Exploring Learners' understanding of environmental issues: Narratives of grade 7 learners in a rural uMgungundlovu district

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ABSTRACT

Water scarcity, pollution, deforestation, and poor infrastructure represent critical environmental challenges facing developed and developing nations worldwide. These issues are particularly pronounced in rural communities, where inequalities persist between urban and rural populations. In South Africa's uMgungundlovu Education District, such challenges are exacerbated by socio-economic disparities. Despite limited resources for disseminating information, children in rural areas fundamentally understand environmental issues and their implications for human survival.

This study adopts a qualitative narrative inquiry approach within the critical paradigm to explore children's perceptions of environmental challenges in rural settings. Data collection involved semi-structured interviews, focus group discussions, and mapping exercises with eight purposively selected participants. Findings indicate that children possess a nuanced awareness of environmental issues, recognising the impact of deforestation and pollution on the natural ecosystem and human well-being. They also demonstrate an understanding of societal inequities, including marginalisation and exclusion experienced by rural communities.

Key factors contributing to environmental degradation include the unsustainable use of natural resources, such as wood for fuel, and inadequate waste management practices. Moreover, poor infrastructure, particularly during rainy seasons, hinders access to essential services like education and healthcare. Power dynamics between political entities and private corporations further complicate addressing these challenges, often resulting in incomplete infrastructure projects.

The study highlights and elevates the importance of collaborative efforts among schools, communities, government agencies, and external stakeholders to promote environmental awareness and advocate for environmental justice in rural areas. It emphasises children's agency as active community participants, deserving recognition and respect for their perspectives and experiences. Ultimately, the findings highlight the need for sustained environmental campaigns and projects to foster conservation efforts and ensure equitable access to a conducive environment.

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DECLARATION

I, **Nokulunga Lorraine Gwala**, declare that

1. The research reported in this dissertation/thesis, except where otherwise indicated, is my original research.
2. This dissertation/thesis has not been submitted for any degree or examination at any other university.
3. This dissertation/thesis does not contain other persons' data, pictures, graphs or other information unless specifically acknowledged as being sourced from others.
4. This dissertation/thesis does not contain other persons' writing unless specifically acknowledged as being sourced from other researchers. Where other written sources have been quoted, then:
    a. Their words have been re-written, but the general information attributed to them has been referenced
    b. Where their exact words have been used, their writing has been placed in italics, inside quotation marks, and referenced.
5. This dissertation/ thesis does not contain text, graphics or tables copied and pasted from the Internet unless specifically acknowledged, and the source is detailed in the thesis and the References sections.

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STUDENT'S SIGNATURE: [redacted]
DATE: 12 August,2024

SUPERVISOR'S SIGNATURE:
DATE: 12 August,2024

ACKNOWLEDGEMENTS

Completing this thesis was an arduous and challenging journey for me. This journey was littered with distractions, both at personal and professional levels. This study started back amid COVID-19 in 2020. However, throughout this challenging journey, I was fortunate to meet people willing to go the extra mile, try to help me, and ease the burden. They became my support structure and encouraged me to persevere.

I sincerely thank everyone who has been part of this incredible journey since the early beginning of 2020.

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DEDICATION

I dedicate this research study to God for giving me the strength and power to continue regardless of the circumstances and challenges. To my son, Simthandile Gwala, who has been my strength and source of inspiration when the thought of quitting crosses my mind. To my mother, Mrs Thandiwe Gwala, who prayed for my success. I will forever be indebted to her. To my family and childhood friends, Londeka Ntanzi and Nomvelo Ndlela, I will always appreciate your endless emotional support and love for me. Dedication also goes to my late grand-mother, Mrs TC Khanyile, and my late brother, Mr Thubelihle Gwala; wherever you are, I know you are proud of my achievements.

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1. Chapter 1

Introduction and Outline of the Study

1.1 Introduction

This study explored learners' understanding of environmental issues in a specific rural area in KwaZulu-Natal and the various factors influencing this understanding. Buchanan et al. (2018) assert that the natural environment grows increasingly fragile due to human activities that may occur intentionally and unintentionally. It is essential to understand what contributes to the world's fragility. To do this, this study turned to the views of young primary school children. According to Šorytė and Pakalniškienė (2019), the importance of children's views on environmental issues has gained more attention, given the recognition of children as critical actors in addressing these issues. Literature has noted that children's voices are often silenced, and cannot express their views and ideas about their worlds. Therefore, engaging with children's everyday experiences and imaginations of the world is imperative to understanding children's perspectives about environmental issues affecting their communities (Hammond, 2020).

Holloway and Valentine (2014) contend that children are social actors who are proactive and observant about social issues in their respective communities. In many rural contexts, research has revealed that schools, homes and the general community are places where children are schooled to develop particular perspectives about the world (Muthukrishna, 2013). Spiteri (2021) concurs further, stating that children of certain ages have developed complex thinking about how social, political, cultural and economic factors influence the state of the environment. Hence, the study sought to understand the perspectives of learners living in a rural context and where various factors contribute to learners developing their environmental awareness and attitudes.

In this introductory chapter, I begin by first providing the background to the study and then explaining the study's focus, purpose, and rationale behind conducting this investigation. The three main research questions are also presented. I also briefly introduce the theory and methodological approach underpinning this study. As part of this, I also briefly introduce the participants of this study. Finally, I present an outline of the chapters of the study.

1.2 Background to the study

This study sought to delve deeper into the learners' understanding of environmental issues within a rural context. Environmental problems are a significant issue that South Africa faces, especially in rural areas (Masuku & Jili, 2019). In this regard, Masuku and Jili (2019) further indicate that rural areas face many systemic inequalities, such as poor road conditions and poor service delivery concerning health, housing, basic sanitation, water access and electricity.

Because the study focuses on learners, the participants are positioned as central to the study. This is in keeping with the critical paradigm and the theory of children's geographies used in the study. Research on children's geographies indicates that it is crucial to understand the children's viewpoints (Liao & Li, 2019) as they are the future. As indicated earlier, the world is experiencing an environmental crisis. Knowing what young children think and believe about the environment is essential. Often, children come to school with preconceived ideas about what the environment entails and what is involved in the destruction and conservation of the environment. This study intended to obtain insights into children's thinking and identify possible gaps in the field.

However, there is continuous debate about children's capabilities to make a difference and change the world. According to Davis and Elliot (2024), what is evident is that even though we can acknowledge that children understand the environment, they lack intricate knowledge about environmental concepts and issues, such as pollution, protection, and ecology. This suggests that young children may have a low level of understanding regarding critical issues like those mentioned above. However, Riehl (2020) disagrees and points out that children have crucial perceptions about the environment, which suggests that children may know more than we think. This is why Riehl (2020) calls for more research into children and their understanding of the environment. For Riehl (2020), children consider the environment a place of living and non-living beings. Riehl (2020) further asserts that children are aware of environmental problems and, thus, should be taken seriously. This aligns with Spiteri's (2016) research, which contends that children's perceptions of the environment and environmental problems commence early. Spiteri's (2016) research also revealed that children could interact with others and engage in open

dialogues about environmental issues. However, Spiteri (2021) claims that a dearth of research has been conducted on children's environmental sustainability worldviews. This is partly because it could be that children are less researched, especially those living in rural communities. Thus, based on this, Riehl (2020) and Spiteri (2021) call for sustained research on this critical topic.

Borg (2017) makes a critical point: parents and the school are crucial in developing children's behaviour and attitude towards the environment. Parents and teachers influence children's knowledge and future well-being. Castillo-Huitrón et al. (2020) have also suggested that how adults respond to social issues, such as environmental conservation, environmental justice, and environmental awareness, can influence children's environmental knowledge. This suggests that if adults teach them, children's knowledge, interest, and information about environmental issues may improve and help protect the environment.

It should also be noted that children's perceptions of their world are the product of their interaction with individuals from various cultural backgrounds (Asah et al., 2018). In this regard, Davis and Elliot (2023) assert that more focus must be on curriculum initiatives that would equip teachers with relevant knowledge to teach young children about environmental issues in their communities. Additionally, Ramadhan et al. (2019) contend that teachers should be provided with platforms to engage children with adequate information and knowledge.

1.3 Focus and purpose of the study

The study focused on Grade 7 learners' understanding of environmental issues that affect them within a rural context in the uMgungundlovu District. The study aimed to explore Grade 7 learners' understandings of environmental issues that affect them within their communities. The study also aimed to investigate the factors contributing to learners developing particular attitudes, concerns and awareness of environmental issues in their communities and how their understandings contribute to environmental awareness and environmental justice.

1.4 Rationale for the study

Personally and professionally, my interest in conducting this study stems from a lack of education about the environment in schools and at home. When walking in the area that I live in, I see litter and decay. I also see children playing amongst the debris, seeming oblivious about why there is litter or what could happen if they play in areas filled with litter. Further, children in this community are exposed to deforestation as people clear forests to build houses and gather wood for cooking and energy during winter or for small-scale farming. Water scarcity is also a significant issue in the community, as there are times when the community have to do without water for over three weeks. This often leaves them with no alternative but to collect water from the river, which may expose them, including children, to many health problems as they must drink contaminated water. These are just some of the environmental issues evident in the community. In reflecting on these realities and possibilities, I have often questioned whether schools, communities and parents are teaching children about environmental issues.

On a professional level, learning what learners know and understand about environmental health is essential, as well as what they think, for example, causes environmental damage and destruction. For future reference, findings from this study could filter through where I can teach children to take responsibility for caring for the environment and working towards environmental justice. Their perspectives can form the building blocks of lesson plans I can develop to integrate environmental education awareness within the school space. This study is vital for my understanding of the learners' perspectives of environmental issues in a rural context and the factors that contribute to their perceptions.

Rural contexts are often historically underdeveloped due to neglect during apartheid, where the government did not provide resources and requisite support for development (Masinire & Ndofirepi, 2020). Even after democracy, rural contexts seem invisible, marginalised and forgotten (Mokwena & Maluleke, 2020). Moletsane (2012) contends that one of the ways to fight back against inequality is through education. Thus, learning about children's understandings of what can be done to challenge environmental injustice is essential.

Across the globe, nations have embarked on initiatives to generate environmental awareness. For example, Wang et al. (2022) found that China's growing environmental awareness is due to the political will of the government. In this regard, Wang et al. (2022) argued that children have become aware of environmental destruction and can address environmental issues that threaten their livelihoods. Mohiuddin et al. (2018) also assert that pollution, acid rain, global warming, and the greenhouse effect have contributed to environmental awareness. In this regard, Mohiuddin et al. (2018) argue that most developing countries can invest in younger generations through environmental education programmes that are interesting and fun to be involved with.

Liefländer et al. (2013) contend that globally, environmental awareness and learners' understanding of environmental issues has been under-explored in research and calls for more research into this area. This is the area to which this study sought to contribute, especially regarding children's understandings of environmental issues within the rural context of South Africa. This way, this study can contribute to knowledge from the vantage point of children's perspectives.

1.5 Context of the study

The research site for this study was a school in the rural context of uMgungundlovu District, under the Umshwathi Municipality, approximately 45 kilometres from Pietermaritzburg, KwaZulu-Natal province. This area is governed by traditional leadership (Inkosi) and a local municipal councillor. The school, established in 1936, in which the research was conducted, was named after the mountain in the area. Trees, sugar cane and avocado farms surround the area. Many parents of the learners attending this school work in the nearby sugarcane farms. However, some families own small-scale sweet potato, African potato, and mealies farms to sell to the surrounding communities.

1.6 Research questions

- What are learners' understandings of environmental issues they encounter in their communities?
- What factors contribute to learners developing environmental awareness and attitudes?

- How do learners' understandings of environmental issues contribute to environmental conservation and justice?

1.7 Theoretical framework of this study

The theory of children's geographies framed understandings and discussions in this study. The notion of children's geographies originates from human geography and has become an essential branch of new childhood studies. Children's geographies feature three crucial concepts: agency, place and space (Muthukrishna, 2013). Children's perspectives have become the most critical aspect for me to understand as a novice researcher. The theory of children's geographies was most appropriate for this study as it situates and centralises children's voices (Murray, 2015). In this regard, the theory argues that children have agency and can provide a critical understanding of the world (Abebe, 2019). This allowed me to show the children's understanding of environmental issues and the subsequent injustices that may occur. To achieve this, the three concepts of space, place and agency were used to explore children's stories about the environment.

The concept of space signifies children's capability to construct relationships with peers and adults in the school, community and home environment (Wenham, 2019). However, according to Gray and Manning (2022), space is also filled with power relationships that can affect children's ability to have their voices heard. For example, suppose parents and community members fail to teach children critically why their area is environmentally unhealthy. In that case, children will not get the necessary knowledge to voice their concerns or challenge people who may be misusing the environment.

Space is closely linked to agency because, historically, children have been thought of as politically unaware and powerless, resulting in their voices being restricted (Punch & Tisdall, 2012). Agency refers to the capacity to act independently and make decisions. Children may, however, rely on adults to make some decisions, such as protection from hazardous environmental risks and factors (Rother et al., 2019). Because this study was based in a rural context characterised by poverty, environmental degradation and other socio-economic factors, children may be thought of as powerless in their own spaces, primarily if oppressive cultural conceptions about children exist. This may, therefore, influence children's agency regarding environmental issues.

According to Childhood Studies, place refers to the living environment - the physical area seen with the naked eye (Holloway & Valentine, 2000). Place could be seen as a physical place, such as children's homes, communities and schools. This is the area where children's lived experiences and different perceptions are being explored. Zondi and Qwabe (2022) argue that a lack of resources and infrastructure characterises rural places. Thus, rural places could be a place that prevent people, especially children, from exercising their inadequate agency (Abebe, 2019), not because of their will but because of these systemic issues.

As indicated previously, a dearth of empirical research has focused on children's understanding of the environment using the notion of children's geographies (Hammond, 2020). The purpose of conducting this research was thus to seek an understanding of children's perspectives or understandings of the environment in a rural area and, therefore, contribute to this body of research. One may assert that the drive behind conducting this study stems from how I position my thinking about children. I work with the understanding that children have the critical capacity to understand the world in which they live (Stoilova et al., 2019). Therefore, through this research, I wanted to understand what it means to be a child facing environmental issues within a rural context.

1.8 Methodological approach

This study used a qualitative narrative inquiry approach to understand children's views about the environment. Narrative inquiry refers to people's narratives and experiences regarding the phenomenon under investigation (Webster & Mertova, 2007). Clandinin (2006) describes narrative inquiry as a methodology that studies people's lived experiences in their natural settings. Narrative inquiry was suitable for this study as it helped me understand learners' stories about how they experienced awareness of environmental issues in their homes and schools within a rural context.

Narrative qualitative inquiry is characterised by understanding the environment, people and their relationships, behaviours, actions and activities (Cohen et al., 2017). Using the qualitative narrative approach gave me an in-depth understanding of learners' understanding of environmental awareness and environmental issues in a rural context.

The data was generated using qualitative methods: individual semi-structured interviews, mapping, and focus group interviews with the eight participants who were purposively selected.

1.9 Introduction of the participants

This section provides a brief outline of the participants' biographical information. The study comprised eight participants: four girls and four boys. The participants were learners between the ages of twelve and fourteen. All the participants lived in the area where the school is located. However, some participants lived far away from the school, although it was a walkable distance. They got along very well, and sometimes, I would find them waiting for me, joking and teasing each other about petty issues. All the participants were born and bred in this community. This was an added advantage for this study since it helped me capture vital information and knowledge about rural contexts through children's perspectives. The following is the short introduction of the eight participants, whom I provided a listening ear to their experiences of environmental issues.

1.9.1 Nonhle

Nonhle lives in the area where the school is located. She has been in this school for more than seven years since Grade R. Nonhle is a twelve-year-old Grade 7 learner and one of the shy participants. She lives with her family. Her parents are unmarried, and she lives with her maternal family. Her family consists of extended members, such as aunts and uncles from her maternal side. Nonhle wishes to be a doctor after completing her matric. Nonhle shared that it is her dream to help other people, especially the elderly, who may be sick because she feels that the ill and the elderly are often forgotten in the area where she lives, especially by the government. Therefore, she ensures that she performs her schoolwork to the best of her ability.

1.9.2 Sibusiso

Sibusiso, like Nonhle, has been in this school since he started Grade R. He is the tallest amongst the group and is very funny, too. Sibusiso likes to share jokes, often coming up with silly stories out of the blue. He is academically strong and always comes top of the class. Sibusiso is 12 years old and wishes to pursue his studies after matriculation. He dreams of becoming a weatherman and broadcasting weather like Mkhushulwa on South

African Broadcasting Corporation (SABC) News. Sibusiso lives with his family of 15 members, including grandparents and grandchildren. Sibusiso mentioned that reading the news about the weather on television would be a dream come true for him.

1.9.3 Bunhle

Bunhle is a class prefect in her school. She has been in this school since Grade 1. Bunhle enjoys playing with her friends and is academically strong, talkative, and confident. Her favourite subjects are Natural Sciences and Technology. Bunhle wishes to become a teacher one day. She dreams of sharing her knowledge and essential information about current affairs issues. She also indicated that she performs to the best of her capabilities, so it will be easier to navigate high school life the following year.

1.9.4 Ayanda

Ayanda has been in this school since Grade R. Ayanda is also from this community and lives with his family of five members. Compared to the other participants, he comes from the smallest family. Ayanda wishes to continue with his studies after completing matric. His dream is to become a social worker. Ayanda mentioned that he is passionate about helping others in need, hence studying towards a social work degree.

1.9.5 Lulu

Lulu is twelve years old and lives not far from the school. Lulu lives with her grandparents, maternal aunts and uncles, who work in the nearby sugarcane farms. Lulu likes laughing and sharing jokes with her friends. She would love to become a nurse one day after completing her matric. Her dream is to wear the white uniform and heels like the nurses she usually sees when visiting the mobile clinic in the area. She indicated that she would make sure that a clinic is built so that people from the community can access health facilities quicker when they are sick without waiting for a mobile clinic that comes once a week.

1.9.6 Nono

Nono is thirteen years old and lives in this community, not far from the school. Nono enjoys Mathematics and English. She is a bubbly and talkative child who lives with her paternal family members because her parents are married. I enjoyed her company the

most as she was always welcoming and confident. Nono has a good relationship with her peers and teachers. She wishes to become a dentist after completing her matric. She is fascinated by the medical world and believes that her community needs to be uplifted.

1.9.7 Themba

Themba is the oldest of the participants. Themba is fourteen years old, very shy, and talks less than others. Themba lives with his family and is also from this community. There are ten people in his family. Her father works as a security guard at a sugarcane farm. His mother is unemployed. Themba wishes to become a police officer after completing his matric. He is passionate about catching criminals. Themba mentioned that there are a lot of house break-ins in this community and that the police are doing nothing to help the community. He dreams of living in a community free of crimes and other criminal activities that affect his community's social well-being.

1.9.8 Lungisani

Lungisani, like Themba, talks less and is shy, too. Lungisani is twelve years old and lives with his family. There are twelve family members in his home. He loves his 80-year-old grandmother very much. Lungisani's parents work at the sugarcane farms in this community. Lungisani would like to become a doctor after completing his matric. Lungisani likes sports very much, especially soccer. He shared that if his dream of becoming a doctor fails, becoming a soccer star would be his second option.

1.10 Structure of the dissertation

The study is organised into five chapters, the contents of which are summarised below.

Chapter 1 outlines the background of the study and presents the focus, rationale, objectives, and research questions that guided the study. The chapter briefly introduces the methodological approach and theoretical framework underpinning the study.

Chapter 2 presents a literature review from national and international studies, focusing on legislation and policies to protect the environment. The national curriculum's role in ensuring learners understand environmental issues in their communities is also discussed. Empirical literature addressing learners' understandings of the environment and

environmental issues is also reviewed and discussed in this chapter. The second part of the chapter discusses the theory of children's geographies as the theoretical framework underpinning the study.

Chapter 3 discusses the methodological approach, research design, data collection methods and tools used, and the ethical considerations to ensure the participants' rights are respected, protected and upheld. The limitations of the study are also included in the discussion.

Chapter 4 presents and discusses the findings of the study. The themes and sub-themes that emerged during data analysis are presented in this chapter. The chapter further introduces and discusses the narratives of the participants' understandings of environmental issues, using the literature review and the theoretical framework.

Chapter 5 summarises and elevates the critical issues, including the study's key findings. The researchers' reflections and implications for the study are also discussed.

1.11 Conclusion

This chapter provided the background and overview of the study. The background, aims, and rationale of the study were discussed. The introduction and discussion followed the context of the study, the research questions that guided this study, and the methodological approach I employed. The theoretical framework was also explained in this chapter. I also introduced the study participants and concluded with a brief discussion of the structure of the five chapters that make up the dissertation.

2. Chapter 2

Literature Review and Theoretical Framework

2.1 Introduction

This chapter reviews related national and international literature and outlines emerging concepts and themes. The chapter also discusses local and global perspectives regarding learners' understandings of environmental issues affecting their communities. The chapter begins by conceptualising the critical concepts used in this study. This is followed by discussing the legislation and policies related to the environment. The chapter then discusses what empirical literature indicates about learners' understandings of the environment and what they believe causes environmental destruction and devastation. In this regard, the chapter reviews what learners believe can be done to conserve and protect the environment. The second part of the chapter discusses the theory that frames the study: the Theory of children's geographies. The Theory of children's geographies explains the importance of children's agency in engaging in complex matters, such as environmental destruction.

2.2 Defining key concepts

The primary purpose of this study is to explore learners' understandings of environmental issues. Thus, it is imperative to understand the fundamental concepts used in this study first.

2.2.1 Environment

Wals and Benavot (2017) define the environment as water, land, air, soil, flora and fauna, including the interrelationships between these factors and interrelationships with human beings and other living organisms and non-living. In other words, the argument is that the environment coexists with human beings and property.

2.2.2 Environmental issues

According to the United Nations Environmental Programme (UNEP, 2014), environmental issues relate to the quality and functioning of the natural environment and

natural systems, including pollution, waste management, and natural resource depletion due to, among other things, human activity.

2.2.3 Environmental injustice

Vaz et al. (2017) define environmental injustice as the system and institutionalised vision that jeopardises a group's or society's health. However, Vaz et al. (2017) contend that the health and well-being of poorer and more marginalised communities are at risk as they are subjected to all kinds of pollutants, as poorer communities often live proximal to industries and factories that emit the pollutants. Vaz et al. (2017) argue that environmental injustice is committed against people who lack the power and resources to challenge this inequality.

2.2.4 Environmental behaviour

Environmental behaviour can be described as behaviour that includes all human activities. This behaviour has a particular impact on the environment, both positive and negative (Krajhanzl, 2010).

2.2.5 Environmental attitudes

According to Panth et al. (2015), environmental attitude is a taught understanding of the environment, influencing how one thinks about the environment. This can be a positive or negative attitude towards the environment. Panth et al. (2015) further contend that for change to occur, there has to be a change in attitude towards the environment, given the global environmental destruction rate.

2.2.6 Environmental education

Environmental education is the process of learning that increases an individual's awareness and knowledge of the environment (UNESCO, 1976). UNESCO (1976) further explains that environmental education is connected to the challenges and allows for the development of essential skills and practical abilities to tackle the challenges. Boca and Saraçl (2019, p. 1) contend that teachers must know about environmental education as this is important to "training and preparing the future generation for a green society". Fang et al. (2022) extend this idea, arguing that environmental education is not only for basic education but should be extended to higher education, where environmental

education should be weaved through environmental protection programmes. In this way, a wider band of people are exposed to education and can also shoulder this responsibility of environmental accountability. They further assert that environmental education is not limited to formal education that occurs only within the classroom walls (Fang et al., 2022).

2.3 Legislation and policies related to the environment in South Africa

This section presents relevant laws and policies regarding protecting the environment and people's responsibilities towards the environment in South Africa.

2.3.1 The Constitution of the Republic of South Africa, 1996

The Constitution of the Republic of South Africa guarantees the protection of the rights of all its citizens. The Constitution, for instance, states that everyone has the right to have a healthy, clean environment (Republic of South Africa, 1996a). Section 24 of the Constitution, in particular, states as follows:

> *Everyone has the right –(a) to the environment that is not harmful to their health or well-being; and (b) to have the environment protected, for the benefit of present and future and future generations, through reasonable legislative and other measures that- (i) prevent pollution and ecological degradation; (ii) promote conservation; and secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.* (Republic of South Africa,1996a, p. 10).

According to the Constitution, the government must ensure that the people of South Africa are protected and occupy places free from pollution and ecological destruction. However, this is far from the reality and experience of some South African communities. Within rural areas where this study is set, the effects of the past apartheid system continue to be felt today despite the country's adoption of democracy and enfranchising human rights framework. These communities are facing convoluted realities of poverty and social inequality left by the apartheid. Whilst this applies to the entire country, Mokwena and Maluleke (2020) argue that systemic inequality and deprivation have become more

pronounced in rural areas. Mokwena and Maluleke (2020) further argue that this inequality is evident in extreme poverty, poor infrastructure and systemic inequality, where education is marked by poor quality and teachers are often unqualified or underqualified. Teachers in these rural areas are also not exposed to professional development, particularly environmental education. For example, in their study, Hentschel et al. (2022) found that inequality continued unabated despite the protections provided by the Constitution. In this regard, Hentschel et al. (2022) found that authorities often ignored concerns about environmental issues from poor and vulnerable communities.

To address challenges and map the way forward in critical issues facing the country, the South African government launched the National Development Plan (NDP) and Vision 2030 (National Planning Commission, 2012). The primary purpose of the NDP was to set the country on the path of addressing key challenges, such as poverty and inequality, by 2030. Chapter 5 of NDP refers to environmental sustainability, especially in rural areas. According to the NDP key point number 2, "all the challenges must be addressed in a manner that ensures environmental sustainability and builds resilience to the effect of climate change, particularly in poor communities" (National Planning Commission, 2012, p. 197). This critical point, in particular, emphasises the government's obligation to promote environmental sustainability to ensure poor rural communities have access to environmental knowledge and environmental laws, acts, and policies that are in place but millions of people are unaware of.

Laws and policies must promote environmental education, awareness and justice. Thus, the continued destruction of the environment causes one to question the political and administrative will to ensure environmental protection. According to Rhodes (2018), this is because of a battle of power where social, political and economic factors play a role. According to Bao and Liu (2022), enforcing regulations is required, and consequences must be implemented against the culprits.

2.3.2 South African Schools Act 84, 1996

The South African Schools Act (SASA) no 84 of 1996 is the most critical law regarding the governance of schools as it ensures that all children have equal rights to access

education (Republic of South Africa, 1996b). The SASA further states that every child has the right to a safe and healthy environment that is not harmful and conducive to living (Republic of South Africa, 1996b). The primary purpose of the SASA is to provide equitable resource allocations, including funding, to schools, which helps with the functioning and administration of the school, including maintenance of infrastructure and the school's physical environment. However, while legislation and policies exist to enhance and protect the environment, Murshed et al. (2021) have found that people continue to destroy the environment.

2.3.3 Curriculum and Assessment Policy Statement, 2011

The Curriculum and Assessment Policy Statements (CAPS) call for integrating environmental education across all learning areas. In this regard, subjects such as Life Skills, Natural Science and Geography cover specific content topics that deal with the environment. Schools are important sites where learners can become aware of what is occurring in the environment and obtain a deeper understanding of environmental issues such as deforestation, pollution, climate change and the use of natural resources. However, Hebe (2019) and Benjamin and Adu (2019) have questioned the practicality of ensuring that this can occur, especially when teachers are not critical of the environmental issues that arise. This presents a problem with how learners can acquire the skills that empower them to become critical actors towards the environment.

These researchers and others, for example, Buchanan et al. (2018), have reported a disjuncture between policy and practice. Findings from their research have revealed that learners, in the end, do not have a proper understanding of the environment and, more importantly, their role in taking care of the environment for the future. Buchanan et al.'s (2018) study revealed that environmental education was often marginalised in schools, leading to frustration and a lack of critical understanding of environmental concepts, practices and injustices. Whilst this study does not focus on environmental education as it occurs within the school, it is understood that learners' understanding of environmental issues, such as deforestation, climate change, water scarcity, pollution and so forth, comes from what they have learned in school. Additionally, Ndzimbomvu et al. (2021) found that school subjects such as Natural Sciences, Geography and Life Skills were the only subjects in the South African curriculum that included environmental issues. However,

very few topics related to environmental degradation are covered. This raises concerns about disseminating information and knowledge regarding environmental degradation issues in schools and communities. However, they explained that some learners reported obtaining more information from the school than from other sources, such as family, friends, and social media.

Roberts (2023) asserts that there remain issues with what should be included in the curriculum that would give learners a good understanding. Wanchana et al. (2020) believe it is not about the curriculum itself but somewhat different approaches to teaching about the environment that account for learners' lack of understanding. For this reason, Benjamin and Adu (2019) have called for greater government involvement and revision where there are clear curriculum goals, content (for example, sustainable development, environmental justice, etc) and clear guidelines to teachers on how to teach content. Damoah and Omodan (2022) contend that if teachers and principals adequately understand curriculum policy, they will confidently teach. Regardless of the tension, what research does agree is that we need to enter into the global conversation about environmental education if we are to have an environment that is safe in the future (Roberts, 2023; Wanchana et al., 2020; Damoah & Omodan, 2022).

2.4 Children's understanding of the environment and environmental issues

Chang and Kidman (2020) assert that for two reasons, Greta Thunberg, a child environmental activist, has played an essential role in raising awareness of the environment and the issues that lead to its destruction. For instance, Chang and Kidman (2020) argue Greta Thunberg has argued that adults are the ones who are destroying the environment, for example, climate change. Secondly, Chang and Kidman (2020) contend that Thunberg has also raised world awareness by allowing young people to discuss and know about the environment.

Spiteri (2021) asserts that although there are various ways in which learners can demonstrate their understanding of environmental problems, children at certain ages have developed complex thinking about how the social, political, cultural and economic factors influence the state of the environment. As a critical socialisation influence, the family can teach children at a young age about conservation and protection of the environment.

Gifford and Nilsson (2014) state that families' ability depends on the education level of family and community members. Thus, for example, they found that their knowledge base is often limited when people have not completed basic education. This can account for why some learners do not have adequate information about the environment. However, Illiopoulou (2019) believes that the primary socialisation influences often determine the involvement of children in environmental issues and their decision-making capabilities, problem-solving skills, agency and critical thinking.

Cultural factors that influence the state of the environment relate to, for example, the norms and values of particular cultural groups about the environment (Frese, 2015). Frese (2015) indicates that when members of a particular culture encourage the community to participate in clean-up campaigns, the children and community members can be socialised into their responsibilities and obligations towards the environment. Hall and Lukey (2023) assert that the inability of the general public to comply with environmental policies to protect the environment is often based on cultural factors. For instance, if a community is poor and marginalised and has no access to essential services, cutting down trees may be their only viable option to sustain life. Thus, one can see how community and values about what is more critical, trees or basic survival, which means that basic survival takes precedence. Şafakli (2014), in a study conducted in Northern Cyprus, found that sustainability is possible when communities and schools use positive aspects of culture to promote environmental awareness and protection. This is because social and cultural factors shape children. Culture influences how they think about and agree about specific issues regarding the state of the environment (Mauchi et al., 2020).

Children in Spiteri's (2021) study could identify and describe the complex links between local environmental issues such as waste disposal, pollution and loss of indigenous trees. Spiteri (2021) states that children must be exposed to ways of thinking about environmental issues on a global scale because they have the capacity. Given that children can clearly understand what is happening in the world, it is also essential for education to play its role. Thus, what are children's understanding of the environment and their awareness of environmental issues? Environmental awareness is about the environment and the problems that exist in it (Panth et al., 2015), and it causes destruction in the present and possibly in the future as well. There are various ways in which children can learn about the environment; it is not only through environmental degradation. Research by

Adams and Savahl (2015) found that when children are more environment aware, there can be benefits regarding sustainability.

This understanding aligns with what Trott (2021) has observed: children, after being exposed to environmental education awareness programmes, can develop critical perspectives in bringing about change in the world. This can be observed from the activist stance that Greta Thunberg has taken about the environment (Chang & Kidman, 2020). Rios and Menezes (2017) and Iliopoulos (2018) have found that when children are aware of environmental issues, such as deforestation or waste disposal, climate change and so on, they develop protective instincts towards the environment. For instance, children in their studies showed emotional distress when witnessing the destruction of forests and habitats. The protective instincts they possessed empowered them with an emotional connection with the environment. Rios and Menezes (2017) and Iliopoulos (2018) also observed that protective and caring attitudes towards the environment resulted from their awareness of its importance to human life. Rios and Menezes (2017) reported that children also realised that the environment had a past and that people in the past also failed to protect it. Rios and Menezes (2017) and Iliopoulos (2018) raised the importance of preserving and protecting natural resources for future generations. This implies that developing children's capacity to engage with and know about environmental issues is critical.

Du et al. (2018) point to three main components of environmental awareness: perception, behaviour, and attitudes towards environmental management measures. Du et al.'s (2018) study, for instance, found that environmental awareness in rural China improved due to better behaviour towards the environment. Improved environmental behaviour resulted from improvements made to adequate exposure to relevant information. Further, people became aware of the measures required to protect the environment, what they were prohibited from doing and the applicable consequences if they contradicted the measures. This shift points to the importance of the government's will to protect the environment. Similarly, in their study, Mutisya and Barker (2011) reported that primary school children were aware of human activities that could cause environmental degradation, such as clearing of land for farming and building houses for growing populations, wildfires, timber sale, charcoal burning, water and land pollution. In this regard, Mutisya and Barker (2011) argued that the potential for changed behaviour can be reached with awareness.

Kanene (2016) reported in his study conducted in Botswana that learners embraced the idea of integrating environmental issues into the curriculum. Here, learners mentioned that they could understand the importance of sustainable behaviours and preserving and appreciating the environment through environmental education. In addition, they learned various ways of caring for the environment so it can be conserved for future generations. This reasoning suggests they understood the significance of environmental awareness in their schools and communities. In this regard, in their study, Kanene (2016) reported that learners supported the idea of having environmental clubs in their schools and celebrating the critical days in the environmental conservancy, such as World Environmental Day. This is how learners demonstrate their environmental awareness and how the importance of protecting the environment can be promoted.

In their study conducted in KwaZulu-Natal province, Ngidi and Essack (2022) found that most children here experience social obstacles. There is a high risk of social obstacles hindering their journey before they reach school as well as before they reach their homes. Findings further revealed that the space they normally used to and from school is unsafe. This suggests that young children are observant and critically understand safe and hazardous environments. Most importantly, they could comprehend the environmental risks they encounter in their community.

Similarly, Lipholo (2021) also reported in her study conducted in different communities in South Africa, Gauteng province, that children are aware of environmental risks in their communities. These risks include water contamination, air and land pollution, and waste. Therefore, children can contribute knowledge to address environmental risks and poverty in their communities. The findings from the studies above suggest that child participation and community involvement in addressing environmental issues in our community are of utmost importance.

2.4.1 Economic factors influencing the state of the environment

Generally, individuals' financial status is often considered sufficient for development. However, this assumption can sometimes negatively impact the environment, reducing the understanding of development to balance sheets and individuals' access to economic

resources and incomes (Ajibade et al., 2021). In this regard, Zhang et al. (2023) contend that countries with the highest gross domestic product (GDP) often have higher environmental protection issues. Zhang et al. (2023) have also reported that countries with economic strength can solve some, if not all, of their environmental issues because they have resources to invest in, for instance, pollution control measures and the execution of environmental policies. The lack of resources in poor and developing countries like South Africa is often a barrier to a healthy balance between economic stability and sustainable development (Ameen & Mourshed, 2017). For instance, Ameen and Mourshed (2017) found that inadequate housing programmes often lead to environmental degradation.

Likewise, Zhang and Cheng (2023) found that economic growth often demands that consumer goods be transported in particular ways. Often, goods are transported by rail or road, and when goods are transported, the transport emits gases that pollute the air or result in oil spills that pollute water where transport is by sea. These activities have a run-on effect where animals and plants in the ocean may die, contributing to imbalances in the food webs and the entire ecosystem (Arias & Botte, 2020). In this regard, Ogboru and Anga (2015) conducted a study in Nigeria on environmental degradation and sustainable development. The study revealed that population growth is related to socio-economic growth (Ogboru & Anga, 2015). This suggests that the influx of people in urban spaces may lead to demands for more land. This has put more pressure on the available land space for food production, housing allocation, and infrastructures, which exerts pressure on the environment. High demand for land has often resulted in the country's biodiversity loss. In this regard, Ogboru and Anga (2015) have concluded that economic development and environmental management are connected to social factors, including public participation and education levels.

2.4.2 Environmental protection and responsibility

Empirical research suggests that the environment needs to be protected and that the responsibility needs to come from individuals, groups and the government. For example, a study conducted by Adams and Savahl (2015) in Cape Town on protecting and being responsible for the environment reported tensions and debate around this understanding. Adams and Savahl's (2015) study revealed that children believed the municipality must

collect garbage and dispose of waste to maintain community spaces. In this regard, children pointed to systemic inequality, which is evident in the lack of services and inadequate management of domestic waste. Children cited poor service delivery and access to essential services contributing to environmental degradation (Adams & Savahl, 2015). However, the children could not understand their contribution to environmental degradation in their communities. This led Adams and Savahl (2015) to conclude that children have a limited understanding of environmental responsibility and believe others are responsible for their actions. In this regard, Adams and Savahl (2015) argued that a possible reason for this reasoning could be the lack of positive influence from adults both at school and at home.

Šorytė and Pakalniškienė's (2019) study explored the importance of protecting the environment. In this regard, the findings of their research revealed that children could understand relationships in the environment and the effects of environmental change on nature (Šorytė & Pakalniškienė, 2019). Their findings were contrary to those of Adams and Savahl (2015). In Šorytė and Pakalniškienė's (2019) study, children argued that environmentally harmful behaviours were wrong and that it was everyone's responsibility to change negative behaviour and protect the environment. The children had developed strong moral beliefs about the need to protect the environment and their responsibility for its protection and preservation. In this study, children had a strong preference for natural environments and settings (Šorytė & Pakalniškienė, 2019).

For instance, children believe it is the adults' responsibility to build positive perspectives of the natural environment and to remove any fear and negative feelings, such as being afraid of the wild and animals (Šorytė & Pakalniškienė, 2019). Research suggests that despite many attempts to create and promote environmental awareness, environmental issues are far from resolved. In this regard, Mapotse and Mashiloane (2017) have argued that families and schools must take responsibility for raising children's environmental awareness and literacy. This means families and communities must instil environmental preservation values and skills in the children. Ugulu et al. (2013, p. 421) stress that environmental training at all stages of education must be developed, and individuals who realise that they have caused environmental harm should also be responsible for solving it. This is one way in which people, starting at a young age, can be taught to be

accountable for protecting the environment and reminded that they must preserve and conserve it for future generations.

Šorytė and Pakalniškienė (2019) bring in a critical aspect of children's capacity and ability. For instance, they state that researchers, teachers and policymakers have a responsibility to acknowledge the contribution that young children can make to the environment and the issues that may occur therein (Šorytė & Pakalniškienė, 2019). Šorytė and Pakalniškienė (2019) further assert that children can understand the links between the root causes and effects of human-induced as well as nature-induced environmental issues in their communities. For example, in their study, Šorytė and Pakalniškienė (2019) note that children can identify the root cause of some environmental issues, such as litter, air, and water pollution, which are directly linked to human behaviour. In other words, children can understand that the causes of environmental problems or destruction may result from human beings. For instance, in their study conducted in Vilnius, the capital and the biggest city of Lithuania, children asserted that humans cause environmental issues that they encountered in their communities in the form of cars and factories which emit gases into the atmosphere, thus interfering with the quality of air that is necessary to human survival (Šorytė & Pakalniškienė, 2019). In this regard, they understood that the odour from litter and garbage in the public space involved human beings not respecting and caring for the environment and that the root causes of some environmental issues resulted from the behaviours of their communities.

2.4.3 The environment and environmental issues: A South Africa perspective

Studies conducted in various South African contexts highlight a growing awareness among children about environmental issues. According to Mulaudzi and Mokoena (2021), children in both urban and rural areas show a basic understanding of environmental concepts such as pollution, conservation, and climate change. Their immediate surroundings, experiences, and the media they consume often influence this awareness. One significant finding by Mathee et al. (2018) indicates that children who live in areas with visible environmental degradation, such as littering and air pollution, are more likely to recognise and articulate these issues. Conversely, children in more pristine environments might lack immediate exposure but gain awareness through school programs and media.

Several factors contribute to how children understand environmental issues in South Africa. These include education, socioeconomic status, and cultural background. Damoah and Adu (2022), Kruger (2020) and Zwelibanzi (2016) argue that formal education plays a pivotal role, with schools incorporating environmental education into the curriculum through subjects like Life Orientation and Natural Sciences. These subjects aim to instil knowledge about environmental sustainability and encourage positive attitudes towards the environment. Socioeconomic status also plays a critical role. Children from higher socioeconomic backgrounds often have greater access to educational resources, extracurricular activities, and technology that enhance their environmental knowledge.

In contrast, children from lower socioeconomic backgrounds might have limited access, although community programs and NGOs often fill this gap by providing environmental education and activities (Damoah & Adu, 2022). Cultural background influences how children perceive and interact with their environment. Research by Hlalele (2022) highlights that indigenous knowledge systems and traditional practices contribute significantly to environmental understanding among children in rural areas. These practices often emphasise a harmonious relationship with nature and sustainable resource use, which is crucial for environmental education.

The insights from recent studies suggest several implications for educational practice in South Africa. Integrating environmental education across various subjects and promoting experiential learning are essential strategies. As Mulaudzi and Mokoena (2021) recommend, hands-on activities such as school gardening, recycling projects, and field trips to natural reserves can enhance children's understanding and appreciation of the environment. Moreover, collaboration between schools, communities, and environmental organisations can create a more comprehensive approach to environmental education. This collaboration can provide diverse learning opportunities and resources, especially for children from disadvantaged backgrounds (Damoah & Adu, 2022). Recent literature underscores the importance of fostering environmental awareness among children in South Africa. Education, socioeconomic status, and cultural background significantly influence their understanding of environmental issues. Educators can better equip children to become informed and proactive environmental stewards by integrating environmental education into the curriculum and promoting experiential learning.

2.5 Children's agency towards environmental issues

The notion of children's geographies calls for researchers and those within education to recognise the capacity and ability of children (Holloway & Valentine, 2014). Williams et al. (2017) assert that children with agency develop self-perception based on their abilities as independent thinkers. They further explained that, as adults, we must direct children toward their thoughts and try to help reveal their thinking by reflecting on what they are observing and thinking (Williams et al., 2017). This suggests that children can identify pressing issues, such as environmental issues, in their schools and communities.

Trott (2020) reported, in their study conducted in the United States, that children, through their action projects, could observe and experience the consequences of their actions on others and the environment, which enhanced their agency to make a difference. The research investigated how children experienced climate change awareness through hands-on educational activities. The study was framed as an after-school programme. The project focused on children as individuals. In this regard, the children who participated in this study were given opportunities to reflect on their awareness of climate change and other environmental issues. The study's findings revealed that when given opportunities, children can take ownership of their actions by engaging in environmental programmes that raise environmental awareness. This sense of agency allowed them to become independent and learn sustainable living methods. In this regard, Trott (2020) reported that children with a high sense of agency actively seek solutions rather than disengage from the problems. Thus, it can be argued that environmental projects and programmes may provide a foundation for children to become active social actors.

The section discussed the importance of acknowledging that children can understand the world in which they live and can identify the issues harmful to the environment. Furthermore, the literature review suggests that children can protect the environment for future generations but that cultural and economic factors can influence their learning. In the next section, I discuss factors that have shaped how learners develop ideas and attitudes about the environment. However, in this regard, most literature I could locate focused on the negative human-induced factors that influenced how learners learned about environmental issues. These are discussed in the section below.

2.6 Deforestation as a result of human behaviour and activity

One of the major influences on how learners become aware of environmental issues is deforestation. In this regard, findings of studies conducted by Ahi and Balci (2018) and Spiteri et al. (2020) suggest that children can understand the causes of deforestation. In Spiteri et al.'s (2020) study, children reported that human activity was the cause of land degradation and the depletion of natural resources. For instance, the children reported that people often cut down trees to make way for human development. However, the children did not only report that deforestation resulted from human activity and economic gain but also that deforestation had consequences. For example, one of the consequences the children pointed to was that animals' survival became difficult, and homes were often lost due to deforestation. These studies revealed that deforestation must be prevented as the environment must be protected and treasured. Ahi and Balci (2018) and Spiteri et al. (2020) suggest that relevant measures, such as protection, prohibition, and punishment for individuals responsible for environmental harm, must be implemented.

Hammarsten et al.'s (2019) study in South Sweden found that children argued that life without plants was unfathomable. This finding suggests that children can understand the ecological significance of plants to life; thus, for example, children associated the cutting of trees with oxygen depletion. Such awareness is critical to developing learners' understanding of the environment. However, not all children may fully comprehend the consequences of deforestation. This limited understanding was revealed in the study conducted by Ahi and Balci (2018), in which findings showed that although the majority of children can describe the concept of a forest, some cannot describe deforestation, pointing to the need for learners to be assisted to develop more critical understandings of environmental problems. Children's naive, idealised image of the environment is often influenced by what they see, for example, on television and in movies (Spiteri et al., 2022). However, Ahi and Balci's (2018) study revealed that some children understood the causes of deforestation and its consequences. This finding points to the complexity of environmental issues for children and the guidance required to help them develop ideas about the environment and how to protect and conserve it.

Deforestation, driven by various human activities, remains a pressing environmental issue in South Africa. Understanding the drivers behind deforestation is crucial for developing effective strategies to mitigate its impact. Recent South African discussed above literature sheds light on the complex interplay between human behaviour, socioeconomic factors, and deforestation. Human behaviour and activities significantly contribute to deforestation in South Africa. According to Prochazka et al. (2023) and David (2024), the primary drivers include agricultural expansion, urbanisation, logging, and fuelwood collection. The need for economic development and livelihood improvement often propels these activities. Agricultural expansion is a leading cause of deforestation, particularly in rural areas where subsistence farming is prevalent. Munthali et al. (2020) highlight that small-scale farmers often clear forests to create arable land essential for food production and income generation. However, this practice significantly reduces forest cover, biodiversity, and ecosystem services.

Urbanisation also plays a critical role in deforestation. The growing demand for land to accommodate expanding urban populations results in converting forests into residential, commercial, and industrial areas. James (2024) and Skowno et al. (2021) note that urban sprawl leads to direct forest loss and triggers secondary impacts such as increased pollution and habitat fragmentation. Logging, both legal and illegal, contributes substantially to deforestation. Legal logging activities, regulated by government policies, often fail to account for sustainable practices, leading to overexploitation. Illegal logging, driven by high demand for timber and weak enforcement of regulations, exacerbates forest degradation (Browne et al., 2022; Gota & Ekblom, 2024; Adams & Savahl, 2013). Fuelwood collection, a critical energy source for many rural households, is another significant driver. The reliance on wood for cooking and heating leads to continuous forest depletion, especially in areas with limited access to alternative energy sources. According to Gemmill and Bamidele-Izu (2002), efforts to provide alternative energy solutions are essential to reduce the pressure on forests.

Socioeconomic factors play a pivotal role in shaping human behaviour towards deforestation. Poverty, lack of education, and limited access to resources often drive communities to engage in deforestation activities. For instance, rural communities dependent on agriculture and fuelwood collection often have no viable alternatives, making deforestation a necessary means of survival (Munthali et al., 2022). Economic

incentives also influence deforestation patterns. The profitability of timber and agricultural products encourages individuals and corporations to clear forests for short-term gains. As Prochazka et al. (2023), David (2024), and Jones and Murphree (2004) noted, the absence of robust economic alternatives and incentives for forest conservation further exacerbates the issue.

The consequences of deforestation are far-reaching, affecting both the environment and local communities. Environmentally, deforestation leads to biodiversity loss, soil erosion, and disruption of water cycles. Socially, it impacts livelihoods, as communities reliant on forest resources face reduced availability of essential goods and services. Recent studies emphasise the importance of adopting sustainable practices and policies to mitigate these impacts. For instance, promoting agroforestry, reforestation, and sustainable logging practices can help balance economic needs with environmental conservation (Mthembu & Khumalo, 2021).

Addressing deforestation requires a multifaceted approach involving policy interventions, community engagement, and educational initiatives. Strengthening logging and land use regulations and rigorous enforcement is crucial. Furthermore, community-based conservation programmes that empower local populations to manage and protect forest resources have shown promise. De Jager and Maserumule (2021) highlight the success of community forest management programs in reducing deforestation rates. These programmes conserve forests, provide alternative livelihoods, and enhance community resilience.

A complex interplay of human activities and socio-economic factors drives deforestation in South Africa. Understanding these drivers is essential for developing effective mitigation strategies. Recent literature underscores the need for sustainable practices, robust policies, and community engagement to address the multifaceted challenges of deforestation.

2.7 Effects of urbanisation on the environment

Adams and Savanhl's (2015) study, which investigated urbanisation, revealed that children experience the environment as threatening. Adams and Savanhl (2015) reported

that this was often because of their encounters with high-rise buildings, concrete surfaces, and underground trains, with inadequate exposure to the natural environment. Therefore, in this study, children could only talk about the safety of their playing areas (Adams & Savanhl, 2015). In this regard, Adams and Savanhl (2015) concluded that urbanisation may threaten the environment and well-being of children. Adams and Savanhl (2015) also found that families were migrating from urban to rural areas because of environmental issues that they experienced, such as pollution, which had for this reason, Adams and Savanhl (2015) indicated that children must be taught about environmental degradation if they are concerned about the environment. Therefore, Adams and Savanhl (2015) concluded that living in urban areas may limit children's well-being.

Urbanisation is a significant global phenomenon with profound effects on the environment. In South Africa, the rapid expansion of urban areas has led to various environmental challenges. Recent literature by James (2024) provides insights into the specific impacts of urbanisation on the environment, including biodiversity loss, pollution, and changes in land use patterns. Urbanisation often leads to habitat destruction and fragmentation, major biodiversity loss drivers. According to Khwidzhili and Worth (2016), expanding urban areas into natural habitats results in the displacement of wildlife and the degradation of ecosystems. In South Africa, cities like Johannesburg and Cape Town have experienced significant biodiversity declines due to urban sprawl. Research by James (2024) highlights that urbanisation disrupts ecological corridors, making it difficult for species to migrate and maintain genetic diversity. This fragmentation of habitats threatens local wildlife and affects ecosystem services such as pollination and water purification.

In South Africa, urban areas are a significant pollution source, adversely affecting air, water, and soil quality. As cities expand, the increase in vehicular emissions, industrial activities, and waste generation leads to higher pollution levels. James (2024) reports that air quality in urban areas often exceeds safe levels, contributing to respiratory diseases and other health issues among urban residents. Water pollution is another critical concern. Discharging untreated sewage, industrial effluents, and stormwater runoff into rivers and lakes contaminates water sources, affecting human health and aquatic ecosystems. A study by Mani et al. (2021) found that urban rivers in South Africa are heavily polluted

with heavy metals and other toxic substances, posing risks to biodiversity and public health.

Urbanisation significantly alters land use patterns, often leading to the loss of agricultural land and green spaces. The conversion of peri-urban agricultural areas into residential and commercial zones reduces food security and increases the urban heat island effect. According to Souverjns et al. (2022) and Beuster (2019), reducing green spaces in urban areas exacerbates heat waves and contributes to higher energy consumption for cooling purposes. Expanding impervious surfaces such as roads and buildings also affect hydrological cycles. Increased surface runoff leads to higher flood risks and reduces groundwater recharge. Nkosi and Mkhize (2023) emphasise that urban planning needs to incorporate sustainable practices such as green infrastructure and permeable surfaces to mitigate these effects.

The environmental impacts of urbanisation also have significant socioeconomic implications. Vulnerable communities often bear the brunt of environmental degradation, as they typically have poor infrastructure and limited access to clean resources. Kajiita & Kang'ethe (2024) argue that equitable urban planning is essential to address these disparities and ensure that all residents benefit from sustainable urban development. Urbanisation can also lead to increased competition for resources such as water and land, resulting in conflicts and social tensions (James, 2024). Effective urban growth management requires integrated approaches considering environmental sustainability and social equity.

Addressing the environmental impacts of urbanisation requires a combination of policy interventions, technological innovations, and community engagement. Promoting sustainable urban planning practices, such as developing green spaces, energy-efficient buildings, and sustainable transport systems, can help mitigate the adverse effects of urbanisation (James, 2024). Community-based initiatives that involve residents in environmental conservation and sustainable practices are also crucial. Engaging local communities in urban greening projects, waste management, and pollution control can foster a sense of ownership and responsibility towards the environment (James, 2024; Haywood et al., 2021).

2.8 Pollution as a form of environmental destruction

One of the root causes of environmental issues identified by children in Mishra et al.'s (2021) study was the dumping of waste by industries and factories in the area. Mishra et al. (2021) have drawn attention to the fact that water is a critical resource for ecosystems and human societies. However, the effects of human activity on land and water have become significant, with humans destroying the environment. Environmental degradation is becoming a worldwide threat, leading to health issues and diseases such as diarrhoea and cholera (Zhang et al., 2021). Katz et al. (2020) reported similar findings, stating that problems of climate change, pollution, and natural resource depletion are now experienced by almost every population in the universe.

Khan et al. (2022) also pointed out similar views about pollution when they revealed a significant connection between people's health issues and pollution in rural areas. When people from rural communities encounter water and land pollution, this often results in poor, unhealthy living conditions that are not conducive to human survival. Consuming contaminated water due to increased population and high water demand is also one of the reasons behind the environmental issues many rural communities are facing lately. Dwivedi's (2017) study, conducted in India, revealed that more than seventy per cent of fresh water is unfit for human consumption. This means that only thirty per cent of water is fit for human consumption. Dwivedi (2017) reported that pollution and water purification are of significant concern not only in India but across the globe.

Khan et al. (2022) studied Pakistan's water pollution and human health. The study reported that the discharge from factories and industries and household waste disposal are the primary causes of water pollution. The study noted that significant waste was disposed of in rivers and dams. Halder and Islam (2015) also examined water pollution and its impact on human health. The study revealed that water pollution was among organisations' most significant environmental issues, including UNESCO and the United Nations. Earlier, it was mentioned that if the government is not strict with environmental laws and regulations, people will experience such problems, and even future generations will be affected. Children in rural areas may have limited exposure to environmental laws and regulations due to limited access to information. This means there is a need to

implement programmes that will assist children to develop awareness and positive attitudes towards the environment.

Pollution represents a significant form of environmental destruction, impacting air, water, and soil quality and posing severe threats to human health and ecosystems. Rapid industrialisation, urbanisation, and inadequate waste management in South Africa have exacerbated pollution levels. Recent literature provides a comprehensive understanding of the various types of pollution and their detrimental effects on the environment.

Air pollution is a critical environmental issue in South Africa, primarily driven by industrial emissions, vehicular exhaust, and the burning of fossil fuels. Okello et al. (2020) state that major cities such as Johannesburg and Pretoria frequently experience poor air quality, with pollutants such as particulate matter, nitrogen oxides and sulphur dioxide exceeding safe levels. This air pollution contributes to climate change and has direct health impacts, including respiratory diseases and cardiovascular problems. Nkosi and Mkhize (2023) highlight that the significant sources of air pollution in urban areas include traffic congestion, industrial activities, and the use of coal for domestic heating. Their study emphasises the need for stricter regulations and the promotion of cleaner technologies to mitigate air pollution and protect public health.

Industrial discharges, agricultural runoff, and inadequate sewage treatment predominantly cause water pollution in South Africa. Mani et al. (2021) report that many rivers and water bodies in urban and rural areas are contaminated with heavy metals, pesticides, and other hazardous chemicals. This contamination affects aquatic ecosystems, reduces biodiversity, and poses significant health risks to communities relying on these water sources for drinking, fishing, and irrigation. A study by Grewar (2019) and Dzhangi and Atangana (2024) assert that mining activities significantly contribute to water pollution, particularly in regions like Gauteng and Mpumalanga. Acid mine drainage, characterised by the outflow of acidic water from mining sites, has contaminated major river systems, severely impacting water quality and aquatic life.

Soil pollution in South Africa results from the accumulation of harmful substances such as heavy metals, pesticides, and industrial waste. This pollution affects soil fertility, reduces agricultural productivity, and poses risks to food security. Tindwa and Singh

(2023) emphasise that improper industrial waste disposal and excessive use of chemical fertilisers and pesticides in agriculture are primary causes of soil pollution. Research by Singh and Pillay (2022) shows that soil contamination is particularly severe in areas surrounding industrial zones and landfills. The study underscores the need for stringent waste management practices and the promotion of sustainable agricultural practices to protect soil health.

Inefficient waste management practices contribute significantly to environmental pollution in South Africa. Urban areas generate large quantities of solid waste, which ends up in landfills or is improperly disposed of, leading to soil and water contamination. Haywood et al. (2021) point out that informal settlements are particularly affected by inadequate waste management, resulting in severe environmental and health hazards. James (2024) argues that improving waste management infrastructure, promoting recycling, and encouraging community participation in waste reduction initiatives are essential to mitigating pollution.

The pervasive pollution in South Africa has far-reaching impacts on human health and ecosystems. Air pollution is linked to respiratory and cardiovascular diseases, while water and soil pollution contributes to gastrointestinal illnesses, neurological disorders, and other health problems (Okello et al., 2020). According to Mani et al. (2021), the burden of pollution-related diseases disproportionately affects vulnerable populations, including children and low-income communities. Ecosystems are also severely impacted by pollution. Water bodies contaminated with industrial and agricultural pollutants suffer from reduced biodiversity, algal blooms, and fish kills. Soil contamination leads to the loss of soil fertility, affecting plant growth and agricultural productivity (Nyam et al., 2020).

As indicated above, addressing pollution requires a multifaceted approach involving policy interventions, technological innovations, and public awareness campaigns. Sibiya et al. (2023) emphasise the need for stricter enforcement of environmental regulations and the adoption of cleaner production technologies in industries. Community-based initiatives and education programmes can play a vital role in promoting sustainable practices and reducing pollution. Sibiya et al. (2023) highlight successful case studies

where local communities have engaged in waste reduction, recycling, and conservation projects, leading to significant environmental improvements.

2.9 Agricultural activities and the environment

Agricultural activities may contribute to environmental degradation. Literature suggests that primary school learners could connect the dots between environmental issues and human activities. Lately, environmental issues such as agricultural activities are a significant cause of human deaths, especially the high consumption of chemicals. Ukaogo et al. (2020). Ukaogo et al. (2020) argue that developing and developed countries share the same burden of environmental issues. Implementing cost-effective yet environmentally friendly agricultural activities is still ineffective in combatting environmental destruction (Uralovich et al., 2023). Huang et al. (2020) found that high amounts of different chemicals in the soil indicate that soil is contaminated due to agricultural activities and remains a hazard. Therefore, the chemicals found in the soil remain a significant threat to humans and ecosystems. For instance, Tudi et al. (2021) have reported pesticides as an important contributor to environmental problems. Despite being banned in some countries, pesticides are still used to control pests, diseases and weeds in many parts of the world. In some areas, especially developed countries, the use of pesticides continues despite the adverse effects on humans.

The impact of agricultural activities on the environment is more severe than expected (Dobrei et al., 2020). Dobrei et al. (2020) have, for instance, reported that chemicals from the pesticide's application found in the rivers and soils may be the leading causes of environmental issues in rural communities. Thus, examining the primary roots of environmental devastation in rural communities becomes necessary. Sustainable Development Goals point to the need to find sustainable ways of restoring the environment to reduce environmental degradation in the name of economic development. (United Nations, 2015; Uralovich, 2021).

Agriculture is a vital sector in South Africa, contributing significantly to the economy and food security. However, agricultural activities also have profound environmental impacts. Recent South African literature examines the interplay between farming

practices and environmental sustainability, highlighting challenges and potential solutions.

Soil degradation and erosion are significant environmental issues linked to agricultural activities. Intensive farming practices, such as monocropping, overgrazing, and excessive use of chemical fertilisers, contribute to the degradation of soil quality. According to Mani et al. (2021), these practices reduce soil fertility, disrupt soil structure, and increase soil susceptibility to erosion. Erosion is particularly problematic in areas with fragile soils and steep terrains. Sibiya et al. (2023) report that the Eastern Cape region is severely affected by soil erosion due to unsustainable farming practices. This erosion leads to the loss of arable land, reduced agricultural productivity, and sedimentation in water bodies, impacting aquatic ecosystems.

Agriculture is the largest consumer of water in South Africa, accounting for approximately 60% of total water use (Kwon et al., 2021). Irrigation practices, essential for crop production, often lead to over-extraction of water resources, depleting rivers, lakes, and aquifers. The competition for water between agriculture and other sectors, such as domestic and industrial use, exacerbates water scarcity issues, particularly in arid and semi-arid regions. Additionally, agricultural runoff containing pesticides, fertilisers, and livestock waste significantly contributes to water pollution. Munthali et al. (2022) highlight that nutrient runoff from agricultural fields leads to eutrophication of water bodies, causing algal blooms, hypoxia, and the decline of aquatic life. These pollutants also contaminate drinking water sources, posing health risks to humans and wildlife.

Agricultural expansion often converts natural habitats into farmland, leading to biodiversity loss. Nyam et al. (2020) note that clearing forests, grasslands, and wetlands for agricultural purposes destroys habitats and displaces wildlife. This habitat fragmentation reduces species diversity and disrupts ecological processes, such as pollination and natural pest control. Monocropping, a common practice in commercial agriculture, further exacerbates biodiversity loss. According to Singh and Pillay (2022), monocropping reduces genetic diversity in crops, making them more vulnerable to pests, diseases, and climate change. Promoting diversified cropping systems and agroecological practices can help mitigate these impacts and enhance ecosystem resilience.

Agriculture is a significant source of greenhouse gas emissions, contributing to climate change. Activities such as livestock farming, rice paddies, and applying synthetic fertilisers release substantial amounts of methane and nitrous oxide, potent greenhouse gases. Kwon et al. (2021) report that the agricultural sector accounts for a significant proportion of the total greenhouse gas emissions. Livestock farming, particularly cattle, contributes to methane emissions through enteric fermentation and manure management. Efforts to reduce these emissions include improving feed efficiency, adopting better manure management practices, and integrating agroforestry systems, which can sequester carbon and reduce overall greenhouse gas emissions (Kwon et al., 2021).

Recent literature emphasises the importance of adopting sustainable agricultural practices to mitigate environmental impacts. Conservation agriculture, which includes minimal soil disturbance, crop rotation, and cover crops, can significantly reduce soil erosion, improve soil health, and enhance water retention (Mani et al., 2021). Agroecology, which integrates ecological principles into farming systems, promotes biodiversity, soil fertility, and ecosystem services. Zenda and Rudolph (2024) and Rudolph and Muchesa (2023) advocate for adopting agroecological practices, such as intercropping, agroforestry, and organic farming, to create resilient agricultural systems that are environmentally sustainable and economically viable. Integrated Water Resource Management (IWRM) is another approach to ensure the sustainable use of water in agriculture. Nyam et al. (2020) highlight the need for efficient irrigation technologies, such as drip irrigation and rainwater harvesting, to optimise water use and reduce wastage.

Effective policy frameworks and community engagement are crucial for promoting sustainable agricultural practices. Kwon et al. (2021) emphasise the role of government policies in providing incentives for sustainable farming, supporting research and development, and ensuring the enforcement of environmental regulations. Community-based approaches involving local farmers and stakeholders are essential for successfully implementing sustainable practices. Kwon et al. (2021) further highlight the importance of farmer education, capacity building, and participatory decision-making processes to foster a sense of ownership and responsibility towards environmental conservation.

2.10 Role of education in shaping environmental awareness and justice perspectives

2.10.1 Informal education

Children learn about the environment from both formal and informal education. For example, Ndzimbomvu et al. (2021) contend that children obtain information about environmental issues through various media, including television, online newspapers, magazines, the Internet, and books. These sources are informal as they are outside of classroom settings. Children learn about the environment from these sources and unconsciously learn how to protect or conserve the environment, in other words, environmental justice.

Apart from learning these in the informal media setting, the same information can be accessed from the school library and community resource centres. Thus, these authors indicate that these informal sources can play a vital role in promoting environmental awareness and attitudes and determining how to conserve and protect the environment for the future. What these researchers also call for is a consistent practice in the use of these informal platforms, for if we want children to be active and undertake environmentally friendly practices, it requires that learners engage and learn about environmental attitudes, awareness and values more regularly (Ndzimbomvu et al., 2021).

2.10.2 Environmental education within schools

Education plays a crucial role in shaping environmental awareness and justice perspectives, influencing how individuals and communities understand and engage with environmental issues. In South Africa, integrating environmental education into the curriculum and community initiatives has fostered a deeper understanding of environmental justice. Recent literature underscores the significant impact of educational programmes on promoting environmental awareness and advocating for justice, highlighting the multifaceted benefits of such initiatives (Damoah & Adu, 2019; Mashaba et al., 2022).

Incorporating environmental education into school curricula is essential for fostering environmental awareness from an early age. According to Damoah and Adu (2019) and Mashaba et al. (2022), environmental education in South African schools aims to equip

learners with knowledge about environmental issues, promote sustainable practices, and encourage active participation in environmental conservation. These programmes cover various topics, including biodiversity, waste management, and climate change, helping learners understand the interconnectedness of natural systems and human activities. Nkosi and Dlamini (2023) emphasise the importance of experiential learning in environmental education. Field trips, nature walks, and hands-on projects enable students to engage directly with their environment, fostering a sense of responsibility and stewardship. These experiences are crucial for developing a deep appreciation of nature and the need for its preservation.

Community-based environmental education initiatives are vital in promoting environmental justice, particularly in marginalised communities disproportionately affected by environmental degradation and pollution. De Jager and Maserumule (2021) highlight successful community education projects in South Africa that have empowered residents to advocate for cleaner environments and equitable access to natural resources. Environmental justice workshops and campaigns in informal settlements have raised awareness about the health impacts of pollution and the importance of safe water and sanitation. By involving community members in monitoring environmental quality and participating in decision-making processes, these initiatives have strengthened local capacity to address environmental injustices (Munthali et al., 2022).

Higher education institutions in South Africa are crucial for advancing environmental awareness and justice perspectives. Universities and colleges offer specialised programmes in environmental science, sustainability, and environmental law, providing learners with the skills and knowledge to tackle complex environmental challenges. According to Damoah and Adu (2019), interdisciplinary approaches in higher education foster a holistic understanding of environmental issues, integrating scientific, social, and legal perspectives. Research conducted by South African universities contributes significantly to the body of knowledge on environmental justice. Studies on the impacts of mining, industrial activities, and climate change on vulnerable communities highlight the need for equitable policies and practices. These research efforts inform policy-making and advocacy, promoting local, national, and international environmental justice (Damoah & Adu, 2019).

Non-governmental organisations (NGOs) and civil society groups are instrumental in promoting environmental education and justice. These organisations often fill gaps in formal education systems by providing resources, training, and support for environmental initiatives. Damoah and Adu (2019) note that NGOs in South Africa have developed innovative educational programmes targeting diverse audiences, including school children, community members, and policymakers. Civil society organisations also play a critical role in advocating for environmental justice. They raise awareness about environmental rights, support affected communities, and engage in legal actions to hold polluters accountable. By building networks and coalitions, these organisations amplify the voices of marginalised groups and push for systemic changes to address environmental injustices (Kajiita & Kang'ethe, 2024).

Environmental education profoundly impacts individual and collective behaviour. Studies show that individuals who receive environmental education are more likely to adopt sustainable practices, such as recycling, energy conservation, and sustainable consumption (Singh & Pillay, 2022). Moreover, environmental education fosters critical thinking and problem-solving skills, enabling individuals to identify and address environmental issues in their communities. Damoah and Adu (2019) argue that environmental education promotes social cohesion and collective action. Education encourages collaboration and solidarity among community members by raising awareness about shared environmental challenges. This collective approach is essential for addressing environmental injustices that require coordinated efforts and systemic changes.

Despite the recognised importance of environmental education, several challenges hinder its effective implementation. Mukoni (2013) highlights that few teachers participate in environmental activities both in their schools and communities due to a lack of professional knowledge about the environment. This gap deprives learners of opportunities to engage with environmental issues, potentially undermining future generations' capacity to protect and conserve the environment. De Sousa et al. (2017) found that teachers from various socioeconomic backgrounds often viewed environmental learning as less important than formal learning. Experiential learning, although essential, is challenging to implement due to large class sizes and resource constraints.

Furthermore, Nxumalo and Ross (2019) found that Black children are often excluded from environmental education programmes, perpetuating stereotypes that they are insensitive and uncaring for the environment. This exclusion contrasts with research by Ardoin et al. (2018), which demonstrates the benefits of early childhood environmental education regardless of racial background. Varela-Losada et al. (2016) contend that promoting education for sustainable living requires dedication from all stakeholders and attention across all levels of basic education.

Recent literature underscores the need for supportive policies to enhance the role of education in promoting environmental awareness and justice. Damoah and Adu (2019) and Mashaba et al. (2022) recommend integrating environmental education into national curricula at all educational levels, supported by adequate training for educators and school resources. Additionally, policies should encourage partnerships between educational institutions, NGOs, and communities to foster comprehensive environmental education programs. Munthali et al. (2020) highlight the importance of funding and support for community-based education initiatives. Government and private sector investment in these programmes can enhance their reach and impact, particularly in marginalized communities. Policies should also prioritise research on environmental justice issues and support disseminating findings to inform advocacy and policymaking.

2.10.3 Strengths and limitations in previous studies

The study by Ahi and Balci (2018) offers significant insights into the knowledge of pre-school children aged four to five years about forest and deforestation. One notable strength of this study is its focus on a young demographic, revealing their understanding of crucial environmental concepts at an early age. Including 29 preschool children provides a broader participant base, thereby enhancing the comprehensiveness of the study's findings. More than fifty per cent of the children could define critical concepts such as forests, indicating a substantial level of environmental awareness among the participants. However, the study also has limitations. Despite the high percentage of children who could define the concept of a forest, only a few could define deforestation. This indicates a gap in understanding more complex environmental issues among young children. Additionally, the study's exclusive focus on children with pre-school education and the exclusion of children older than six years limit the generalizability of its findings.

Including children over six years could have provided a more comprehensive understanding of children's environmental knowledge and awareness across different age groups.

Chang and Kidman's (2020) study contributes to environmental education by focusing on curriculum and pedagogy related to geography, assessment of learning geography, and skills associated with geographical knowledge. This study's strength lies in its detailed examination of how geography education can influence environmental awareness and skills development. However, the study's limitations are notable. The absence of information on the study's location, sample size, and data collection methods weakens the study's methodological rigour. It makes it difficult to assess the validity and reliability of its findings. Panth et al. (2015) conducted a study to explore environmental awareness and attitudes among boys and girls of all genders. A key strength of this study is its inclusive approach, ensuring that data was collected from 100 students, which provided a diverse and representative sample. However, the study's limitation is the omission of age group details for the participants, which is crucial for understanding the developmental context of environmental awareness and attitudes.

Druva-Druvaskalne and Livina's (2019) study focused on environmental education issues at various educational levels, from preschool to lifelong learning, and addressed environmental, social, and economic issues. The strength of this study lies in its comprehensive approach, covering a wide range of issues and educational stages. However, the time-consuming data collection method involving survey questionnaires poses a significant limitation. The extensive time required for data collection could impact the study's feasibility and the researchers' ability to collect timely data.

The strengths identified in these previous studies have provided valuable practical insights relevant to the current research questions. One key advantage is the detailed engagement with environmental issues, particularly involving children, which aligns with the focus of the current research. As demonstrated in these studies, the ability to gather large amounts of information through surveys is also beneficial for comprehensively understanding environmental education. However, the limitations identified, such as time constraints and sample size, present critical challenges, especially when dealing with young children. These limitations highlight the importance of designing studies that

balance comprehensive data collection with practical feasibility. Additionally, the lack of generalisability of findings due to the specific contexts where the research was conducted underscores the need for caution when extrapolating results to broader populations.

While these studies contribute significantly to understanding environmental education, addressing their limitations in future research is crucial. Enhancing methodological rigour, expanding participant demographics, and ensuring timely and feasible data collection methods will be essential for advancing the field of environmental education and ensuring that findings are robust and generalizable across different contexts.

The following section provides an understanding of the theory underpinning the study, namely the theory of children's geographies.

2.11 The theory of children's geographies

The notion of children's geographies originates from New Childhood Studies. New Childhood Studies challenge the taken-for-granted understandings of children and childhood. Punch (2019) contends that Childhood Studies is a political project that intends to enable children's voices to be heard and taken seriously. In other words, the notion of children's geographies challenges normative understandings of childhood and children that hold that children lack the capacity, cognitive ability and power to understand the world in the same manner that adults do (Holt & Philo, 2020). Normative understandings hold adults as decision-makers and constructors of knowledge for and over children. James et al. (1998) argue that normative understandings regard children as 'naturally incompetent' and justify the need to control them. In this regard, the notion of children's geographies calls for the need to regard children as competent actors.

According to Kheswa (2017), emancipation is when individuals, including children, are provided with the means to show and exercise their agency. By agency in children, Kheswa (2017) refers to how they can justify their thinking regarding their societal experiences and reflect on their situations in their communities and homes. New Childhood Studies regard childhood as a social construct and contend that children are agentic social actors (Holloway & Valentine, 2000; James et al., 1998). In this regard, children are capable people who can understand, explain, and critically engage with their

realities, situations and experiences (Christensen & Prout, 2002). According to Nairn and Clarke (2021), the involvement of children in societal issues has become more critical and valuable; thus, more research that positions the voices of children must be undertaken.

The notion of children's geographies emphasises places and spaces of children that affect them socially and politically (Van Ingen & Halas, 2006; Muthukrishna, 2013). For Holloway and Valentine (2000) and Punch (2019), place refers to a concrete physical area, including the school, community or home. The concept of place is crucial for this study, given the fact that it was undertaken in a rural area within a community which has been adversely affected by the legacy of apartheid. Zondi and Qwabe (2022) assert that rural areas in South Africa are often subjected to poor service delivery and lack of infrastructure, such as proper roads, clean tap water and electricity. The notion of rural areas as forgotten places suggests the continuous marginalisation of individuals and communities in these areas. Masuku and Jili (2019) argue that corruption is a pervasive factor that reproduces inequality and subjects individuals and communities to exclusion.

Another key concept is that of **space**, which implies an abstract concept and includes the social (Punch, 2019). The focus on the social brings into play the idea of relationships, and for this study, children who are in relationships with others in their communities, including adults (Van Blerk, 2005). The home and school are essential spaces in this study. Home and school are places where children are often deprived of control and power (Muthukrishna, 2013). Thus, home and school are charged rather than neutral spaces. Therefore, the notion of children's geographies provides a valuable framework for understanding how children can negotiate power in their spaces. For example, research suggests that children are often ignored and believed to lack an understanding of what is happening in their environments (Hart, 2013). According to Hardiman and Jackson (2007), this view of children can be oppressive and prevent them from exercising their rights as competent actors in their own lives.

School and the home are also **places** where children are socialised into particular worldviews, for example, whether children should be seen and not heard or have a voice. However, research also reveals that learners' voices are essential for change to occur, for example, regarding the conservation of the environment for future generations (Sethusha & Lumadi, 2013). In this regard, this study positions the voices of learners, as children,

as essential to understanding, for example, perspectives and experiences regarding environmental issues such as pollution, erosion, global warming or food survival. Holloway and Valentine (2004) contend that children have unique ways of narrating their experiences and perspectives. Children can learn about and share their experiences about environmentally sustainable living (Holloway & Valentine, 2004).

The notion of children's geographies argues the need to acknowledge their capabilities to make informed decisions regarding their lives and other vital aspects. Correira et al. (2019) assert that children's voices must be heard and listened to as they have reliable and valid knowledge about the realities of their lives. For instance, a study conducted by Veronese et al. (2021) found that children in Palestine singled out schools and religious places and spaces as sites of safety and refuge. This suggests that schools must provide spaces for children's voices to be recognised, acknowledged and allowed.

2.12 Conclusion

This chapter presents a conceptualisation of the environment and a literature review of different studies from different levels of education. In this chapter, I reviewed the literature and related research studies that have been conducted on environmental issues, environmental education and challenges and other core aspects that are relevant to this study. The literature reviews for this current study provide me with background knowledge and supportive studies regarding the learners' understandings of environmental issues. The chapter further discussed legislation and policies relevant to environmental education, including the Constitution of the Republic of South Africa, the South African Schools Act, and the Curriculum and Assessment Policy Statement. The chapter concluded by discussing the study's theoretical framework: The theory of children's geographies.

The following chapter will present and discuss the research methodology and design adopted and used in this study.

3. Chapter 3

Research Methodology and Design

3.1 Introduction

This chapter presents the research methodology and design used in this study. Firstly, the chapter discusses the paradigm in which the study is located. Secondly, the chapter discusses the qualitative approach, as it was used in the study, focusing on its relevance and usefulness for a study that sought to learn about how children understand the environmental issues in their school and community contexts. The chapter then discusses narrative inquiry used to guide data generation. The narrative inquiry focuses on the lived stories of individuals or groups being researched or studied. The chapter discusses the data collection methods in keeping with the research design. A discussion on the ethical considerations and trustworthiness of the study follows.

3.2 Research paradigm

This study was located within the critical paradigm. A paradigm refers to how people, who may be researchers, view the world. Kivunja and Kuyini (2017) assert that the critical paradigm is concerned with critically understanding power and addressing the imbalances of power in society. For this study, it was essential to understand the power differentials between adults and children and to establish how children used their agency to challenge taken-for-granted understandings about the environment.

Asghar (2013) argues that the critical paradigm should be extended into areas like education, gender, and class, as well as important issues affecting people, such as environmental issues. This way, one can understand how power operates within these areas to influence and reproduce dominant understandings. Dominant understandings, as discussed previously, can relate to how children are considered to be lacking in critical capacity and ability to challenge the status quo. Bertram and Christiansen (2014) contend that researchers working within the critical paradigm are concerned with challenging inequality and promoting freedom. In this study, I provide insights into the participants' reflections on their experiences of environmental issues as a means of challenging inequality.

Thus, for this study, the challenge was on an individual level where participants, for example, reflected on their powerlessness and the sense of responsibility they assumed to understand environmental issues within their community. In this regard, the participants could also point to the factors contributing to their experiences of environmental issues. In this way, the participants, through self-reflection, could challenge the inequality they experienced, especially regarding factors that concerned their place in the world and their sense of responsibility to protect their environment for future generations.

For this reason, Cohen et al. (2017contend that self-reflection and self-determination are vital characteristics of the critical paradigm. The combination of various methods of data production enabled self-reflection and awareness of why environmental issues, such as pollution, landfills, deforestation, and water scarcity, occurred in their contexts. Further, I gained an understanding of the participants' perspectives of environmental issues in their community, for example, their relationships with elders in the community and in school, as well as their social positionings when trying to address concerns.

The critical paradigm potentially promotes the protection of human rights. However, this study extends beyond this to include environmental justice issues regarding subordinate groups, such as children. Haegele and Hodge (2015) assert that a research paradigm is a set of fundamental assumptions and beliefs regarding how the world is perceived. The general assumption about children is that they are powerless and cannot construct their meanings about phenomena. This suggests that children are often treated as empty vessels waiting to be filled with knowledge and ideas. This study positions children as agentic beings who can actively construct, understand and discuss environmental issues. Finding out ways in which they, the participants, believed they could work towards environmental conservation and justice provided insights into the workings of power in the context of the participants. It aligned with the theory and paradigm used in this study. Thus, using a critical paradigm helped me understand how the participants understood environmental issues in their schools and communities.

3.3 Research style

This study was located within the qualitative research tradition. Qualitative research was suitable for this study because, according to Creswell and Poth (2016), qualitative research involves tools to gather data in the field, where participants are involved, and where they experience the problem being investigated. Qualitative research focuses on the natural setting and the experiences and understandings of individuals in their specific context. This study sought to understand the meaning the participants attached to their understandings of environmental issues within their context (Creswell & Poth, 2014).

Mohajan (2018, p. 2) contends that qualitative research is characterised by an "in-depth understanding of meanings and experiences of people; it is a form of social action that stresses how people interpret and make sense of their experiences to understand the social reality of individuals". Thus, qualitative research focuses on the meanings and perspectives individuals attach to their lived experiences, including their cultural and social interactions. Mohajan (2018) asserts that the main objective of qualitative research is to describe and interpret issues or phenomena from the participants' perspectives.

Queirós et al. (2017) contend qualitative research is useful for generating in-depth data to understand the various dimensions of the explored problem. Given that qualitative research is concerned with reality, it was suitable for this present study to investigate the personal views of the participants, who were learners, about the environmental issues they encountered in their schooling experience and community. It was chosen because qualitative works better with the attitudes, values, beliefs, meanings and experiences of the individuals being researched.

3.4 Research approach

The study employed the narrative inquiry approach. Narrative inquiry refers to people's stories and experiences about the phenomena being explored (Mertova & Webster, 2019). In addition, Clandinin (2006) described the narrative inquiry as a methodology that studies participants' lived experiences in their natural setting. Thus, narrative inquiry is suitable because it helped me understand what stories learners tell about how they experience awareness of environmental issues in their homes and schools in a rural context. To access data and comprehend participants' viewpoints, the researcher needs to

access the location of the participants in its natural form without manipulation. For example, this study took place in school and around the community, where the participants were comfortable and confident to share their experiences and challenges in their community.

"Narrative inquiry focuses on people's narratives about themselves or a set of events" (Mohajan, 2018, p. 3). Applying narrative inquiry allowed participants to tell their stories and experiences of being located in the rural context and also experiences of unequal distribution of essential services such as water supply and collection of waste. The main aim of narrative inquiry is to make connections and meanings between people's experiences and those of participants through conversations, dialogue, and interviews (Clandinin & Caine, 2013). In this regard, Clandinin and Caine (2013) further explained that narrative inquiry involves engaging with field participants. Hence, I met with the participants individually and in a group setting to listen to their narratives. Savin-Baden and Niekerk (2007) further add that narrative inquiry, as an approach, shows how the researcher uses stories to collect and analyse data.

The environment characterises narrative inquiry, people and their relationships, behaviour, actions and activities (Cohen et al., 2017). The qualitative approach, therefore, allowed me to collect an in-depth understanding of learners' understanding of environmental awareness and environmental issues in a rural context. I understood people's relationships with the environment and what they did to protect or destroy it. Moreover, I could understand people's behaviour in destroying the environment when difficult choices have to be made about human survival.

It also allowed the learners to tell their stories concerning environmental issues and voice their concerns regarding factors contributing to the environmental problems they face as a community without being reprimanded or excluded as a cultural norm to make decisions without children's viewpoints. This approach also provided the participants with a platform to share their experiences of living in a rural context faced with socioeconomic imbalances that create inequality in service delivery. Using narrative inquiry enabled me to "acknowledge that people are living their stories in an ongoing experiential text and telling their stories in words as they reflect on life and explain themselves to others" (Savin-Baden & Niekerk, 2007). The perspectives of the learners were central to this

present study; the relationship they have with the environment is what drives the intentions of the study. Barrett and Stauffer (2009) add that a narrative as a story accounts for the self and other people, places, events, and the relationship between these elements.

3.5 Location of the study

The study took place in a public rural school in the uMgungundlovu District. According to Dube (2020), rural areas are difficult to access due to distance from the city or big towns; they are situated in the countryside, in forests and mountains. Dube (2020) further asserts that people in rural areas lack access to socio-economic amenities, such as good health facilities and services, quality and equal education for all, transport, marketing facilities, and even electricity. Du Plessis and Mestry (2019) also pointed out that the challenges faced by rural schools are unique to their environmental context. This sometimes results in poor performance by the schools because they cannot control the context in which they are.

Du Plessis and Mestry (2019) further highlighted that several internal and external sources for these problems are to be blamed, such as local communities and education authorities. The school has a water tank used to supplement tap water. The school is a Quintile 2 no-fee school. Most learners attending this school walk from their homes to the school; few learners use scholar transport from the local community. The school participates in the National School Nutrition Programme because it serves learners from a rural community. The school has twelve teachers, two Departmental Heads, and three non-teaching staff members, including an administrative clerk, security guard, and food handler. The school's enrolment at the time of research was 385 learners. The school starts from Grades R-7.

3.6 Sampling

The study used both purposive and convenience sampling. According to Bertram and Christiansen (2014), purposive sampling involves the researcher making specific choices about which individuals, groups or objects to include in the sample. Similarly, Etikan et al. (2016) assert that purposive sampling is about selecting participants with specific qualities relating to the purpose and focus of the study. For this study, learners who were participants were purposively selected. This aligned with the focus and purpose of the

study, which was to understand learners' understandings of environmental issues in their schools and community. Thus, the sample comprised eight Grade 7 learners from the school's location. These learners had been exposed to some knowledge about the environment through the curriculum and their own experiences. After meeting with the principal and the School Management Team, the principal allowed me to talk to the learners, address them, and indicate my intentions for the meeting. I explained to them my expectations and objectives of the study and the criteria for the suitable candidate to participate. Firstly, I explained that the participant should be interested in environmental issues studies. They had knowledge of the environment in general. I further asked for volunteers where names of the volunteers were put into two separate boxes, one labelled males and the other females. Four names from each box were randomly selected. I then confirmed their names to ensure they were interested and understood their roles.

The assumption was that the participants could provide me with insightful information about their understandings of environmental issues within their homes, communities and schools. The sample thus allowed me to collect in-depth information from the participants as they had been with the school for longer and could share informed understandings of environmental issues. The sample comprised four (4) boys and four (4) girls. The reason for choosing boys and girls was to stratify the sample by gender to obtain cross-gender perspectives. It must be noted, however, that a gendered perspective was not essential for the study. I also used convenience sampling because the research site was approximately 45 kilometres from my home, and thus, financial expenses were not significant as it was relatively easy to access the school.

I purposely used the small group of participants to obtain in-depth responses from the participants. Working with small groups was also beneficial, as engaging with them in different sessions was relatively easy. Thus, the small sample allowed me to delve deeper into their understandings of environmental issues in their families, school and community (Campbell et al., 2020). The sample also represented the target population, comprising Grade 7 primary school learners (Cohen et al., 2007). The selection of the participants happened after permission had been granted by the relevant gatekeepers.

3.7 Methods of data production

3.7.1 Semi-structured interviews

Ahlin (2019) describes semi-structured interviews as a qualitative approach to collecting data. He further explains that semi-structured interviews fall into organised conversation, where the interviewer is guided by questions prepared in advance and can use probing to obtain more information. Moreover, semi-structured interviews have the potential to provide rich and detailed information and different perspectives on the issues being investigated. For this study, semi-structured interviews allowed participants to clarify their responses, especially when the interviewer probed for further clarification.

Furthermore, as Adams (2015) asserted, I could steer the interview towards the focus and purpose of the study, yet being careful not to dictate the process. For this study, I ensured that the participants understood the nature of the study, including the issue under investigation. However, I knew anything could happen during the interview, as they allow flexibility. In this regard, I knew that the participants' responses would guide my questions. However, this flexibility allowed the participants to explain, clarify and extend their ideas, sometimes guided by probing questions where I sought more detail.

Evans and Lewis (2018) assert that semi-structured interviews are valuable as they allow the researcher to investigate subjective perspectives. Although I used the interview schedule to guide the process, the flexibility allowed the participants to respond to questions based on their perspectives and experiences on the issue under investigation. The intention was not to interfere with participants' responses but to obtain valuable information from the participants. For this study, semi-structured interviews focused on specific themes but conversationally covered them, with the participants responding to questions on their terms without being influenced by the researcher (Raworth et al., 2012). The one-on-one interview helped me as a researcher to obtain an in-depth understanding of learners' perceptions of their environmental issues. In this regard, the interview sessions allowed me to develop a relationship with the participants and create an environment where they could freely express their ideas without fear. Building relationships with the participants was necessary for this study and aligned with the paradigm and narrative inquiry that underpin it.

Adams (2015), however, points out some disadvantages of using semi-structured interviews. One disadvantage is that semi-structured interviews are time-consuming and labour-intensive. For instance, it took a long time for me to transcribe and translate the interviews, which impacted the time I had planned to use them. However, doing this was useful as it helped me to familiarise myself with the data and the participants' responses to begin to make sense of what they were saying. The second disadvantage was that although I am a teacher and work with children daily, researching what they think about environmental issues in their school and community was challenging for me as a novice researcher. Therefore, using semi-structured interviews helped me to break the ice between myself and the participants and make them understand that the interviews had nothing to do with my role as a teacher.

The workload associated with conducting interviews was overwhelming; I had to plan and schedule the interview sessions with my participants based on their selected time. Before conducting the interviews, I had to set up an initial meeting with the participants, parents, and guardians to introduce myself and establish relations. At this meeting, participants, parents and guardians were also asked to sign consent and assent forms. I needed to gain the participants' trust, especially considering their age group. Further, I had to encourage the participants to talk freely from time to time and reassure them about their valuable contribution to the study and field of environmental education. The interviews were conducted in isiZulu, the language with which the participants were comfortable. The interviews were translated into English and transcribed verbatim.

On the day of the interview and after setting up the recorder, I ensured that the participants were comfortable and encouraged them to talk freely about the issues relevant to the discussion. When the interview was conducted, I stopped the recorder and replayed the recording from the beginning so we could listen to our conversation. I then explained that our discussion would be converted into a written text(data). The data would then be analysed for this study. I thanked my participants and rescheduled the next meeting. In total I visited the participants three times. I also went back to provide them with the written transcript where they could verify and make changes. However, none of the participants made changes to their ideas.

3.7.2 Mapping

Mapping was used for data collection to obtain learners' perspectives about the environment and the factors influencing their understanding of environmental issues. According to Baugh et al. (2014), mapping uses simple sketches and graphics to illustrate ideas. Baugh et al. (2014) contend that mapping has been used by various disciplines to represent findings and knowledge and categorise information according to perspectives to enhance and encourage learning. Baugh et al. (2014, p. 2) further state that "mapping allows visual representations of regularly perceived concepts in such a situation and the relationships amongst those concepts in relation to the initial idea". The concept of mapping allows for the identification of relationships among data sets. For this study, mapping allowed participants to connect various factors that connect to the environmental issues discovered or discussed through illustrations. Through mapping, I hoped to find the hidden perspectives of the children regarding environmental issues affecting rural settings. This primarily aimed to determine the children's experience and perception of the environmental issues in a rural context.

In this study, I held a session with the learners and asked them to draw images representing their spaces and places, such as their homes, communities, or schools. We completed a practice drawing together where they were able to ask questions and check to see if they understood what was required of them. Here, learners drew images of places that showed environmental issues, such as litter and air pollution, that affected them and why. These images were accompanied by a short caption explaining what each represented regarding the factors contributing to the participants' perceptions and understanding of environmental issues in their schools and community contexts. In this regard, mapping helped me understand and obtain insights into the participants' worlds, especially during the discussions when they explained their drawings.

In addition, mapping allowed the participants to share important information regarding their places and spaces, places they preferred and places they considered dangerous (Morojele & Muthukrishna, 2012). Mapping for this study also helped identify the issues the participants considered necessary regarding environmental issues. For example, during the session to explain their drawing, one participant mentioned that "*people from the community dispose of beer cans and bottles all over the place*". In this regard,

mapping allowed shy participants to express themselves. This aligns with Halseth and Doddridge's (2000) assertion that mapping is a flexible and dynamic communication medium.

3.7.3 Focus group interviews

The third data collection method I used for this study was focus group interviews. Wong (2008) describes focus group interviews as a research tool where a small group of participants gather to discuss specific issues or topics around a specific theme to generate rich data. He further states that the interaction between the participants and the facilitator or researcher characterises focus groups. Chu and Ke (2017) further add that focus group interviews involve discussion and interaction among participants. For this study, focus group interviews primarily aimed to delve into learners' understandings of environmental issues. The intention was to facilitate a group discussion responding to the third research question. I was thus careful not to influence how the participants discussed the issues and only facilitated the discussion by using probing, where necessary, to help the participants engage deeper. This allowed me to gain an in-depth understanding of the participants' perspectives and experiences.

Additionally, Queirós et al. (2017) contend that focus group interviews help explore complex behaviours by allowing the researcher to interact with the participants and the participants to interact as a group. An advantage of using focus group interviews for this study was that they allowed me to seek clarification and information where necessary. However, I was aware that some participants might reveal sensitive data during the discussion; therefore, I ensured that measures were in place to ensure that the participants' rights were respected, protected and upheld during focus group interviews.

Focus group interviews bring together people from different backgrounds with different views on life issues. Focus groups were preferable for me because they brought unfiltered responses about the topic for this study. I conducted two focus group sessions, where participants were divided into these two groups. During each session, I explained to the group the objectives of the discussions and the ground rules. At first, it was a challenge because my participants did not understand the purpose of the focus group. They talked simultaneously and argued without understanding other group members' viewpoints. The

focus group discussion had to be stopped and we revisited the ground rules and the understanding that all ideas were valuable and important. This seemed to have worked as the discussion proceeded smoothly.

To ensure that I ethically conducted the focus group interviews, I assured participants that what they would say would be treated with the strictest confidentiality. In this regard, I asked them not to discuss it outside the focus group interviews. Thus, the participants could openly discuss with their group members. This ongoing assurance of confidentiality and safety helped to improve the e relations between the participants and myself. Thus, focus group interviews aided in producing rich, in-depth data and gaining clarity concerning the mapping activity.

3.8 Data analysis

The study qualitatively analysed the data from semi-structured interviews, mapping and focus group interviews. Qualitative data analysis involves the "classification and interpretation of linguistic or visual material to make statements about implicit and explicit dimension of structures of meaning-making in the material and what is represented in it" (Flick, 2013, p. 5). Through data analysis, I could make meaning of the data systematically. Data analysis was critical for this study because it helped me identify themes that stood out for this study and related to the three questions. In this regard, thematic analysis, involving identifying, analysing and reporting patterns, as described by Braun and Clarke (2006), was used for this study. Braun and Clarke (2006) indicate that a theme captures something significant about the research question's data and represents some patterned replies or meaning within the data set.

For this study, one of the advantages of using thematic analysis was its flexibility, which enabled the researcher to organise themes in a manner that suited the study (Braun & Clarke, 2006). This means I could easily move back and forth, cross-checking and reading data during coding. From the codes, I was able to develop a table where I could reduce codes into categories. This also means that during data coding, I was involved in multiple cycles of reading and examining the data (Baralt, 2011). This was the first step in familiarising myself with data on several occasions. After categorising data according to similar phrases, several themes emerged. The themes were then reduced and organised

according to the three key research questions. The themes were then supported by data phrases (Rivas, 2012). The analysis enabled me to represent findings from the data obtained from the participants.

3.9 Trustworthiness of the study

Trustworthiness concerns the validity and reliability of the data and the extent to which the data can be trusted. Thus, trustworthiness has to do with the consistency of the research study concerning the data collection methods and tools and how data is analysed (Adler, 2022). Therefore, trustworthiness potentially increases the transparency and credibility of the study's findings (Connelly, 2016). For this study, the four concepts used and applied to ensure trustworthiness were dependability, credibility, transferability and confirmability. These concepts and how they were used to enhance the study's trustworthiness are discussed in the section below.

3.9.1 Dependability

According to Bertram and Christiansen (2014) and Connelly (2016), dependability involves evaluating a study's quality. Thus, dependability involves comparing its findings and methods to that of prior studies. Dependability refers to whether similar findings would be produced if someone else conducted the same research study (Treharne & Riggs, 2015). This study used various data collection methods, which sought to build on one another. It was hoped that the data collection methods and the justification for using them were the most appropriate and adequate to ensure dependability. However, it is worth noting that it was not easy to objectively achieve dependability, mainly because, as Holloway and Galvin (2016) contend, dependability is subjective.

3.9.2 Credibility

Research suggests that findings should be believable and dependable. In this study, the participants were allowed to verify the data and compare it to what, according to their understanding, was what they had said during data collection. Connelly (2016) contends that credibility may refer to engagement with the participants, including holding debriefing and reflection sessions to agree that the data accurately reflects their responses. For this study, this engagement was understood as establishing the 'truth' of the participants according to them (Lincoln & Guba, 1985). Additionally, for this study,

credibility refers to the reality of the data or the participants' opinions, including, as argued by Cope (2014), the clarification of the researcher by the participants.

For this study, ensuring credibility meant that the researcher had to ensure that interpretations and understandings aligned with the participants' understandings of their viewpoints. This understanding aligned with Sandelowski's (1986) argument that a qualitative study is credible if the descriptions of human experiences align with what the person who shared understands them to be. For this study, credibility was enhanced by combining data collection methods and using multiple sources, which helped triangulate the data and findings, as guided by Moon and Blackman (2014). For instance, three data collection methods were used for this study to cross-reference findings.

3.9.3 Transferability

Lincoln and Guba (1985) and Rule and John (2011) assert that transferability is about whether the findings of a study are transferred to other contexts, that is, whether they are generalisable. Thus, transferability involves validating research findings by other researchers, whether the findings of one study are relevant and valuable to other studies and in theory, and whether they can also be a reference for future studies (Lincoln &Guba 1985). For this study, transferability was understood according to Shenton (2004), who holds that this has to do with the extent to which the findings of one study can be applied to other circumstances. As argued by Cope (2014), for this study, transferability refers to findings that are transferrable to other settings or groups. It must be noted, however, that the findings of this study may not be transferable to other contexts, as this was not the intention of this study.

3.9.4 Confirmability

Confirmability refers to the measure and quality of data collected and the extent to which the participants can confirm findings (Lincoln & Guba, 1985). For this study, using confirmability helped eliminate prejudice from interpreting the findings (Anney, 2014; Pandey & Patnaik, 2014). Applying confirmability techniques for this research study helped eliminate prior misunderstandings about the phenomenon under investigation. Since I was working with children on their perceptions of environmental issues, interpretations of data had to be stated clearly and in detail to avoid confusion.

Confirmability helped me to enhance the confirmation of the findings by other individuals who might not have been part of the study, as argued by Cope (2014).

To accomplish confirmability, findings must be connected to the conclusions in a way that can be tracked. (Moon et al., 2016). As Shenton (2004) guided, the following question may be asked to evaluate confirmability: Are the study's general approaches and procedures defined clearly and in detail? Therefore, the statement suggests that one may assess confirmability by asking relevant questions about the methods and procedures followed during the research study. Confirmability is, hence, concerned with the extent to which others confirm the researcher's interpretations and conclusions (Nassaji, 2020). In this study, confirmability was evident in the participants' drawings generated through the mapping exercise. The interpretation of the drawings confirmed what was captured during the individual interviews.

For this study, trustworthiness was ensured by taking back the transcribed data to the participants to confirm that whatever they had said during the interviews was correct. All eight participants confirmed that the recordings and transcribed data were accurate.

3.10 Limitations of the study

Miles (2017) describes limitations as constraints to the study and argues that limitations are impossible to avoid. He further explains that one cannot wholly control the limitations, but as a researcher, one must be aware of this and make adjustments. Similarly, Theofanidis and Fountouki (2018) also indicated that the study's limitations might be defined as potential weaknesses of the research study, such as obtaining permission from different stakeholders. This suggests that limitations may limit the data collection and other processes, which may sometimes affect how data is collected compared to the initial plan.

Considering that I was working with children, it is essential to consider the limitations that hindered the study's progress. For instance, the data collection period for this study coincided with the outbreak of the COVID-19 pandemic. The outbreak led to a complete shutdown of schools, followed by rotational learning. These developments impacted the data collection period, as I struggled to find a suitable time when all the participants were

available. Moreover, the Department of Education took longer than expected to permit me to research the selected schools. This delay impacted the study timetable, as I could not commence with data collection as planned. The participants' parents also took the time to return the signed consent forms.

I attempted to use online platforms; however, considering the study was in a rural area without connectivity, this was impossible. I could not use these methods to collect data and instead had to wait, which influenced my study period. When I eventually managed to get them together to complete focus group interviews, I had to ensure that all safety protocols were followed, such as wearing masks, social distancing and sanitisation. These conditions may have influenced the depth of data collection as it sometimes was difficult to hear participants through their masks, and I had to ask them to repeat their ideas often.

This study methodology had potential weaknesses; for example, the lack of prior research studies was challenging. The lack of available or existing data on narrative inquiry about similar topics was limited. Furthermore, narrative inquiry can be time-consuming and potentially biased. This methodology is also considered to be subjective. There are also many interpretations in the process, which may cause misunderstandings and breakdown of communication, for example, due to cultural differences or language fluency.

The study also used a small sample of eight participants. The small sample size may have limited the generalisability of the findings to other similar contexts. However, it must be stated that this study did not intend to generalise the findings; the intention was to explore the participants' understanding of environmental issues in their homes, schools and communities.

3.11 Ethical considerations

Every research study must consider ethical principles to protect the rights and dignity of the research participants (Hasan et al., 2021). Therefore, researchers must prioritise ethics when conducting research. This suggests that every researcher must follow specific research ethics from the beginning until the end of the study. Romm (2020) asserts that children are vulnerable and should always be protected. Thus, protecting children and the information they share is critical. I ensured the safety and protection of the participants'

identities through pseudonyms, so I did not use their real names in the study. The identity of the participants was protected.

3.11.1 Autonomy

After explaining the nature and purpose of this study, I ensured that the participants signed consent forms (see Appendix 4) confirming that they voluntarily agreed to participate in the research and that they had not been coerced. This included informing them that their participation was voluntary and that they could withdraw anytime if they wished to do so (Bertram & Christiansen, 2014). Considering that the study involved children, it was also imperative that the researcher obtain consent from the parents and legal guardians of the children involved. This was done because I regarded the well-being of the participants as always taking precedence over the research study, regardless of whether the findings may benefit a significant number of people (Nairn & Clarke, 2012). In this regard, the nature and purpose of the study were explained to the participants, parents, and legal guardians.

The theory of children's geographies supports the understanding that children have a voice and can air their views and ideas. However, it was possible that during the study, the participants shared sensitive information that was not meant to be shared with outsiders. Therefore, I ensured that the participants' identities were protected using pseudonyms that the participants chose. According to Chen et al. (2008), a pseudonym is the name used to conceal a participant's identity; it is not their real name. Thus, a pseudonym ensures the confidentiality and anonymity of a participant's identity and responses. I ensured the participants' identities remained anonymous and protected throughout the study. I also informed the participants that their records and data collected would be kept safe and confidential.

Lastly, the study also elevated the participants' voices in the presentation, discussion and interpretation of the findings, using direct quotations from their responses. In this regard, the findings were cross-checked with the participants in a manner that was at their level to ensure that their voices had been captured accurately, using the language that they were comfortable using, in this case, isiZulu.

3.11.2 Non-maleficence

According to Bufacchi (2020), non-maleficence is a moral imperative for researchers to ensure the safety of the participants. Non-maleficence involves ensuring that participants do not experience harm (Summers, 2020). To ensure non-maleficence, I began with the research after obtaining permission from the University of KwaZulu-Natal Research Ethics Committee (See Appendix 6) and permission to conduct research from the KwaZulu-Natal Department of Education (See Appendix 8). Participants were informed that they could withdraw from the study or choose not to answer questions that made them uncomfortable. They were also assured that their information would only be used ethically for research purposes, as guided by John and Wu (2022). I built trust with the participants from the beginning of the study. I did this by sharing some of my experiences of environmental issues in my community. This act built trust and created mutual understanding and openness among and between the participants and myself.

3.11.3 Beneficence

Beneficence is an ethical principle that denotes doing good for all (Milton, 2000; Pandit, 2021). According to McCullough (2020), beneficence, as a fundamental research ethics principle, guides a researcher. McCullough (2020) further states that researchers must develop approaches that reduce risks for the participants and enhance the production of knowledge and skills development. In this regard, I discussed strategies to reduce harm and benefit the participants. For example, during focus group interviews, I allowed the participants to engage freely with each other while guiding them to stay within the focus of the research. This enhanced the participants' self-worth, linked to their thoughts and ideas being heard and respected. It is assumed that the study contributed to the body of knowledge regarding environmental education, issues and awareness.

3.12 Conclusion

This chapter discussed the research methodology and design for the study. In this regard, the chapter discussed the critical paradigm as the worldview within which the study is located. The chapter then discussed the qualitative research approach within which the study was located. The participants for the study were Grade 7 primary school learners. The chapter also discussed data collection methods, data analysis, limitations for the

study’s credibility and trustworthiness and ethical considerations implemented to protect and uphold the rights of the participants.

The next chapter will present and discuss the findings of the study.

4. Chapter 4

Presentations and discussions of findings

4.1 Introduction

The previous chapter discussed the research methodology and design that underpinned the study. This chapter presents and discusses the findings from the data generated through the semi-structured interviews, mapping and focus group interviews. The study used the theory of children's geographies to interpret and understand the findings. In this chapter, I analyse the data concerning the following research questions that guided this study:

- What are learners' understandings of environmental issues they encounter in their community?
- What factors contribute to learner's developing their environmental awareness and attitudes?
- How do learners' understandings of environmental issues contribute to environmental conservation and justice?

This study's main objective was to explore the learners' understandings of environmental issues and how various factors influenced their awareness and attitudes. To do this, I begin by analysing children's understandings of the environment. The chapter is structured into three main sections, each section of which responds to each of the research questions mentioned above.

The first section (section 4.2) responds to the first research question. Here, I present the analysis of the first theme, providing insights into participants' understandings of the environment. What emerges from the following sub-themes is that the environment is essential for the participants and must be protected.

The second section (4.3) responds to the second research question, which investigates the factors that contributed to the participants' understandings of the environment and thus developing particular environmental awareness and attitudes. Regarding the broad theme

that looks at the factors contributing to the participants' environmental awareness and attitudes, I look at the various contextual issues that influence their ideas about the environment. These contextual issues relate to, for example, water scarcity, pollution, poor service delivery, deforestation, and litter.

Section three (Section 4.4) addresses the third research question. In this section, I discuss how the participants' understandings of environmental issues contribute to environmental conservation and justice. Under the significance of environmental conservation and justice in rural areas, I discuss what the community, teachers and learners can do to promote environmental justice and conservation.

4.2 Learners' understandings of the environment

As mentioned above, this section discusses the central theme and sub-themes that emerged during the data analysis. The discussion focused on the participant's understanding of the environment and environmental issues. The participants shared particular views on their understanding of the environment. According to Muthukrishna (2013), schools, homes, and communities are places where children are socialised into specific worldviews. The data generated in this study revealed that participants had learned particular views about the environment from their parents and their critical capacity to understand the world and nature. In this regard, the participants had the following:

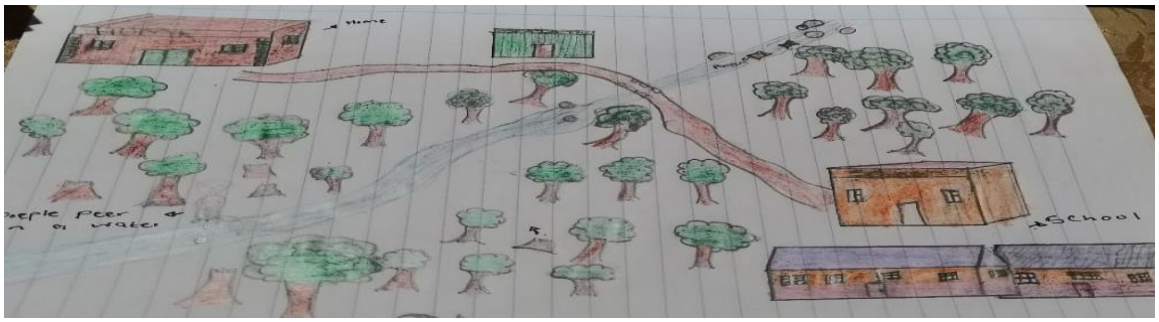
> Nonhle: "*Nature provides us with water; the environment is natural things that cannot be planted and cannot be built by humans, such as mountains, rivers and trees".*

> Nono: *Environment has to do with natural things that we grew up seeing here on earth, such as trees, rivers, oceans, mountains and so forth; it grows naturally; it is the things that no one can build.*

Lulu: *Ma'am, the environment comprises natural things that occur naturally and cannot be planted or built, such as mountains, rivers, and trees.*

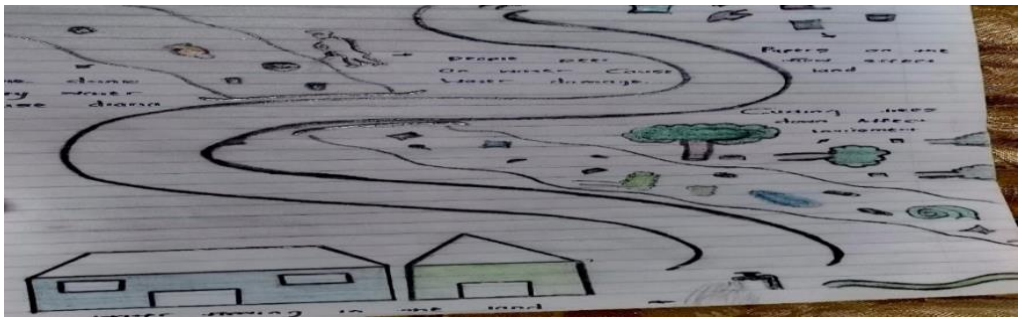
Lungisani: *"The environment is about trees, rivers and mountains. It should be kept clean and not destroyed because the environment is part of us as humans."*

Figure 4-1: Lungisani's drawing illustrating the environment as a place that must have trees and be kept clean



In the responses by Nonhle, Nono, Lungisani and Lulu above, the environment is defined as "*natural*" like "*trees, rivers, oceans and mountains*"; the participants believed no one could build it. Furthermore, Nono refers to the long existence of the environment when she says, "…*we grew up seeing [this] here on earth*". The participants' understandings suggest that the environment and nature have a past. Also, what is evident and concurs with existing research is that children tend to conflate the environment with nature, thus seeing the environment as nature (Madden & Liang, 2017; Spiteri et al., 2020). Nonhle, Nono and Lulu's understandings that humans did not build the environment tend to exclude humans as makers of the environment. For Spiteri et al. (2020), this may influence their knowledge and attitudes towards the environment. In this regard, the participants understand the environment as a biological construction. Whilst the participants excluded humans as makers of the environment, Sibusiso's drawing, however, features humans as inextricably negatively connected to the environment:

Figure 4-2: Sibusiso's drawing showing how people are destroying the environment



> "*Environment is about gardening; people are not part of the environment because they are destroying it…*"

Sibusiso displays a critical understanding of man's influence on the environment. For example, Sibusiso's explanation of his drawing is that people are not part of the environment, and this is because they "destroy it". Here, Sibusiso can show that he possesses the critical capacity to recognise that human beings, including his community, are responsible for the destruction of the environment. Sibusiso's explanation of his drawing suggests that children navigate multiple and sometimes contradictory social spaces (Punch & Tisdall, 2012). For example, they do gardening, which has a therapeutic, aesthetic and food security value to society, but at the same time, they harm the environment, as they "*litter, leave taps running, urinate in the river*" and "*cut down trees*". This complex conceptualisation of the environment is based on his thinking and socialisation from his family, school and community. According to the participants, the power of people in this community space is used to destroy and preserve or protect the environment. It is for this reason that he concludes that because of man's destructive behaviour, they cannot be considered part of the environment. This is a powerful conclusion and suggests a complex interweaving of space and agency, where Sibusiso explains how human beings simultaneously destroy and preserve the environment (Wyness, 2019).

Spiteri (2021) states that children, at a certain age, develop complex thinking about how social, political, cultural and economic factors influence the environment. Being a minor in a rural or urban environment does not mean children are unaware of what is happening in their social spaces. Sibusiso, for instance, in this study, can understand the social,

economic, and cultural power humans have over the environment and how this power is sometimes used to destroy rather than build it up. This finding aligns with research by Spiteri et al. (2020) that shows, for example, that context or place, as indicated by the theory of children's geographies, can influence children's understandings of the environment and, in the case of Sibusiso, this empowers to become an environmental supporter. Thus, his social place has influenced his sense of self and relationship with the environment.

Themba indicates who has taught him about the environment when he says, "[what] *I know and understand about the environment is what we are being taught here at school*". Themba's response reveals that his understanding of the environment is based on what he has learned from teachers at school. For example, he says, "…*the environment is what is being taught at school*". Here, Themba reveals only what he learns and practices in class, which makes it difficult to comprehend his personal views on the environment, which no one may have influenced. This finding aligns with findings from Ahi and Kahriman (2021) that show various influences and levels of thinking by children about the environment.

4.2.1 The need to protect the environment

Data reveals the participants' recognition and activist stance, revealing their protective instincts towards the environment and nature. This protective instinct is based on the physical space of their community and their exposure to such phenomena as the degradation of nature and their resistance towards it based on what they have learned from school.

In this regard, the participants had the following to say:

> Bunhle: "*Environment is about nature, and it must be maintained and protected because we are in rural areas*".

> Lungisani: "*I don't know much about the environment, but I know that it must be protected because we are not the last humans to have the*

environment as our habitat; more generations are still to come, and they will need this environment and all its resources".

Nono: "*Ma'am, …here at school, we are taught how to take care of the environment and use our resources in a way that does not waste them but saves them for future generations*".

Ayanda*:* "*My understanding of the environment is that people should preserve it and make sure all the natural resources, such as water, air, soil, wild animals, and plants, are protected*".

The above responses reveal the protective instincts of children towards the environment. They believe that protecting and preserving the environment is their responsibility. Protecting the environment ensures that future generations will still have access to it, which means that "[More] *generations are still to come, and they will need this environment*". Bunhle refers to rural areas, suggesting that humans must protect the environment because it is their habitat. For her, a rural area is synonymous with the environment. The data also reveals that children have the critical capacity to understand their obligation to protect the environment because they owe future generations a well-cared-for environment. Thus, they must "*preserve it, protect its natural resources*" and "*wild animals and plants*". Holloway and Valentine (2014), in their conceptualisation of the theory of children's geographies, suggest that children have particular relationships with the environment, proving them to be active social actors and have the agency to think critically about pressing issues.

These findings are contrary to research by Šorytė and Pakalniškienė (2019), who reported that participants did not know how to protect the environment, leading them to conclude that children cannot think deeply about the environment. Contrary to this, participants in this study revealed a critical understanding of what must be protected and who is to be responsible for this protection. In this way, future generations can measure the "success or failure of environmental protection" by previous generations (Šorytė & Pakalniškienė, 2019, p.1).

4.2.2 The environment and sustenance of life

This sub-theme suggests that for the participants in this study, the environment was critical for sustaining life. The discussion that follows reports on what the participants had to say about the environment as essential for sustaining life, particularly in rural areas where the participants reside.

> Nonhle: "*The environment is important to us because, in the environment, there are trees that provide us with the air that we breathe*".

> Bunhle: "*Environment provides us with water which we use to drink, clean, bath and wash our clothes with. Mam, without clean air and water, we would die. Our wellbeing depends on clean, fresh air and water*".

> Lulu: "*Water is an important part of life*".

The participants' responses above suggest the critical importance they place on basic life needs – water and air without protecting the environment like *trees*, which for Nonhle is life-giving because trees, for instance, give us air. Bunhle's ideas are also important because without life-sustaining water, they would be unable to do things like baths and wash clothes, "*drink' and 'be clean*". Bunhle's response suggests the opposite: humans would die or be exposed to disease if the water and air were not clean. Her comments suggest she understands that "*our well-being*" would be gone without the environment. In this regard, it could be argued that the participants consider the environment critical to human life. This suggests that children can think independently and make informed decisions in and about their lives (Wyness, 2019).

Children can detect relationships between the basic needs they receive from the environment, such as water and shelter, and the negative consequences of human activities on the environment. Thus, children can be active social actors in their own right. Therefore, this study's findings suggest that the physical place of the participants' context is immersed in complex relations of power, implying they have the power to make the air and water 'unclean' and destroy their source of life. For this study, children are voicing their concerns that the environment must be protected because it sustains their lives and

that without it, "*we would die*". Research by Frese (2015) indicates that children are often bound by the rules, values, and social norms of their communities, which are unquestioned and unconscious. In this regard, the participants can quite freely indicate that the environment sustains life as our well-being depends on it.

4.3 Factors influencing environmental awareness and attitudes

This section addresses the second research question and focuses on the factors that might have influenced participants' ideas and attitudes about the environment. This theme highlights some important factors that emerged during data analysis, where children indicated it was connected to the environmental issues they were experiencing. It was also revealed that participants' learning is mainly due to negative factors that cause them to think about the environment. For instance, the participants indicated that their learning about and developing their environmental awareness was because of the various environmental issues and problems experienced in the community due to human activities. These issues relate to water scarcity, pollution, marginalisation of rural areas, deforestation, litter, and waste disposal, some of the most prevalent issues the community is experiencing.

4.3.1 Impact of water shortages on rural communities

Water is essential for living. What happens when one is faced with the possibility of running out of basic needs like water? Water shortage is a global issue that can impact the world's climate. (Zhang et al., 2021). In this study, participants experienced water shortages almost every day. In this regard, the participants had the following to say when asked about their experiences of access to water in their community:

Figure 4-3: Lulu's drawing depicting water shortages in the community

> Lulu: "*Ma'am, we run out of water for weeks or two weeks; a shortage of water lasts for up to the whole month" …. It's a struggle because we must collect water from the river. When we arrive at the river, we sometimes find water dirty from waste disposal from nearby houses or cattle and goats drinking it.*

Lulu's response highlights some struggles people from rural areas continue to face post-apartheid. Here, there is a critical awareness of the marginalisation and exclusion of people who live in rural areas. People who live in these areas often do not have access to their fundamental rights, including running water, as, according to Nono 'taps run dry", forcing them to use the river (Hofstetter et al., 2020). However, marginalisation and exclusion occur not only at the societal and institutional level (Hardiman & Jackson, 2007) but also on an individual and community level. For this study, community members were often the ones who were destroying this vital resource, using the river for "*waste disposal*" or, according to Sibusiso ", "[leaving] *taps running*, [and] *urinating in the river*".

This phenomenon may also be understood as horizontal oppression (McKinley et al., 2020), with targets oppressing and subordinating other targets. For this study, the targets are adults of the same racial group who use their power to maintain this inequality. As adults, they do not protect the environment; instead, they destroy it further. This is also about a lack of support for the community's needs, where goats and humans drink from the same river, suggesting the systemic inequality that communities in rural areas constantly face (Hofstetter et al., 2020). One could argue that the lack of care and responsibility for the environment results from years of neglect when hopelessness sets in.

This finding aligns with a study by Martin (2016) that states that when people live in materially, socially, politically, and economically deprived contexts, they are likely to be regarded as 'failed citizens' with little to offer. In such contexts, people often grapple with hope for the future and, thus, reproduce what has gone on previously. In this study, the participants and their communities continued using the river to dump waste, as there were no waste disposal sites or proper sanitation services.

What is interesting about Ayanda's understanding of water shortages is her questioning what is occurring in her community. In this regard, Ayanda has the following to say:

> Ayanda: "*Water shortage in this community is a crucial issue affecting us almost daily. Ma'am, it isn't easy to live under such conditions, especially in rural areas. We use water for different purposes like cooking and bathing, to name a few, and now we get it from the river. How can that be?*".

From the response above, Ayanda suggests that rural life is complicated and burdensome, and essential physiological needs are unmet. Here, Ayanda describes the difficulty, unfairness and injustices that people living in rural areas encounter daily, where water shortages affect "*us almost every day*". Not only are there water shortages, but people have to use the water from the river to do things like cooking and bathing. Thus, the river becomes a supplier to many who need water in these areas, regardless of the water quality. Zhang et al. (2021) argue that water is crucial for socio-economic development, and development is almost impossible without water. For instance, where running water is unreliable, and the river is used for people's basic water requirements, life becomes a nightmare. This reproduces or reinforces the invisibility of rural areas and their needs (Masuku & Jili, 2019).

Ayanda is critically conscious of their inequality and understands the difficulty of living under such conditions. Freire (1970) pointed out that critical consciousness helps Ayanda question and frown on such a reality: "*How can this be?*" This response suggests the critical capacity to question the status quo and recognise that what is happening in her community is unjust and unfair. According to Francis and Webster (2019), South Africa is one of the most unequal countries in the world. Francis and Webster (2019) further indicate that the vast majority of people in the country live in abject poverty. Figures from Statistics South Africa show that 55.5% (30.4 million) of people live in poverty, and of that 18.2 million people live in abject poverty (Statistics South Africa, 2022). Furthermore, 13.8 million, 25% of the South African population, experience food poverty. In 2022, 19% of people living in rural areas had no reliable water source (Igamba, 2022).

4.3.2 Impact of pollution on the environment and life

Most participants were quick to answer when asked about environmental problems affecting them as a community, naming pollution as one of the community's major problems and its effects on their health. Pollution is divided into different types: water, land, and air. Fuller et al. (2022) describe pollution as unwanted waste produced by humans, which is released into water, air, land and oceans without considering the consequences.

4.3.2.1 Polluting the air

The participants for this study revealed that some community members were the primary source of pollution, revealing their deep critical awareness. This is what the participants had to say about pollution in their area, notably air pollution:

> Nono: "*Polluted air is caused by passing vehicles because they release carbon monoxide. This polluted air makes it difficult to breathe in clean air.*"

> Themba: "*Burning of sugar cane fields leads to air pollution due to smoke.*"

Figure 4-4: Themba's drawing showing him going to school in the morning while a farmworker is burning sugarcane fields

Nonhle: "*The smoke from burned waste causes air to be polluted, thus causing breathing difficulties amongst us*".

> Bunhle: "*Ma'am, when the neighbours burn their waste during the day from the rubbish pit, the smoke comes straight to us, and it becomes difficult to breathe because the fresh air is gone*."
>
> Lungisani: "*We are living in the rural areas, mam. Yet, we also experience air pollution in this community because our community is close to the sugar cane factory. The smoke from the factory pollutes the air we breathe. Some learners here at school have asthma. It is also more difficult for them to breathe properly, as they are now exposed to polluted air*".

The responses above suggest that firstly, participants are aware of who causes the air pollution and how this impacts people in the community. For the participants, the air pollution comes from various sources, namely "*passing vehicles that release carbon monoxide into the air*", community members "*burning waste*" from the "*rubbish pit*", and the nearby "*sugar cane factory*". What is also evident here is who the participants say is responsible for air pollution. Nono indicates that vehicles account for air pollution. On the other hand, Themba, Nonhle, and Bunhle point out that community members are the cause of air pollution. One could look at this in two ways, as discussed below.

Burning of waste by community members may be an act of survival because the participants' responses suggest that people have to "*burn the waste*" as there is a build-up in the rubbish pit. However, proactive gestures on the part of the community have consequences because they unconsciously harm the environment and cause illness, as some may find breathing challenging. One can see the difficulty of knowing the right or wrong thing to do in a place forgotten by a municipality, showing the neglect of rural areas. This finding aligns with reports by Manisalidis et al. (2020), who state that human activities have dire effects on the environment, often in the form of pollution. This finding shows that air quality in rural areas is affected by injustices caused by people knowingly

and unknowingly (Tran et al., 2020). The participants' responses reveal a neglect of the rural areas with no waste management systems.

The consequences of air pollution are felt by community members who, according to Nonhle, Bunhle and Lungisani, find breathing difficult. Lungisani's response suggests that it is more than just breathing problems; it is something more severe, as some participants have developed asthma because of exposure to polluted air. Furthermore, Lungisani points to the poor spatial planning evident in the rural area, where the sugarcane factory is too close to the community. Lata et al. (2020) have characterised this as a form of inequality where factories are close to communities, and the Department of Land Affairs does nothing about it. Such inequality has dire effects on people who are most powerless because they are poor and live in areas that are marginalised.

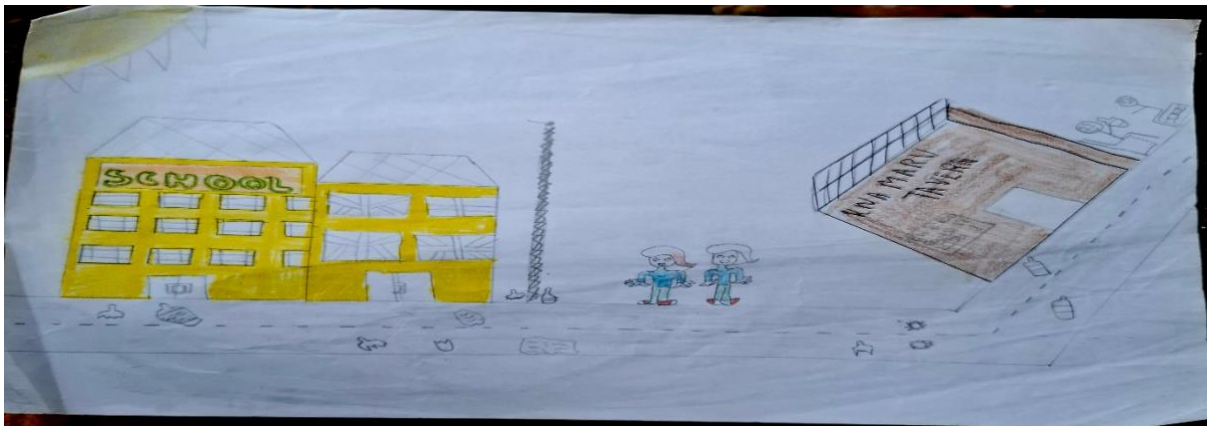
Here, children's identity is important as various observations and experiences from an early age shape it. Here, they are learning that their health is unimportant as children. This further reveals a conflict between children and adults in this context because, according to Harro (2000), people generally find themselves in a position where they can either be quiet or challenge the status quo. It is worth noting that here, children are pointing to internalised oppression that they encounter because of their positioning in society. Internalisation occurs when children and adults learn to acknowledge and accept dominant cultural and societal meanings ascribed to them, including unequal societal roles that assert adult dominance over children.

For instance, they recognise that "*burning waste and emission of gases from nearby factories*" contribute to health problems, but they do nothing about it. This impotence suggests that children and adults may have accepted their fate and choose not to challenge it. This finding aligns with Bell's (2010) argument that people have been socialised in an oppressive environment and have learned to accept the definition of themselves by the dominant group. Likewise, children's inferior status and position to challenge adults and the Department of Land Affairs is evident in this context. However, as can be concluded from some of the participants' responses, children are competent and capable of making decisions (Holloway, 2014), including questioning the status quo: "*How can this be?*".

4.3.2.2 Lack of care by community members

The children in this study cited land pollution as the second most common cause of pollution in their community. Roadside litter and garbage disposal in the street and into the river were among the other problems the community was facing, as similarly evidenced in a study by Mapotse and Mashiloane (2017).

Figure 4-5: Drawing by Bunhle showing the state of pollution along the road to the school and the tavern, which, according to her, contributes to the pollution of the environment



The participants described land pollution in their areas through the following narratives:

> Bunhle: "*Most people around this community drink alcohol. Once finished drinking, they dispose of beer bottles all over without considering the impact of their action on the environment and impact on people's lives*".
>
> Sibusiso: "*People dump garbage and waste anyway they know how. This causes breathing problems because of the unbearably awful smell*".
>
> Ayanda: "*Roads are dirty; there are a lot of papers and plastics alongside the road*".
>
> Lulu: "*It's litter, Ma'am … we have littering around the school and homes; alongside the river, people tend to dispose of garbage and waste material*".
>
> Nonhle: "*…the community is experiencing environmental problems because people throw papers and bottles all over the place*".

> Lungisani: "*The community dispose of garbage and waste all over the place. They do not use garbage bins to dispose of their waste such as papers and dirty pampers*".

All of the participants above express dismay at the state of the environment as roads are dirty and litter is littering around the schools and homes of people. Again, like previously, they lay the blame for the state of the environment and their community on the people who live here. Krems et al. (2017) have indicated that the depletion of natural resources and social problems are closely linked, leading to people's lack of motivation to care about the environment. Bunhle can link the social problem of alcohol in the community to that of litter. She uses "*most people*" to suggest this is a widespread social problem.

However, this has consequences as those who drink throw their "*beer bottles all over*". Again, she indicates they lose their sense of responsibility and accountability for protecting their environment in their inebriated state. However, the result is that people who do not drink and care about the environment are alienated from their living space. Mendez (2017) points out that accountability and responsibility have legal and ethical dimensions, but when drunk, these legal and ethical dimensions are forgotten and lose potency.

In the above excerpt, people unintentionally cause pollution because they are not in the right frame of mind; others are not. For these participants, people intentionally and knowingly litter the area with garbage, waste, paper, plastic, and dirty pampers. This, for them, is significant for a community with negative attitudes towards the environment. Research by Siddiqua et al. (2022) suggests that human activities and inappropriate ways of waste disposal are the main contributors to the land pollution many communities face, and they also directly and indirectly damage the ecosystem. This is in line with what the participants narrated above: "*People tend to depose garbage and waste, dispose of beer bottles everywhere and not use garbage bins*".

Social justice theorist Bell (2016) asserts that the goal of social justice is that all social identity groups must work together and shape a society or community responsible for everyone's needs. For this study, however, the participants reported that adults in the

community could not protect the environment. Chapman and Hobbel (2022) have also argued that children should have equal say and participation in the decisions affecting their lives. The participants in this study were aware of how adults were harming the environment but could not openly challenge their actions.

4.3.3 Deforestation: A contentious issue

According to Bodo et al. (2021), deforestation is a huge problem globally. It is more common in rural communities, such as where this study was conducted (Austin, 2019). The participants had the following to say about deforestation:

> Lulu: "*People cut the trees because they need wood for fuel. They use wood to make fire for cooking and warming their homes during the winter*".

> Themba: "*If people continue to cut down trees, we might experience flooding soon*".

When asked what he meant by the above statement, Themba said:

> "*Ma'am. once told us in class that trees and forest protect the soil erosion and we should not cut down trees to avoid flooding*".

Figure 4-6: Nonhle's drawing illustrates how the indigenous forest is being cleared, leaving wide open spaces without trees.

She further indicated, in her explanation of her drawing, that:

> Nonhle: "…*they cut down trees because they need wood for fuel. Sometimes they cut the trees down for no particular reasons*".
>
> Ayanda: "*Ma'am, in this rural area of ours, we are struggling, especially with basic service needs; sometimes, I feel like people in urban communities do not go through to what we are going through here. For example, they have electric stoves; here, we must cut trees and collect wood from the forest*".
>
> Nono: "*Ma'am, electricity is expensive; we save it for light at night…wood from the forest is used for cooking and warming our homes during cold nights*".
>
> Ayanda: "*In this community, many indigenous trees and plants exist. Because the population is growing, people are forced to cut down trees and clear forests to clear space for building their homes with wood and mud*".
>
> Lungisani: "*People from the community and nearby communities travel from their homes to the indigenous forest to cut down fuelwood (bayatheza) and collect it with a wheelbarrow; others carry it on their head after forming a bulk (Inyanda). Sometimes, I also joined my sisters after school to help them collect wood from the forest; the electricity is expensive*".

The participants' responses above provide insight into the living conditions of people living in rural areas and their struggles to survive and manage their everyday lives. The participants' narratives point to socioeconomic imbalances continuously visible in rural communities twenty-nine years later. This finding aligns with Francis and Webster's (2019) reports that, apart from the unequal distribution of incomes, there is also an unequal distribution of services, a leading cause of inequality amongst poorer communities.

Thus, people must choose within restricted circumstances in an environment of deep socioeconomic exclusion and inequality. The act is sometimes not intentional; the socioeconomic status of their families forces them to make difficult choices. In such instances, the ability to run a household is almost impossible; thus, the family's socioeconomic status is unhealthy (Singh et al., 2017). Adults in this community choose between meeting their basic needs, such as cooking and warming their homes during the winter. This means that they must cut down trees to do this. One could argue that they are resourceful and have some agency as they can do something to meet their needs even under challenging circumstances. In addition, the rural space is filled with unconscious power relations where people collude with their oppression as they are left without alternatives.

Ayanda, Themba, and Nonhle demonstrate their ability to read the world (Freire, 1970) and where they live, demonstrating their critical capacity. For example, Ayanda recognises inequality between urban and rural areas. The disparity stems from the provision of essential resources, indicating structural inequality. Ayanda also shows her frustration because people in urban areas have better access to essential services, which allow them to cook quickly. Still, she and the people in her community must cut trees and collect firewood from the forest. Ayanda's explanations align with the argument put forth by Freeman (2020) that children should be recognised as equal producers of information. Ayanda understood the challenges that people from rural communities face, which allowed her to discover her agency through participation in this study (Valentine, 2019).

Further, Ayanda provides reasons why people make certain decisions like cutting down trees or clearing the forest, and this is for survival reasons, as people must "*build their homes with wood and mud*" as the population grows. Here again, one can see the systemic inequality that goes against the promises promulgated in the Constitution of the Republic of South Africa (Republic of South Africa, 1996a), section (26.1, p.11) that states that "*everyone has the right to access adequate housing*". Instead, people years after the advent of democracy continue to live in abject poverty (Martin, 2016) and where the housing crisis seemingly only affects people experiencing poverty (Ndebele & Lovheni, 2017). Ayanda's justifications for deforestation resemble what Todes and Turok (2018)

characterise as a consequence of overpopulation and poverty and the forced choices people make to meet their immediate and essential needs.

Nonhle and Themba's critical consciousness is evident because they understand that the decisions and choices people in the community have made have consequences. Nonhle points to the irresponsibility of people who "*sometimes cut the trees down for no particular reasons*". Themba speaks of a future where he can see the effects of people cutting down trees, as it might mean that people will experience flooding, suggesting his understanding of the connected nature of the environment. His idea concurs with Hall and Uhlig's (1991) research, which revealed that deforestation ultimately results in flooding. Themba can also link what he learns in class with the real-life issues visible to the naked eye: "*cutting down trees and flooding*". This study is about the knowledge he has acquired that has enabled him to understand what is happening in his community and make him concerned about the future. This highlights the bigger picture of what children know and do not know about pressing issues in their surroundings. Themba's comments suggest he can understand what is happening around his space.

4.3.4 Marginalisation and exclusion of people living in rural areas

Participants reported that the efforts of the local municipality to improve the area were controversial. Figure 4-7 below shows Ayanda's understanding of the situation.

Figure 4-7: Ayanda's drawing showing unfinished road projects by the municipality

In line with Ayanda's response, the participants reported that poor infrastructure was one of the critical issues that had led to environmental destruction:

> Ayanda: "*This is an unfinished road project by the municipality. Another part of the road is tar, and the other part is gravel with many holes and uneven surfaces*".
>
> Themba: "*It is road construction because they dig up roads and leave open holes, sometimes not attended to and not covered with danger signs. This construction further creates soil erosion when left open for the longest time*".
>
> Nonhle: "*Mmhh! The problem is our roads in this area because of the construction. If it is raining, the roads become muddy, and we cannot access the school due to mushy and muddy roads which are not properly done*".
>
> Bunhle: "*Ma'am … our roads are in poor conditions, half tar, other half is gravel. This creates uncontrollable dust and soil erosion during windy and rainy seasons. The project takes longer to finish, which results in roads being exposed to flooding*".
>
> Sibusiso: "*In this area, we do not have imixhaso (RDP houses) like the one I normally see in other areas when visiting relatives; some families stay in muddy houses built with timber. The timber used to frame the house*".

Ayanda further indicated the consequences of unfinished road construction for people:

> "*When someone is sick or needs to see a doctor, it is impossible or a struggle due to 'muddy roads' which are difficult to access. Ambulances struggled to reach the homes of the critically sick people who needed to be admitted to hospital*".

From the responses by the participants above, it is clear that rural areas are marginalised. Messiou (2012) and Young (2014) indicate that marginalisation is one of the most severe forms of oppression, as people are prevented from participating in society. For the participants, this marginalisation is experienced in various ways. Firstly, a power relationship exists between the people (agents) who own road construction businesses and the municipalities. Conversely, the people who live in the area are powerless and can be seen as targets (Jackson & Hardiman, 1994). Here, the company workers 'dig up roads' but endanger people's lives by failing to close the holes and not using the correct "*danger sign*". This lack of regard and care is because of the agent status of the company, who use their power to oppress.

McComb et al. (2017) research has shown the consequences of giving people projects to complete in rural areas. One consequence is that the projects are often left incomplete, and the people in the community are the most affected. There are consequences for digging up roads because the roads become "*muddy*", preventing participants from accessing school. In this way, their right to learn, protected in the Constitution, is denied. Further, with power goes privilege because there are no consequences for the people who own the construction business, and participants are prevented from going to school. Jackson and Hardiman (1994) regard this as vertical oppression as participants' source of power to gain the knowledge they should get from school is denied. Ayanda brings even more dangerous consequences, such as "*when someone is sick or needs to see the doctor*," which they cannot do. These poor road conditions even prevent ambulances from helping "*critical*[ly] *sick people who need to be admitted in hospital*". The construction workers can be regarded as outsiders to the community, but they can still determine community members' realities because of their agent status.

Another consequence of the road construction project is that it causes damage to the environment because of soil erosion as the soil is not used responsibly. Soil erosion caused by companies causes extensive environmental damage (Chalise et al., 2019). The research by Masiya et al. (2019, p. 3) and Reddy (2018) indicates that local governments are responsible for ensuring that services and infrastructure are fixed and given to people. This, however, does not occur in this area, according to the participants. This could also be seen as a form of symbolic violence against poor people living in rural areas. Similarly, Kanyane (2014) found that local municipalities still struggle to satisfy primary

community needs such as water, electricity and infrastructure. This further gives a detailed picture of reality and the complexity of rural people's lives.

4.3.5 Inadequate school participation

The importance of school participation in promoting environmental awareness in children and the community cannot be overemphasised. Bratman et al. (2012) state that cultures, religions and leaders worldwide should emphasise the role of nature and environment in human well-being. For instance, the school should orientate and influence children towards environmental responsibility. Environmental education should focus on attitudes and beliefs to promote environmental awareness (Zachariou et al., 2019). Data collected from the focus group and semi-structured interviews provide insights into the importance of school participation in fostering positive attitudes and actions toward the environment. Many environmental problems in rural communities result from insufficient knowledge about environmental issues and a lack of environmental awareness and protection campaigns.

The participants reported the following during the focus group interviews:

> Lungisani: "*We learn about environmental issues in Natural Science lessons*".
>
> Ayanda: "*The teachers teach us about some of the environmental problems we encounter in this community, both experienced in rural and urban areas*".
>
> Sibusiso: "*Teachers also told me that animals like fishes in the oceans die while eating plastics mistaken for food due to pollution*".
>
> Lulu*:* "*We don't have environmental clubs here in our school*".

When probed as to why they did not have an environmental education club or programmes, Sibusiso responded,

"*There is no time to run the environmental clubs*".

To this, Nonhle added*:*

> "*No one can also volunteer to run the environmental education club in school and extend it into the community. Because teachers and people around this community do not have enough information to teach us about environmental issues*".

In this regard, Bunhle had this to say:

> "*Teachers don't have time to teach us about running the environmental education projects*".

> Nono: "*Yes, our teachers do not have enough time to teach us about the environmental issues on a deeper level. Maybe they lack enough information about environmental education*".

The participants above question the kind of learning they are exposed to at an institutional level of the school. Schools are where they must learn about environmental issues and problems and where they can read their space and understand the environmental concerns that "…*we encounter in this community. experienced in both rural and urban areas*". Instead, their learning is confined to specific content learned in Natural Sciences lessons. However, the Natural Sciences lessons are restricted to teaching about the "*dangers of pollution*" where "*fish eat plastic*".

Whilst this content is essential, participants indicate a worrying issue: a lack of teacher content knowledge that would not allow them to learn about environmental issues "*on a deeper level*". According to the participants, teachers "*lack information about environmental education*" and do not have "*enough information*". The perceived lack of knowledge of teachers suggests a dire state of environmental education in schools in rural areas, as pointed out by Anderson and Jacobson (2018). Anderson and Jacobson (2018) found that teachers in rural schools often lacked content knowledge vital for effective environmental education.

Another issue the participants raised was the teachers' unwillingness to establish "*environmental clubs*" because there "*is no time*" and who cannot help extend environmental awareness to the community. Nonhle considers a partnership between the school and the community important because people have inadequate information, but sadly, this does not occur. Again, in this regard, the community and participants are excluded from the socialisation about conserving their environment. The school must be a place where children learn about making informed decisions and attain critical environmental values and skills necessary to become active participants, as pointed out by Ferreira and Molala (2017). However, when there is no social or political will, as seen above, and the children's voices are not heard, all these critical considerations go up in flames.

4.3.6 Inadequate community participation

The participants reflected on various aspects of environmental awareness in their community. The excerpts from the participants' responses below provide insights into the extent of community interest in learning about the environment.

> Themba: "*Most of the time, when the ward counsellor sends out an invite to the community about meetings, very few people attend these meetings. The community meeting is a good platform to address such issues as environmental awareness. However, it is impossible in this community because people do not attend meetings*".

> Ayanda: "*The ward counsellor should be the one that solves environmental problems in the community, especially water problems*".

> Lulu: "*The community members are doing nothing to solve environmental issues and promote environmental awareness. I also think that Melusi* should be the one that solves environmental problems in our community*".

Themba's response suggests a lack of interest in learning about the environment on the part of the community, who does not even attend meetings to discuss environmental awareness. For him, the community's disinterest threatens its very existence. It puzzles

him why people do not attend to critical issues, especially when the "community platform" is the space to learn and contribute to understanding what is happening in their environment. This finding aligns with the findings by Schmidt et al. (2020), who revealed that adults do not promote environmental awareness, as they do not have the required information to respond when needed. However, in this regard, Themba projects himself as a competent actor with the agency due to his awareness of the community's disinterest.

Lulu and Ayanda, however, hold the ward counsellor accountable for solving the environmental problems that they believe fall outside of what they can do. They question the power given to the ward councillor. Another way to understand this is that participants may feel they cannot solve water problems or environmental problems, which takes away their agency (Cutter-Mackenzie & Rousell, 2018). Instead, they leave it to adults to solve the issues, which could be understood as a failure to think they can solve problems and take responsibility for the environment.

Lungisani and Themba, however, provide insight into why it may be challenging for them to exercise agency. Lungisani points out that "*it is impossible to hold a conversation with an adult in this community. Children should obey adult figures all the time and show respect*". Themba agrees, indicating that it is "*difficult to hold a conversation with older people and instruct them what to do, what not to do*". This response suggests that the participants may lack the cultural capital required to participate equally in engagements. Their responses indicate that, within their context, addressing an adult about environmental awareness can be construed as rude and lacking respect.

Secondly, their responses suggest a lack of power and voice, which is also evident when children cannot engage in dialogue with adults who instead use their power to instruct them but never listen to them. This situation is because of the cultural conventions and norms dictating the relationship between adults and children, especially in rural areas (Gregory & Fergus, 2017). This means that child-adult relationships are founded on unequal power relations. The participants' responses reveal their dissatisfaction with adults' influence or lack of influence in something of critical importance, like the environment. Their responses point to their disappointment with adults. Participants feel powerless because of the dominant cultural conventions that reproduce unequal relationships between adults and themselves.

However, the participants also question the systems of power and privilege that silence them and reproduce inequality. More importantly, the unequal power relations force them to concede to issues that are of critical importance to them. Adults and teachers should have been vital in creating environmental awareness programmes and activities. As community members, adults should also teach children about shared values, attitudes and interests that serve all (Bettez, 2013). However, they seem unwilling to engage in something children believe is essential. These findings concur with a study by Gunningham and Sinclair (2017), which showed that a lack of environmental awareness may have contributed to people's unwillingness to protect the environment.

4.4 Complexities of promoting environmental conservation and justice in rural areas

This section responds to the third research question: *How do learners' understandings of environmental issues contribute towards environmental conservation and justice?* The participants' responses reveal the contradictory nature of participants' thinking that has implications for the schooling system and environmental education. When asked to explain what they understood by environmental conservation and environmental justice, participants indicated the following:

> Nonhle: "*No! I don't know anything about environmental justice and conservation." I think it is because no one openly discusses the effects of environmental issues in the community. Therefore, it is not easy to raise it because we are children. I feel I cannot do anything about them because of my age. People will not listen to me when I explain why we must resolve environmental issues since I am young and elders may look down upon me*".

> Lulu: "*I don't know anything about environmental justice, but I know that conservation involves protecting nature and natural resources*".

> Sibusiso: "*No, Ma'am, I know nothing about environmental justice and conservation. Some community members can erect bins along the roads*

with signs showing where to throw waste. This will be a constant reminder always to protect rather than destroy".

Themba: "*Yes, I understand some environmental conservation concepts*".

Lungisani: "*Environmental conservation and justice are about preserving and keeping the environment safe. More initiatives are needed to focus on conserving the environment, like not unnecessarily cutting down trees*".

Ayanda: "*Environmental conservation and justice is protecting the environment. There is no one raising awareness in our community about environmental conservation. However, the community can take the stand and find the relevant information that will help raise environmental justice and conservation awareness, like how to protect the river and not to litter in the community*".

The above responses point to the complexities of participants' understandings of their place in their world and what they can do. For example, Nonhle and Sibusiso indicate adamantly and emphatically that they do not understand these concepts: "*No! I do not know anything…*". They may not know the technical terms of environmental justice and conservation. This situation speaks to the schooling system, where participants indicated earlier that they do not learn much about the environment or how to protect it. For this reason, Sandbrook (2015) calls for sustained and quality teaching about the environment, given that children are the future.

Nonhle shows a lack of confidence, and it is mostly about her relationships with significant adults in her community, which could account for her reservations about taking control of her knowledge. She raises the issue of authority and power between adults and children. According to her, her age places her in a powerless place as she feels she cannot act against adults who refuse to "*listen to me*". This reality is despite her knowing that she can provide solutions to resolve certain environmental issues facing the community. Again, one can see the tension between good practice and action and what can limit and restrict this practice, namely, age difference and the normative discourse that holds that children should be seen and not heard (Holloway & Valentine, 2004).

Nonhle cannot exercise her identity as an environmental warrior because of these prejudicial ideas. She is interested in raising awareness with some knowledge she has acquired from school, but she is at a crossroads with her identity as a child and community member (Burke & Stets, 2022). In this regard, Berne et al. (2018) have argued that age can be a site of oppression.

This inability to act means that whilst she and Sibusiso can understand environmental problems in their community, they do not know how to navigate their roles as children to promote environmental conservation and justice because of the cultural norms surrounding relationships with adults. Sibusiso has good ideas of what community members can do to protect the environment, calling for them to "*erect bins along the road*" and to put up signs that show people where to throw waste. His ideas are clear and intentional and can remind people to "*always protect rather than destroy*".

On the other hand, Themba, Ayanda, and Lungisani can explain and understand these concepts. For them, justice and conservation are about preserving and keeping the environment safe. They also provide critical ways to conserve the environment and promote environmental justice through "*not cutting down trees unnecessarily, protecting the river and not to litter*". However, despite all this, it is evident that the participants have knowledge that should be valued.

Further, Ayanda and Bunhle refer to raising awareness in the community, pointing out that environmental conservation and protection are relational acts and require everyone to participate in protecting the environment. They both argue for the need for awareness programmes. This aligns with the findings from Cobigo et al. (2016), which showed the importance of community working as a group, sharing the same values, and supporting one another in environmental conservation and justice. This is also in keeping with the theory of children's geographies, which sees children as actors who can make a difference and have ideas that should be valued (Holloway, 2014).

The participants showed that they knew the problems that caused environmental injustice; secondly, they could use their knowledge to develop ways to promote environmental conservation. The participants' responses also reveal that they are willing to share their ideas with others to provide some common purpose and position themselves as active

social members in their communities (Holloway, 2014). This is also because they have the critical awareness that "*no one is raising awareness in our community about environmental conservation*", and thus, they provide ways to do this. Given the long history of marginalisation and restriction in education for children within rural areas (Nixon, 2011), the participants' ideas must be praised and implemented. This is important as it will inform their actions to promote environmental justice and conservation. A research study by Cobigo et al. (2016) described the concept of community as a group of people sharing specific values, bound by culture and clan names, and the support they provide for one another.

Participants like Sibusiso, Ayanda and Bunhle also believe that it is the responsibility of the community to do this where "*awareness programmes and community leaders can host awareness programmes. The posters can be put up prior*". The participants came up with creative ideas for raising awareness through posters and putting up signs, laying the responsibility for this with community leaders and other adults. This may be because they recognise that asymmetrical power relations (Harro, 2000) exist between the adults in the community and their ideas about children's place. This prevents them from taking action about what they believe is necessary.

4.5 Conclusion

The main objective of this chapter was to present and discuss the data gathered in response to the critical research questions. Data reveals that participants in this study understand the environmental issues that plague their communities. These environmental issues are caused by various factors related to the community context, such as infrastructural issues and multiple actions involving community members that contribute to environmental destruction. The participants' responses also pointed to power imbalances that reinforced the power of adults to make decisions on behalf of, instead of with, children. The participants' responses revealed that they cannot negotiate their space and place within the community because children in rural communities are not considered social actors. Although the participants may not understand the technical terms associated with environmental conservation and justice, they have practical ways to protect and conserve the environment so that everyone can contribute towards preserving the environment for future generations.

5. Chapter 5

Conclusion, Reflections and Implications of the Study

5.1 Introduction

The previous chapter presented, discussed and analysed the findings from the data generated to respond to the study's key research questions. The findings revealed the participants' understandings of the environment and environmental issues. In this final chapter of the research, I consolidate and elevate critical issues emerging from the study. In this regard, I begin by reiterating the purpose and significance of the study. This is followed by reflections on the appropriateness of the theoretical and methodological considerations that guided the study. The discussion also elevates the key findings emerging from the study. I then reflect on the limitations of the research and provide some recommendations as well as the study's contribution to the research field. Lastly, I present the conclusions of the study based on its findings.

5.2 Purpose and significance of the study

The study aimed to explore Grade 7 learners' understandings of environmental issues at a school within the rural context of uMgungundlovu District. The study also investigated the factors contributing to participants developing particular views, attitudes, and awareness about environmental issues that affect their families, communities, and schools. The participants for this study were children, and the study was underpinned by the notion of children's geographies, which means that it had to recognise the participants' capacity to construct and understand their worlds. The study foregrounded the participants' perspectives and voices and situated their views as central. Findings reveal that the participants had critical insights into environmental issues in their families, schools, and communities. The participants could provide ways their families, schools, and communities could help raise awareness and protect the environment, leading to justice.

Three key research questions underpinned the study, viz:

- What are learners' understandings of environmental issues they encounter in their communities?
- What factors contribute to learners developing their environmental awareness and attitudes?
- How do learners' understandings of environmental issues contribute to environmental conservation and justice?

This study brought up various environmental issues that most rural communities must deal with in their day-to-day lives, showing that little has changed for these communities regarding this matter. The participants' voices were foregrounded using the notion of children's geographies. There is limited research that centralises the voices of children regarding the understanding of environmental issues (see, for instance, Holloway & Valentine, 2014). There is also a dearth of research into children's perspectives, especially those from rural contexts. Thus, the study sought to contribute to this body of knowledge.

Findings from this study revealed that children in rural communities are often exposed to several environmental issues and that various factors contribute to participants' awareness. The findings of this study suggest that a long history of marginalising rural contexts continues to force individuals and communities to make choices and decisions that have adverse environmental consequences, as argued by, for instance, Masiya et al. (2019). The study highlighted the need for more research on young children's understandings of environmental issues. The study also identified environmental knowledge gaps, especially in schooling. It revealed the necessity of introducing environmental education to improve environmental awareness and justice, especially in remote, socioeconomically deprived contexts. The participants could articulate these quite critically, showing that they can construct and understand their world, as evidenced in the studies by Punch and Tisdall (2012) and Murray (2015).

Children, including those who participated in this study, are less involved in decision-making despite existing mechanisms to recognise children as active participants (see, for instance, Quaye et al., 2019). On the contrary, power imbalances often feature prominently regarding children's rights to be recognised, affecting their ability to have their voices heard. Murray (2015) has pointed out that adults should actively listen to

children and value their perspectives and opinions. This suggests that the children's understandings and views should never be underestimated. This points to the importance of the relationships children form with other people and their capabilities to negotiate and navigate issues and their worlds, contributing to issues and problems affecting their families, schools and communities.

5.3 Reflections on the theoretical framework and methodological issues

The section reflects on the theoretical framework that underpinned this study as well as the methodology that was used to conduct this study.

The study employed the theory of children's geographies, focusing on three critical aspects of this notion: space, place, and agency. Children's geographies emphasise children's capabilities to understand what happens in the world. It also follows that children's voices are essential to listen to (Holloway, 2014). This is why children's voices were elevated and central to this study. The notion of children's geographies allowed me to understand how children can be active and knowledgeable actors in their worlds. For this study, the participants, who were children, provided insights into environmental issues in their communities.

The theory of children's geography was relevant to this study because it was guided by the critical paradigm, which challenges power imbalances, inequality, and social change. The current study explored the children's understanding of environmental issues in a rural context. The context was where the influence of cultural and socioeconomic factors is high—returning to why children's geographies were relevant. The theory suggests that children experience the world differently from adults. The notion of children's geographies listens to the children's voices and understand children's different perspectives.

When using the theoretical concepts of agency and place, children's ideas contrary to those of adults were enabled. For this study, children questioned the adults' contributions to protecting the environment's future. The theory of children's geographies allowed me, as the researcher, to understand their worldviews from their perspectives rather than those imposed by dominant constructions of children. The findings of this study suggest that

participants' agency was restricted to the extent that they felt that they could not disagree with the adults in their community and were bound by the dominant norms regarding the relationships between children and adults. For example, in Chapter 4, Nonhle revealed that her age prevented her from speaking out as she felt that adults "[would] *not listen to me*". This points to power relations that were often difficult for the participants to negotiate to help their families, schools and communities deal with environmental issues.

The research also adopted a narrative approach to respond to its questions and objectives. The narrative enquiry was helpful as it helped me to understand the stories that children told about their experiences of the environmental issues in their families, schools and communities. The approach thus allowed me to narrate or tell the participants' experiences with environmental issues. To do this, I established a relationship of trust between myself and the participants. Semi-structured interviews, mapping, and focus group interviews were used to generate participants' narratives about their experiences with environmental issues. The semi-structured interviews were conducted in isiZulu and tape-recorded, transcribed verbatim and analysed. Conducting the interviews in isiZulu allowed for a more trusting relationship as it allowed the participants to freely express themselves without the fear of struggling with a foreign language.

The study used the critical paradigm. The critical paradigm helps respond to social justice issues, marginalisation, oppression, and other dynamics that contribute to the power imbalance within society. The critical paradigm strives to emancipate powerless individuals and communities (Kamal, 2019). Using a critical paradigm did not bring about the emancipation of the participants; it enabled me to understand power imbalances within the families, schools and communities, especially regarding children's agency and voices within these contexts.

Thus, the paradigm allowed for children's voices to be heard and for me to understand them as central to the study. The semi-structured interviews, mapping and focus group interviews provided a platform for the participants' views to be heard, enabling their agency to emerge. The critical paradigm challenges the status quo, highlights the need for children to be enabled to take action against socioeconomic injustices, and positions their ideas as crucial for addressing social issues, including, as seen in this study, environmental justice (Asghar, 2013). The participants' narratives reveal that although

participants were aware of the environmental problems in their communities, families, and schools, they found it difficult to challenge them due to normative constructions of their relationship with adults.

5.4 Summary of the findings

This subsection summarises the key findings emerging from the study. The findings produced four main themes that helped to respond to the study's key research questions.

5.4.1 Research question 1: What are learners' understandings of environmental issues they encounter in their communities?

The study delves into the participants' understandings of the environment as children, shedding light on their distinctive perspectives and agency to construct and understand their worlds. Through participant data analysis, it becomes evident that children possess a critical lens through which they can interpret their surroundings, drawing from their observations and participation in their families, schools and communities. The participants' understandings are not passive; they actively negotiate issues and navigate spaces and places.

One notable observation is the divergence in how children conceptualise nature and its relationship with humans. Some view nature as an independent biological entity unaffected by human influence, while others recognise the inseparable bond between humanity and the natural world. Despite this diversity of perspectives, children demonstrate a complex understanding of the consequences of human interaction with the environment. This awareness extends to recognising human activities, such as littering and resource depletion, as detrimental to nature.

The significance of these findings lies in their exposition of the power dynamics regarding environmental issues at play within families, schools, and communities. The participants, for instance, articulate a sense of agency, acknowledging that humans can destroy and nurture the environment. This acknowledgement highlights that environmental spaces are not neutral but imbued with power dynamics, wherein adults significantly influence the environment, often in detrimental ways.

Building upon previous research, the study points to the inequalities inherent in human-environment relationships, particularly concerning children's perspectives. In this study, children's voices often countered adult-driven dominant narratives, highlighting the disparities in power and agency. Such insights challenge normative assumptions about children's abilities and agency and underscore their critical thinking and action capacity.

Furthermore, the study illuminates the protective instincts evoked in children upon witnessing environmental degradation. This protective stance is not merely reactive but indicative of a deeper understanding of their roles in conserving, protecting and nurturing the environment for future generations. In this regard, children articulate a sense of responsibility rooted in foresight, recognising the intergenerational implications of environmental activism.

The findings shed light on the power dynamics within families and communities, wherein children must navigate a complex matrix of influence and expectation. Despite potential conflicts with adult authority, children assert their commitment to environmental preservation, positioning themselves as advocates for change. The study elucidates the complex interplay between children's understanding of the environment, power dynamics within families, schools and communities, and the imperative for environmental activism. By challenging conventional notions of childhood agency, the findings of this study underscore the crucial role of children in shaping attitudes and actions towards environmental sustainability.

5.4.2 Research question 2: What factors contribute to learners developing their environmental awareness and attitudes?

The second major thematic focus of the study sheds light on the pervasive systemic inequality and marginalisation experienced by rural communities. By examining participant narratives, it becomes apparent that rural spaces are often disregarded and excluded from essential services, resources and opportunities, reflecting broader patterns of disempowerment. This exclusion manifests in various forms, including inadequate access to running water, poor housing, deteriorating road infrastructure, and unreliable electricity supply. Such conditions reflect what Kučerová (2018) has defined as economic

and social exclusion, wherein individuals are deprived of their fundamental rights, opportunities, and resources available to other sections of their society.

Central to the findings is the acknowledgement by the participants of the entrenched nature of exclusion and oppression within their lived experiences. Adults within these communities are portrayed as navigating constrained choices dictated by the imperative of survival. Despite awareness of the environmental consequences of their actions, such as water pollution, adults are often compelled to prioritise their immediate needs over long-term sustainability due to the difficulties of survival. Consequently, children grow up in environments where the prevailing ethos is resource scarcity and limited options.

This theme of restricted choices is demonstrated by instances where residents are compelled to destroy indigenous forests for land and shelter and resort to deforestation for fuel due to the high costs and unreliability of electricity. Such decisions, borne out of necessity, highlight the inherent tension between environmental conservation and socio-economic survival in rural areas. Moreover, the study highlights the enduring legacy of historical inequities from apartheid, which continues to shape the socioeconomic realities of communities in rural areas.

The findings align with broader global trends of rural inequality and marginalisation, as evidenced by the work of Chaudhry et al. (2017), highlighting the universality of these challenges. Moreover, they highlight the persistent disparities inherited from the apartheid period, contributing to the marginalisation and exclusion of rural communities and worsening the vulnerability of children within these environments. Furthermore, the study highlights the complex interplay between socioeconomic factors and environmental degradation, revealing the interconnectedness of these issues. The inability to access basic amenities and infrastructure compromises the quality of life and perpetuates unsustainable environmental practices, with dire consequences for future generations.

A salient aspect of the findings is the understanding displayed by the participants in identifying the root causes and consequences of environmental injustices within their families, schools and communities. Children are keenly attuned to the environmental transgressions perpetrated by adults despite their lack of agency in addressing these issues, from roadside littering to unregulated waste disposal. This situation highlights the

need for structural interventions to address the underlying power imbalances and institutional neglect perpetuating environmental degradation in some rural areas.

Moreover, the study's findings reveal schools' failure to instil environmental awareness and responsibility among participants, reflecting a broader societal indifference towards environmental activism. Despite the potential for schools to serve as catalysts for environmental education and activism, institutional shortcomings hinder their effectiveness in addressing these critical issues.

The study provides valuable insights into the intersecting dynamics of socioeconomic inequality, environmental degradation, and institutional neglect within rural communities. By amplifying the voices of marginalised children, the findings highlight the urgent need for holistic interventions that prioritise environmental justice, social equity, and community empowerment. Rural communities can only aspire to a future characterised by sustainability, resilience, and inclusivity through concerted efforts to address these systemic challenges.

5.4.3 Research question 3: How do learners' understanding of environmental issues contribute to environmental conservation and justice?

The third research question investigated the intersection of environmental conservation and environmental justice, elucidating children's challenges in assuming proactive roles within these domains. The findings point to the inherent struggles between adults and children, wherein the participants expressed a sense of powerlessness and cultural marginalisation that undermined their abilities to champion environmental causes. Despite their awareness of environmental issues, the participants felt ill-equipped to effect meaningful change due to perceived age-related limitations often based on dominant societal norms that undermined their agency.

Central to the findings is the discrepancy between the participants' understandings of environmental issues and their perceived capacity to enact change. While the participants understood environmental concepts well, they doubted their capacities and capabilities as environmental justice advocates. This discrepancy highlights the influence of unequal power dynamics, with the dominant constructions of childhood attributing

disproportionate authority and control to adults and silencing children regarding issues such as environmental care.

Moreover, the participants lacked confidence in navigating the technological dimensions of environmental discourse, reflecting a gap in formal educational exposure. This finding aligns with previous research highlighting the inadequacies of educational curricula in equipping children with the requisite knowledge and skills to engage meaningfully with environmental issues. However, despite this knowledge gap, the participants demonstrate a keen awareness of practical interventions to promote environmental awareness and sustainability, highlighting their potential capacity for critical thinking and problem-solving. The participants advocate for community-based environmental awareness campaigns and practical initiatives like waste management infrastructure to foster environmental literacy and collective action. Their proposals align with the principles of children's geographies, which underline the importance of empowering children as agents of change within their spatial contexts.

The findings highlight the complex interplay between environmental consciousness, power dynamics, and educational barriers in shaping children's capacity to advocate for environmental conservation and justice. By amplifying children's voices and agency, the study highlights the potential for inclusive and participatory approaches to environmental activism that prioritise community engagement and empowerment. Addressing structural barriers and fostering a supportive environment for children's active participation in environmental initiatives is imperative for realising a more equitable and sustainable environmental future.

5.5 Implications of the study

This study holds significant implications for environmental education and education, highlighting critical gaps in research and practice. The findings highlight the urgent need for targeted interventions to address these deficiencies and foster a culture of environmental activism among learners, teachers, families, schools and communities. Firstly, the study reveals a significant gap in environmental education research concerning children, especially in rural schools and communities. This finding aligns with Reddy's (2018) assertion that South Africa, in particular, requires more rigorous research

initiatives to understand children's perspectives on environmental protection. Recognising children as key stakeholders in shaping the future emphasises the importance of centring their voices and experiences in the environmental education discourse.

Furthermore, the study highlights the inadequacies of environmental knowledge dissemination within schools, particularly in rural settings. Limited understanding among teachers and a lack of willingness to integrate environmental teachings contribute to ongoing environmental degradation. To address this issue, there is a need for support from the Department of Education to equip teachers with the necessary knowledge, resources, and networks to promote environmental conservation and justice effectively. This finding aligns with Khoza's (2016) assertion that effective environmental education in rural schools is lacking compared to their urban counterparts, pointing to the urgent need for curriculum reform and targeted professional development initiatives for teachers.

Moreover, the study highlights the insufficiency of traditional subject-based education in fostering the skills and values required to address environmental injustice. Teachers need guidance from educational authorities and policymakers to effectively incorporate environmental education into the curriculum. This intervention would comprise ongoing training, workshops, and seminars to cultivate teacher interest and competence in promoting environmental values and skills. Moreover, collaboration with environmental conservationists in policy development and implementation will ensure alignment with best practices and introduce interdisciplinary approaches to environmental education.

Furthermore, the findings of this study revealed that community context is a crucial determinant of the success of environmental education initiatives. Community members' contributions to environmental degradation necessitate inclusive approaches that engage all stakeholders in promoting environmental sustainability. Environmental campaigns and awareness programmes should thus involve local governments, environmental justice movements, and non-governmental organisations to foster collective action and accountability.

The study thus highlights education's pivotal role in advancing environmental conservation and justice. By addressing knowledge gaps, enhancing teacher capacity, and fostering community engagement, schools can serve as catalysts for transformative

environmental change. However, achieving environmental sustainability requires a concerted effort from all sectors of society, with education serving as a critical conduit for shaping attitudes, behaviours, and policies towards a more sustainable future.

5.6 Limitations of the study

While the study's utilisation of purposive sampling and its small sample size of eight participants may be perceived as a limitation concerning generalisability, it is essential to contextualise these choices within the research aims and objectives. The deliberate selection of the participants sought to provide an in-depth exploration of learners' perspectives within a specific rural school context rather than seeking broad generalisations across diverse populations. This approach prioritised the depth of understanding over breadth, allowing for a nuanced exploration of the research questions within a localised setting.

Furthermore, limiting the sample size was guided by the desire to comprehensively understand learners' experiences within the chosen context. By focusing on a smaller sample, the study aimed to capture the intricacies and nuances of learners' perspectives on environmental issues within the rural school's unique socio-cultural and environmental context. This deliberate choice facilitated a detailed examination of individual experiences and viewpoints, contributing to the richness and depth of the findings.

However, it is acknowledged that the findings may not fully represent all rural schools or learners due to the limited sample size. Future research could replicate the study in other rural areas across different provinces to address this limitation and enhance the generalisability of the findings. By conducting similar investigations in diverse contexts, researchers can triangulate findings and identify common themes, thereby improving the robustness and validity of the research outcomes.

Additionally, the logistical challenges encountered during the data collection process, such as coordinating interview times without disrupting teaching and learning activities, posed practical limitations. The necessity to consult with teachers and accommodate participants' schedules resulted in extended timelines for arranging and conducting interviews, occasionally leading to interruptions and discontinuities in the data collection.

Despite these challenges, efforts were made to maintain the integrity and coherence of the interviews, albeit with occasional disruptions and reminders to participants.

While the study's methodological choices and practical constraints may limit the generalisability and seamless execution of data collection, they are contextualised within the research objectives and aimed at maximising the depth of understanding within the chosen setting. Acknowledging these limitations underscores the need for a cautious interpretation of the findings and highlights avenues for future research to enhance the breadth and applicability of the study's conclusions.

5.7 Researcher reflections

I employed a qualitative approach using a narrative in this study. This approach was chosen to delve deeper and gain an in-depth understanding of children's lived experiences and meanings they attach to their understandings of environmental issues. The main focus here is the experiences of the individuals, the culture and the identity of the context. (Connelly & Clandinin,2012). I used narrative inquiry as a reflective learning journey for myself as the researcher. Herein, the stories as told and explained by them were valued and appreciated (Baden & Niekerk,2007). Thus, the stories they told were retold in a manner reflective of the traditions of narrative inquiry.

Participants in this research study were given a platform to share their feelings and thoughts about environmental issues that they encounter in this rural context, as well as how for example social factors, economic factors, and cultural factors influence what occurs in the community context. The narratives were shared through the data collection methods used in the study namely, semi-structured interviews, photo-voice and focus group discussions. These methods of data collection proved fruitful as the stories that emerged were in-depth and filled with rich detail about participant's understanding about the environment in their rural context.

Concluding thoughts

The primary objective of this study was to explore the environmental understandings of Grade 7 learners within the rural context of the uMgungundlovu District. Grounded in the

theory of children's geographies, which highlights the significance of space, place, and agency within South African rural settings, the study sought to illuminate the nuanced perspectives of participants on environmental issues.

Employing a narrative qualitative approach, the study delved into the rich tapestry of participants' experiences, uncovering a complex interplay of their environmental understandings and socio-cultural constraints within families, schools and communities. Despite exhibiting positive environmental attitudes, participants' voices and agency were constrained by normative discourses surrounding childhood, limiting their ability to advocate for environmental justice.

The findings highlight the persistent marginalisation and exclusion experienced by rural communities, characterised by systemic inequality and environmental degradation. Participants demonstrated a nuanced understanding of environmental challenges, ranging from deforestation to pollution, yet broader socio-economic constraints hindered their capacity to effect meaningful change.

Moreover, the study highlights the urgent need for further research in rural areas and schools to develop sustainable strategies for promoting environmental education, awareness, and justice. By amplifying the voices and agency of participants, future studies can contribute to fostering a culture of environmental activism and resilience within these marginalised communities.

Furthermore, the findings highlight participants' pivotal role as community change agents. By empowering children to challenge the status quo and critically engage with the social realities of their context, the study highlights the transformative potential of youth activism in promoting environmental conservation and social justice.

In conclusion, this study provides valuable insights into the environmental understandings of Grade 7 learners in rural settings, shedding light on the complex interplay of environmental awareness, dominant socio-cultural norms, and systemic inequality. By centring the voices and agency of participants, the study highlights the importance of grassroots activism in addressing environmental challenges and fostering sustainable development for future generations.

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Appendices

Appendix 1: Semi-Structured Interview Schedule

1. **What are learners' understandings of environmental issues they encounter in their communities?**

(a) What is your understanding of environmental issues?

(b) Can you think of any environmental issues you encounter at school and in your community? If yes, what are they?

(c) Do you ever get taught about the environment at school or in your community? If yes, what are you taught? How are you taught?

(d) Do you think what you are taught about the environment is enough?

(e) How do environmental issues in this community affect your lives? Please provide examples.

(f) What is environmental conservation?

(g) Why is it important to talk about environmental issues in our communities?

2. **What factors contribute to learners developing their environmental awareness and attitudes?**

(a) What is your understanding of environmental awareness and attitudes?

(b) What do you think contributes to the abovementioned environmental issues in your school and community?

(c) Where do these factors occur mainly?

(d) Why do you think people cut trees?

(e) What effects do cutting trees have on the environment?

(f) How does the school ensure that you, as a learner, are aware of environmental issues besides learning about them in the subject of natural science?

(g) What can be done to promote environmental awareness and positive attitudes towards the environment?

(h) As a Grade 7 learner, what support structures do you think are needed to create platforms for environmental awareness in rural schools and communities like this one?

3. **How do learners' understanding of environmental issues contribute to environmental conservation and justice?**

(a) What is your understanding of environmental conservation and justice?

(b) Are there any specific solutions that might minimise the environmental issues?

(c) Does the school conduct any environmental conservation programmes to create awareness?

(d) Does anybody raise awareness of environmental conservation in your community? Who? What do they do? How?

(e) Do you celebrate World Environmental Day in June and National Arbour Week in September?

(f) What do you do about environmental issues?

(g) Do you feel like you can do anything about them? Why/why not?

(h) How would you solve the environmental issues?

Appendix 2: Focus Group Interview Schedule

The main objective of the focus group interview is to:

- To get an understanding of the issues discussed from the participants' perspectives.
- To delve deeper into how learners' understanding of environmental issues contributes to environmental conservation and justice.
- To gain an in-depth understanding of participants' perspectives and experiences in a rural context and concerns about the environmental issues they encounter in their community.
- Discover learner's ability to identify environmental issues in their school and community.

Questions:

- What is the environment?
- Who and what is part of the environment?
- What major environmental issues do you encounter on your way to school? And at home?
- How do you know that is an environmental issue/problem?
- Who is responsible for taking care of the environment?
- Is there any environmental club in your school or your community? If yes, what group activities do you engage in to create awareness and improve your living space? If the answer is no, what could cause the non-existence of environmental clubs in your school/community?
- Are you happy/sad about the state of the school environment/community environment? If happy, why? And if you are sad, why are you sad?
- Can you do something about environmental issues in this community and be heard?
- Who do you think is the first person to be consulted to improve the community environment at large?
- Does the school celebrate important dates concerning environmental conservation and protection?

- What can be done to make sure our environments are protected before they disappear in front of our eyes? (your personal views

Appendix 3: Mapping Schedule

- Mapping will allow the participants to yield important information on their navigation of places and spaces, places they prefer and places they will consider dangerous. The researcher will ask participants to draw images representing their space and place in their homes and schooling context. These images will be accompanied by a short caption explaining what each image means regarding factors contributing to the participants' perceptions and understanding of environmental issues in their schooling and home context.
- Secondly, the images drawn will portray learners' ability to transfer their feelings and concerns that might emerge while observing their homes and schooling environment.

Appendix 4: Participants' Consent Letter

UKZN HUMANITIES AND SOCIAL SCIENCES RESEARCH ETHICS COMMITTEE (HSSREC)

APPLICATION FOR ETHICS APPROVAL
For research with human participants

Information Sheet and Consent for Learner to Participate in Research

Project title: **Exploring learners' understanding of environmental issues: Narratives of Grade 7 learners in a rural uMgungundlovu District.**

Date: 22/07/2021

Dear Learner

I am Nokulunga Gwala, a Master of Education student from the University of Kwa-Zulu Natal, School of Education, Pietermaritzburg Campus. My study explores Grade 7 learners' understanding of environmental issues in a rural context.

The study involves individual interviews, focus group sessions, and mapping methods. The study requires children to be part of the participants, and thus, I am requesting your consent. The focus of the interview sessions and mapping activity will be on Grade 7 learners' understanding of environmental issues that affect them in a rural context, as well as factors that contribute to learners developing particular attitudes, concerns and awareness of environmental issues they encounter in their community. However, ethical research practices require that you are aware of the study and consent to participate. Please know that there are no anticipated risks or harm to you.

Therefore, you are invited to participate in this study because you are a learner in Grade 7, and I believe you know about the environmental issues in which you live and school. I will ask you to participate in individual and focus interviews to gather information. These interviews and focus groups will take about 30-45 minutes.

The data will not be made public and will only be used for research purposes. The voice recording of interviews will be deleted when the study is completed.

Your identity and the school's identity will not be made public.

In the event of any problems or concerns/questions, you may contact the researcher at [redacted] or my supervisor, Dr. Melanie Martin, Martinm@ukzn.ac.za, and or the UKZN Humanities & Social Sciences Research Ethics Committee, contact details below.

LEARNER ASSENT FORM

I (Name) ……, a learner in Grade 7 …….
have been informed about the study, "*Exploring Learners' Understanding of Environmental Issues: Narratives of Grade 7 Learners in a Rural Context of uMgungundlovu District.*

I understand the purpose and procedures of the study. I have been allowed to answer questions about the study and have had answers to my satisfaction.

- The school and participants will not receive any material or monetary gain for participation in this research study.
- I will be expected to respond to questions based on my perspectives.
- Pseudonyms will be used throughout the research study. (not real school names and my identity will not be revealed).
- The focus group and individual interviews will last about 30-45 minutes each on separate occasions.
- Confidentiality will be maintained at all times.
- Information shared by me and the school will not be used against me or the school at any given time, and the collected data will be used for this research study only.
- The audio-recorded data and images I drew (for mapping activity) will be stored in the university's safe and destroyed after five years.

I declare that my participation in this study is entirely voluntary and that I may withdraw at any time without affecting any of the benefits I am usually entitled to.

If I have any further questions/concerns or queries related to the study, I understand that I may contact the researcher at [redacted] or Dr Melanie Martins at (033) 260 6456.

If I have any questions or concerns about my rights as a study participant, or if I am concerned about an aspect of the study or the researchers, then I may contact:

HUMANITIES & SOCIAL SCIENCES RESEARCH ETHICS ADMINISTRATION
Research Office, Westville Campus
Govan Mbeki Building
Private Bag X 54001
Durban
4000 KwaZulu-Natal, SOUTH AFRICA
Tel: 27 31 2604557 - Fax: 27 31 2604609 Email: HSSREC@ukzn.ac.za

I hereby provide consent to be present during the following:
Voice -recording of individual interview: YES / NO
Focus group interview: YES /NO
Mapping activity (drawing images): YES/NO

_____ _____

Signature of Learner **Date**

_____ _____

Signature of Witness **Dat**

Appendix 5: Parental Consent Form

UKZN HUMANITIES AND SOCIAL SCIENCES RESEARCH ETHICS COMMITTEE (HSSREC)

APPLICATION FOR ETHICS APPROVAL
For research with human participants

Information Sheet and Consent for your Child/ ward to Participate in Research

Project title: **Exploring Learners' Understanding of Environmental Issues: Narratives of Grade 7 Learners in a Rural uMgungundlovu District**

Date: 22/07/2021

Dear Parent/Caregiver

I am Nokulunga Gwala, a Master of Education student from the University of Kwa-Zulu Natal, School of Education, Pietermaritzburg Campus.

My study explores Grade 7 learners' understanding of environmental issues in a rural context. Your child has volunteered to be part of the study.

The study involves individual interviews, focus group sessions, and mapping methods. Your child is a student in Grade 7. Therefore, I request your permission and consent for them to participate; participation will be voluntary.

The interview sessions will focus on understanding learners' thoughts about environmental issues they encounter in their homes and schools. The mapping activity requires your child to draw pictures of the environmental problems they believe exist in their communities and schools. The individual interviews will focus on what they think are the reasons for their awareness of what is occurring in the environment and the attitudes they develop as a result. The focus group activity will involve learners discussing what they can do to protect the environment. Interviews and focus group discussions will take 30-45 minutes at a convenient place for you and your child/ward. Ethical research practices require that you are aware of the study and give your consent on behalf of your child/ward. Please know there are no anticipated risks or harm to your child/ward. The data will not be made public and will only be used for research purposes.

The voice recording of the interviews and focus group discussions will be deleted when the study is completed. Confidentiality will be highly observed, and the school and learners' identities will be protected. Therefore, pseudonyms will be used for the learners and the school to ensure integrity and confidentiality.

Suppose you have any problems or concerns/questions. In that case, you may contact the researcher at [redacted] or my supervisor, Dr. Melanie Martin, at Martinm@ukzn.ac.za or the UKZN Humanities & Social Sciences Research Ethics Committee, contact details below.

PARENTAL/ GUARDIAN CONSENT FORM FOR CHILD's PARTICIPATION

I (Name)……, the parent/guardian of

……. (child/ward) in grade 7 ……. have been informed about the study, "*Exploring Learners' Understanding of Environmental Issues: Narratives of Grade 7 Learners in a Rural Context of uMgungundlovu District", by Nokulunga Gwala.*

- I understand the purpose and procedures of the study.
- I have been allowed to answer questions about the study and have had answers to my satisfaction.
- The school and participants will not receive any material or monetary gain for participation in this research study.
- My child will be expected to respond to questions based on their views.
- My child's participation is voluntary; therefore, they will be free to withdraw at any given moment should they wish to do so without any negative impact on them.
- Pseudonyms will be used throughout the research study. (not real school names and your child's identity will not be revealed).
- The focus group and individual interviews will last about 30-45 minutes each on separate occasions.
- Confidentiality will be maintained at all times.

- Information shared by my child and the school will not be used against them or the school at any given time, and the collected data will be used for this research study only.
- Audio-recorded data and images drawn by my child (for mapping activity) will be stored in the University safe and destroyed after five years.

I declare that my child's/ward's participation in this study is voluntary. They may withdraw at any time without affecting any of the benefits I am usually entitled to.
If I have any further questions/concerns or queries related to the study, I understand that I may contact the researcher at [redacted] or Dr. M. Martin at (033) 260 6456.
If I have any questions or concerns about my child's rights as a study participant, or if I am concerned about an aspect of the study or the researchers, then I may contact:

HUMANITIES & SOCIAL SCIENCES RESEARCH ETHICS ADMINISTRATION
Research Office, Westville Campus
Govan Mbeki Building
Private Bag X 54001
Durban
4000 KwaZulu-Natal, SOUTH AFRICA
Tel: 27 31 2604557 - Fax: 27 31 2604609 Email: HSSREC@ukzn.ac.za

I hereby provide consent for my child to be present during:

Voice -recording of individual interview: YES / NO

Focus group interview: YES /NO

Mapping activity (drawing images): YES/NO

_____ _____

Signature of Parent/Guardian **Date**

_____ _____

Signature of Witness **Date**

Appendix 6: Ethical Clearance Certificate

UNIVERSITY OF KWAZULU-NATAL
INYUVESI YAKWAZULU-NATALI

15 October 2021

Nokulunga Lorraine Gwala (220107170)
School Of Education
Pietermaritzburg Campus

Dear NL Gwala,

Protocol reference number: HSSREC/00003406/2021
Project title: Exploring learner's understanding of environmental issues: Narratives of Grade 7 learners in a rural uMgungundlovu District
Degree: Masters

Approval Notification – Expedited Application

This letter serves to notify you that your application received on 17 September 2021 in connection with the above, was reviewed by the Humanities and Social Sciences Research Ethics Committee (HSSREC) and the protocol has been granted **FULL APPROVAL**.

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

This approval is valid until 15 October 2022.
To ensure uninterrupted approval of this study beyond the approval expiry date, a progress report must be submitted to the Research Office on the appropriate form 2 - 3 months before the expiry date. A close-out report to be submitted when study is finished.

All research conducted during the COVID-19 period must adhere to the national and UKZN guidelines.

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

Yours sincerely,

[redacted]

Professor Dipane Hlalele (Chair)

/dd

Humanities and Social Sciences Research Ethics Committee
Postal Address: Private Bag X54001, Durban, 4000, South Africa
Telephone: +27 (0)31 260 8350/4557/3587 **Email:** hssrec@ukzn.ac.za **Website:** http://research.ukzn.ac.za/Research-Ethics
Founding Campuses: Edgewood Howard College Medical School Pietermaritzburg Westville

Appendix 7: Permission Letter: School Principal

Dear: The Principal

RE: REQUEST FOR PERMISSION TO CONDUCT RESEARCH AT YOUR SCHOOL

My name is Nokulunga Gwala. I am a Master of Education student (Med) from the Social Justice Discipline within the School of Education, College of Humanities. I am conducting research titled "Exploring Learners' Understanding of Environmental Issues: Narratives of Grade 7 Learners in a Rural Context in uMgungundlovu District.

The study will focus on Grade 7 learners' understanding of environmental issues that affect them in a rural context. Further, the study explores the factors contributing to learners developing particular attitudes, concerns and awareness of environmental issues they encounter in their community.

Studies indicate that learners' understanding of environmental issues is under-explored. Therefore, research must be conducted with learners as they are the future leaders who can ensure a sustainable future.

Given this, I intend to explore how Grade 7 learners understand how and why environmental issues occur in their communities and how they believe they can work towards protecting the environment.

The main objectives of the proposed study are to:

- To analyse learners' understandings of environmental issues they encounter in their communities.

- To investigate factors contributing to learners developing environmental awareness and attitudes.
- To determine how learners' understanding of environmental issues contributes to environmental conservation and justice.

Participants must participate in the individual and focus group audio recording interviews and the mapping activity. Participants will be informed beforehand about meetings to allow them to sort out their schedules. Interview sessions will only take place during breaks and after school time. The study does not include any financial gain, mainly for academic achievements. Therefore, participants may withdraw at any given time.

Please note the following:

- The school and participants will not receive any material or monetary gain for participation in this research study.
- The learners will be expected to respond to questions based on their perspectives.
- The learners' participation is voluntary; therefore, they will be free to withdraw at any given moment should they wish to do so without any negative impact on them.
- Pseudonyms will be used throughout the research study. (real names of the school and participants will not be used).
- The focus group and individual interviews will last about 30-45 minutes each on separate occasions.
- Confidentiality will be maintained at all times.
- Information shared by the participants and the school will not be used against the participants or school at any given time, and the collected data will be used for this research study only.
- Audio-recorded data and images drawn by learners (for mapping activity) will be stored in the university safe and destroyed after five years.

Thank you.

Yours faithfully
Nokulunga Gwala (student no. 220107170)

Cell no: [redacted]

Email: [redacted] /220107170@stu.ukzn.ac.za

Should you have any queries, you can contact my supervisor, Dr. M. Martin

Telephone no: 033 260 6456/083 651 4564

Email: Martinm@ukzn.ac.za

Acknowledgement by the principal

I _____, the principal of_____ grant permission to Nokulunga Gwala to conduct her research in the school as mentioned above.

_____ _____

Signature of Principal Date

SCHOOL STAMP

Appendix 8: Department of Education Permission Letter

KWAZULU-NATAL PROVINCE
EDUCATION
REPUBLIC OF SOUTH AFRICA

OFFICE OF THE HEAD OF DEPARTMENT

Private Bag X9137, PIETERMARITZBURG, 3200
Anton Lembede Building, 247 Burger Street, Pietermaritzburg, 3201
Tel: 033 392 1051
Email: buyi.ntuli@kzndoe.gov.za

Enquiries: Buyi Ntuli **Ref.**:2/4/8/7139

Miss Nokulunga Lorraine Gwala
[redacted]
PIETERMARITZBURG
3235

Dear Miss Gwala

PERMISSION TO CONDUCT RESEARCH IN THE KZN DoE INSTITUTIONS

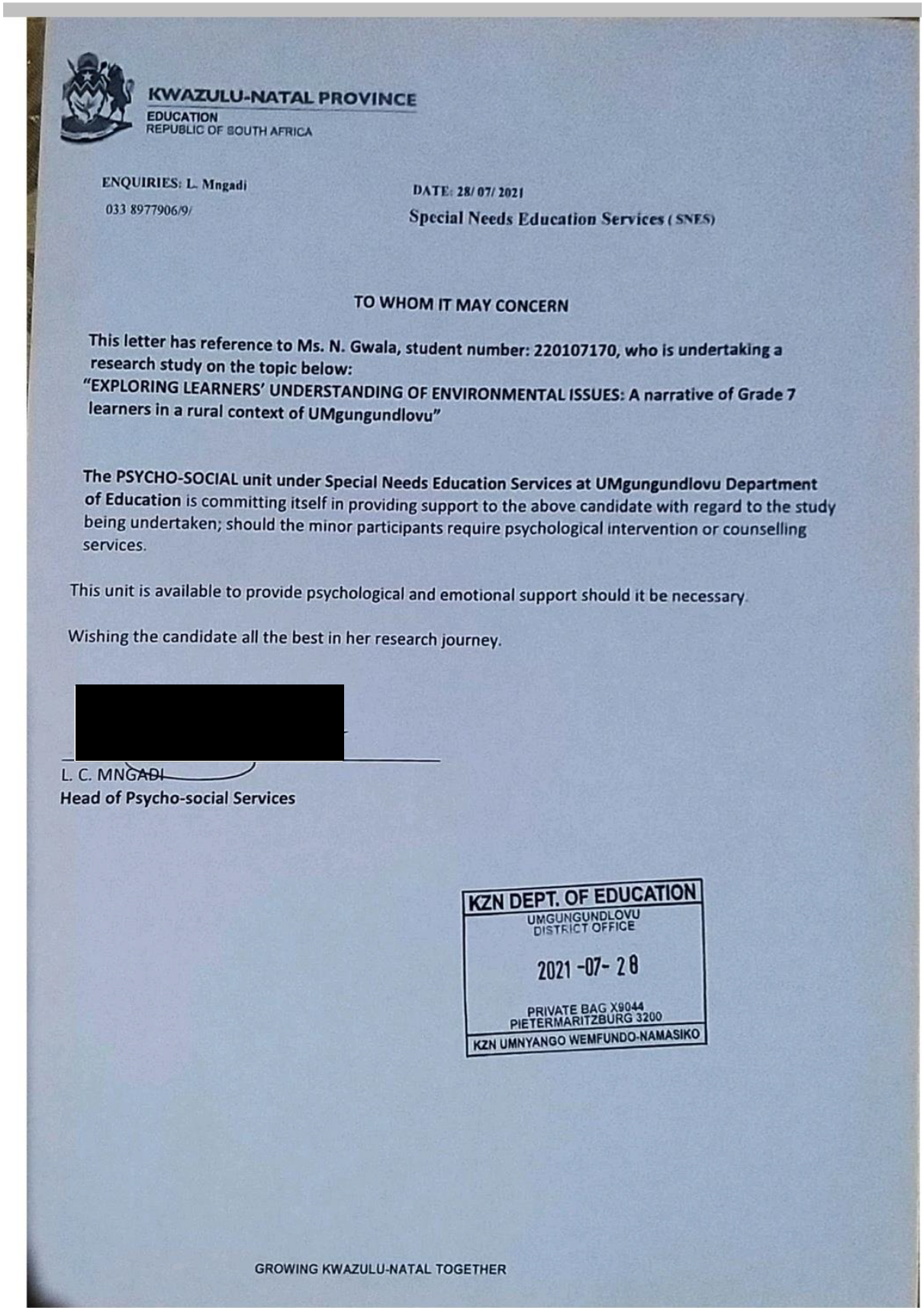
Your application to conduct research entitled: **"EXPLORING LEARNER'S UNDERSTANDING OF ENVIRONMENTAL ISSUES: NARRATIVES OF GRADE 7 LEARNERS IN A RURAL UMGUNGUNDLOVU DISTRICT:",** in the KwaZulu-Natal Department of Education Institutions has been approved. The conditions of the approval are as follows:

1. The researcher will make all the arrangements concerning the research and interviews.
2. The researcher must ensure that Educator and learning programmes are not interrupted.
3. Interviews are not conducted during the time of writing examinations in schools.
4. Learners, Educators, Schools and Institutions are not identifiable in any way from the results of the research.
5. A copy of this letter is submitted to District Managers, Principals and Heads of Institutions where the Intended research and interviews are to be conducted.
6. The period of investigation is limited to the period from 02 August 2021 to 31 August 2023.
7. Your research and interviews will be limited to the schools you have proposed and approved by the Head of Department. Please note that Principals, Educators, Departmental Officials and Learners are under no obligation to participate or assist you in your investigation.
8. Should you wish to extend the period of your survey at the school(s), please contact Miss Phindile Duma at the contact numbers above.
9. Upon completion of the research, a brief summary of the findings, recommendations or a full report/dissertation/thesis must be submitted to the research office of the Department. Please address it to The Office of the HOD, Private Bag X9137, Pietermaritzburg, 3200.
10. Please note that your research and interviews will be limited to schools and institutions in KwaZulu-Natal Department of Education.

[redacted]
Dr. EV Nzama
Head of Department: Education
Date: 02 August 2021

GROWING KWAZULU-NATAL TOGETHER

Appendix 9: Psycho-Social Service Letter



KWAZULU-NATAL PROVINCE
EDUCATION
REPUBLIC OF SOUTH AFRICA

ENQUIRIES: L. Mngadi
033 8977906/9/

DATE: 28/ 07/ 2021
Special Needs Education Services (SNES)

TO WHOM IT MAY CONCERN

This letter has reference to Ms. N. Gwala, student number: 220107170, who is undertaking a research study on the topic below:
"EXPLORING LEARNERS' UNDERSTANDING OF ENVIRONMENTAL ISSUES: A narrative of Grade 7 learners in a rural context of UMgungundlovu"

The PSYCHO-SOCIAL unit under Special Needs Education Services at UMgungundlovu Department of Education is committing itself in providing support to the above candidate with regard to the study being undertaken; should the minor participants require psychological intervention or counselling services.

This unit is available to provide psychological and emotional support should it be necessary.

Wishing the candidate all the best in her research journey.

[redacted]

L. C. MNGADI
Head of Psycho-social Services

KZN DEPT. OF EDUCATION
UMGUNGUNDLOVU
DISTRICT OFFICE
2021 -07- 28
PRIVATE BAG X9044
PIETERMARITZBURG 3200
KZN UMNYANGO WEMFUNDO-NAMASIKO

GROWING KWAZULU-NATAL TOGETHER

Appendix 10: Certificate of Language Editing

Ntwintwi

Proofreading and Editing Solutions

We Turn Your Documents into a Work of Art!

Date: 15 May 2024

CERTIFICATE OF LANGUAGE EDITING

TO WHOM IT MAY CONCERN

This is to certify that the thesis bearing the provisional title ***Exploring Learners' Understanding of Environmental Issues: Narratives of Grade 7 Learners in a Rural Umgungundlovu District***, to be submitted by **Nokulunga Lorraine Gwala** has been edited for language correctness and spelling, consistency, coherence, and completeness of the list of references and cited authors, by Ntwintwi Proofreading and Editing Solutions. Neither the research content and substance nor the author's intentions were altered during the editing process.

Ntwintwi guarantees the quality of the English language in this thesis, provided our editor's changes are accepted, and our editor checks further changes made to the thesis.

Yours sincerely,

[redacted]

JABULANI NGCOBO
NTWINTWI PROOFREADING AND EDITING SOLUTIONS

Appendix 11: Originality Report

Nokulunga Gwala

ORIGINALITY REPORT

4%	3%	1%	1%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	researchspace.ukzn.ac.za Internet Source	2%
2	Submitted to University of KwaZulu-Natal Student Paper	1%
3	uir.unisa.ac.za Internet Source	<1%
4	"Establishing Geographies of Children and Young People", Springer Science and Business Media LLC, 2019 Publication	<1%
5	Ramashego Shila Mphahlele, Mncedisi Christian Maphalala. "Contextualising Rural Education in South African Schools", Brill, 2023 Publication	<1%
6	repository.up.ac.za Internet Source	<1%
7	ujcontent.uj.ac.za Internet Source	<1%