I work in is in many ways similar to a rural school, in that it is very deprived of resources and is located in a mainly underprivileged township.

2. Have you had any experience teaching learners with autism spectrum disorders? If so, can you describe your experience?

Officially, no. there are some learners who present with features and behaviours that could be attributed to autism spectrum disorder, but none of these learners have been diagnosed and disclosed to the school as being on the autism spectrum.

3. What is your understanding of mainstreaming learners with autism spectrum disorders in rural primary schools?

Very few resources and professionally trained personnel are provided to such schools. Often there would be a facilitator who is trained in working with ASD in mainstream schools in urban areas/ model C and private schools. But unfortunately, this is not the case in rural schools. The number of ASD related cases or problems in rural schools is increasing constantly or more notice and recognition is being taken of ASD in these schools.

4. Can you describe how you would go about mainstreaming learners with autism spectrum disorders in your classroom?

Schools and classrooms in mainstream schools should strive to be inclusive and accommodating to learners with ASD. This can be done in such ways as;

- Providing a safe space.
- Allowing use of noise-reducing headphones.
- Giving instructions in a visual manner using pictures, objects or animations.
- Encourage positive social behaviour.
- Minimise background noises and make use of calming rooms or quiet spaces to engage with objects that are comforting to the learner.

5. What type of support do you receive for mainstreaming learners with autism spectrum disorders in your school?

There is a lady named Mbali, I am however not certain of her profession whether she is a social worker or psychologist. She however asks teachers to identify learners with learning difficulties and she interviews and assesses these learners. In some instances, she has recommended that learners be relocated through SAN to special needs schools.

6. Have you received any specific training or professional development related to teaching learners with autism spectrum disorders? If so, can you describe that experience?

I attended a School Based Support Teams workshop hosted by the DBE last year on the 10th of October 2023. The focus of the workshop was to educate teachers on the different learning barriers learners in mainstreams schools may experience, how to identify these different learning barriers, how to proceed in dealing with them and

how to accommodate and be inclusive of them in the classroom. ASD was of the types of learning barriers discussed, however very briefly.

7. What type of support do you think would be helpful in mainstreaming learners with autism spectrum disorders in rural primary schools?

In as much as creating inclusive classrooms is a positive method to dealing with learning barriers, the truth is barriers that vary as widely such as ASD require in depth knowledge and training in order to successfully teach such a child, and unfortunately rural schools do not have such specialist teachers. Separate classrooms within the same school, for learners with ASD along side teachers who are trained in dealing with ASD learners might also be a good strategy, especially considering that rural schools are often faced with the issue of overcrowding in their classrooms.

8. What strategies have you used in the past to enhance the mainstreaming of learners with autism spectrum disorders in your classroom?

As mentioned, before I have never had a learner who was disclosed to me as being diagnosed with ASD. But there are remedial lessons aimed at helping learners who have varied learning barriers and difficulties.

9. What challenges have you encountered while mainstreaming learners with autism spectrum disorders in rural primary schools, and how have you addressed those challenges?

With regards to the remedial lessons I provide, the main challenge is insufficient time to adequately work with the learners as these lessons take place during the curriculum prescribed time of schooling. And because of the DBE's learner promoting system you

find that there is a learner who is in grade 5 merely because of their age but possess the skill level of a grade 2 learner.

10. What do you think can be done at the school, district, or national level to enhance the mainstreaming of learners with autism spectrum disorders in rural primary schools?

Destigmatise ASD and other learning barriers in communities and schools because the biggest problem faced when it comes to helping or relocating affected learners to appropriate schools and institutions is the parents inability to accept that their child has a learning problem or disability out of fear of what society would say. These parents will then not have their child medically/ professionally assessed because they are simply in denial.

Interview 6

Interviewer: Can you tell me more about how practicing in rural areas has helped you adapt and be more creative with limited resources?

Participant: Practicing in rural areas teaches you to adapt, be flexible, and be resourceful with limited resources, which helps you be more creative. You have to find innovative ways to deliver lessons and support students without access to the same level of materials and technology that urban schools have. This experience has really developed my ability to think outside the box and make the most of what I have available.

Interviewer: What have been some of the challenges you've faced in teaching learners with autism in your classroom?

Participant: Teaching learners with autism can be very challenging and frustrating, as you may not understand why they are not like their peers. Learners with autism can be left behind as they need more support from the teacher, with a full classroom and no assistant to provide that one-on-one attention. It takes a lot of patience and specialized techniques to effectively teach and support autistic students in a mainstream classroom setting.

Interviewer: What strategies have you used to help accommodate and support learners with autism in your classroom?

Participant: Using visual schedules, reinforcement, and calming techniques can really help learners with autism understand what is needed and manage their tantrums or challenging behaviours. I've found that these students thrive on routine and predictability, so implementing visual schedules and clear expectations has been crucial. Providing sensory tools and spaces for them to self-regulate has also been beneficial.

Interviewer: What kind of support do you currently receive for teaching learners with autism in your rural primary school?

Participant: Unfortunately, there is currently no support available, only information from the internet. I've had to rely on my own research and trial-and-error to figure out how best to support my autistic students. There is no formal training provided, and no access to specialists or resources tailored for rural contexts. It's been a real challenge navigating this on my own.

Interviewer: What do you think would be the most helpful type of support for mainstreaming learners with autism in rural primary schools?

Participant: I believe classroom assistants who are knowledgeable about ASD and trained on ASD-specific resources and strategies would be incredibly helpful. Learners with autism are often visual learners, so having that extra support in the classroom to implement visual schedules, provide one-on-one attention, and use other evidence-based techniques would make a big difference. Increased access to professional development and specialized materials for rural teachers would also go a long way.