Grade 9 Learners' Views Concerning the Environment: A Correlation Study in Msunduzi and the Midlands, KwaZulu-Natal

A dissertation submitted for the degree of
MASTER OF EDUCATION

By

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March 2022

Declaration

I, Talita Kassier, declare that the research reported in this dissertation, except where otherwise indicated, is my own original research. Where data, ideas, and quotations have been used that are not my own they have been duly acknowledged as being sourced from other persons. No part of this work has been submitted for any other degree or examination at any other university.

Signature:  Date: 1 March 2022

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Abstract

Environmental justice is one of the leading principles infused throughout the National Curriculum Statement (NCS) Grades R-12 (DBE, 2011). The NCS places an emphasis on an active and critical approach to learning. Furthermore, the curriculum envisages learners that are able to use "*scientific knowledge responsibly* in the interest of *ourselves*, of *society* and the *environment*" (p. 9; emphases added). It is evident in all the specific aims of the learning area (Natural Sciences) that environmental awareness is encouraged (DBE, 2011). Additionally, there is a focus on the significance of affective objectives in the development of EE in South Africa (Reddy, 2011).

This study sought to explore Grade 9 learners' views concerning the environment. Three constructs – perceptions, attitudes and behaviour – were investigated as indicators of their (learners') views. The theoretical framework for this study maintained that a balance between perceptions (education *about* the environment), attitudes (education *in* the environment), and behaviour (education *for* the environment) would lead to effective EE that could bring about attitude and behaviour changes for sustainable living. Furthermore, factors that shaped the learners' views concerning the environment were explored.

This study used an explanatory sequential mixed methods design. Quantitative data were collected through a survey of 354 Grade 9 learners in Msunduzi and the Midlands, KwaZulu-Natal, South Africa, to establish their views concerning the environment. The second qualitative phase collected in-depth data through open-ended questions and from six individuals taking part in a focus group interview. The two sets of data were integrated to provide a more comprehensive understanding of the sample of Grade 9 learners' views concerning the environment.

The quantitative findings indicated that Grade 9 learners in the sample had high perceptions (M = 4.16 [out of possible 5]) and lower attitudes (M = 3.76) concerning the environment. The findings also showed lowest scores in terms of the learners' behaviour (M = 3.61) concerning the environment. The quantitative data further suggested a significant correlation between learners' perceptions and their attitudes (r = 0.56) concerning the environment, as well as between their attitudes and behaviour (r = 0.60). However, the low correlation between the learners' perceptions and behaviour (r = 0.33) could show the low impact that merely increasing environmental knowledge has on behaviour. This study further

indicated the importance of the affective domain in altering behaviour concerning the environment. The qualitative data revealed some of the significant influences our learners respond to in relation to forming their environmental views, for instance the use of media, education *in* the environment for actual observations of their surroundings, and the influence of significant persons as role models. These could be incorporated in EE to better engage learners with content concerning the environment. The overall results suggested that Grade 9 learners in this study had positive perceptions concerning the environment, compared to less positive attitudes and virtually negative behaviour.

The findings from this study could be used by teachers and policymakers to better incorporate ESD principles and improve EE praxis with Grade 9 learners in South African schools.

Keywords: Attitudes, Behaviour, Environment, Environmental Education, Education for Sustainable Development, Perceptions

Acknowledgements

Dr Leonard Molefe of the School of Education, University of KwaZulu-Natal, supervised this dissertation. I am sincerely grateful for his ability to translate my zealous environmentalist ideas into workable research questions, his persistent regimen of guiding my novel-writing towards scholarly writing, his technical advice, and assistance in navigating the complexities of producing a master's dissertation.

I will forever be indebted to the teachers who allowed me into their classrooms, despite COVID-19 scares, teaching interruptions, and increased pressure to complete the curriculum with their learners. Without the principals who granted me access to their schools and the KwaZulu-Natal Department of Education who gave permission to conduct this research, this study would not have been possible.

I would like to thank friends, family, the staff and my fellow students at UKZN, and others who had to read, listen to, provide input or endure my ramblings about this project (especially Anke von Fintel, Fazel Hoosen, Andrea Ross-Gillespie and Phillipa Lilje). My sister, Pikkie Holland (aka The Word Queen), you have added years to my life! Caro Armstrong, you have no idea how much your prayers mean to me.

Thank you for all the cumulative voices from my past who fuelled my passion for our planet and protecting its incredible biodiversity. There are people I can only aspire to be like.

Thank you to my Schatzi, Johann Kassier, for being my biggest supporter (even though you only read the abstract), for your unwavering belief in my feeble attempts at this life-thing, and for being our rock and provider, and our two incredible children, Mila and Luca - you are the reason I have done this. Thank you for all your patience, your sacrifices, and your encouragement. This dissertation is dedicated to you.

Thank you, God, creator of all this magnificent splendour, for giving me the ability, passion, and capacity to complete this project. We live in hope until the day You restore all.

My heartfelt gratitude goes to every Grade 9 learner who participated in this study – may we as teachers do better to prepare you for a bright and sustainable future.

List of Abbreviations

C2005	Curriculum 2005
CAPS	Curriculum Assessment Policy Statement
CAQDAS	Computer-Assisted Qualitative Data Analysis Software
DBE	Department of Basic Education
DoE	Department of Education
EE	Environmental Education
EFA	Explanatory Factor Analysis
UNEP	United Nations Environment Programme
ESD	Education for Sustainable Development
HSSREC	Human and Social Sciences Research Ethics Committee
KZN	KwaZulu-Natal
MMR	Mixed-Methods Research
NCS	National Curriculum Statement
NGO	Non-Government Organisation
NSC	National Senior Certificate
OBE	Outcomes Based Education
OECD	Organisation for Economic Co-operation and Development
PIRLS	Progress in International Reading Literacy Study
RNCS	Revised National Curriculum Statement

SADC	Southern African Development Community
SADC REEP	Southern African Development Community Regional Environmental Education Programme
SES	Socio Economic Status
SPSS	Statistical Package for the Social Sciences
TIMSS	Trends in Mathematics and Science Study
UKZN	University of KwaZulu-Natal
UMDM	uMgungundlovu District Municipality
UNESCO	United Nations Educational, Scientific, and Cultural Organisation

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Chapter 1: Overview of the Study

Introduction

This research study examined the environmental views of Grade 9 learners from 56 schools in the uMgungundlovu district municipality (concentrating on Msunduzi and Midlands) in the KwaZulu-Natal province, South Africa. The study investigated the learners' current views concerning the environment, that is, their perceptions, attitudes and perceived behaviour towards the environment. As this was an in-depth study that sought to provide an insight into learners' knowledge and awareness, as well as their attitudes concerning the environment, and issues around sustainable behaviour, it was essential that the relationships between these three constructs (i.e., perceptions, attitudes and behaviour) were also investigated. The learners' context and experiences were equally important. Thus, the study went further to investigate relevant experiences or factors that shaped the learners' views concerning the environment. The subsequent sections in this chapter will provide a broad overview of the background to the study, the problem statement, objectives of the study along with the related research questions, the context of the study, an overview of the study's research design, delimitations of the study, and a brief outline of the dissertation to put the study into context.

Background and Rationale to the Study

In recent times, the environment and environmental education (EE) have commanded ever-increasing attention. After all, EE plays a fundamental role towards sustainability (Boca & Saraçli, 2019, p. 3). Thus, the environment's protection is so vital that continued improvements in the field of EE must be prioritised. The launch of the United Nations Sustainable Development Goals (United Nations, 2015) has pushed the framework of advancing sustainable societies through quality education to the forefront of the global agenda. Burt et al. (2020) urge that radical socio-economic-ecological transformations are needed given the current state of the planet. Humanity lives in a dynamic tension between a desire for rapid economic growth and the need for ecological sustainability. Indigenous cultural groups have historically lived sustainably with their natural resources. However,

modernisation and urban and economic growth have gradually eroded the values of care and respect for nature (Opoku & James, 2020). Chikunda and Mandikonza (2014) remind us that Southern Africa is embroiled in real environmental and sustainability challenges. Likewise, Mandikonza and Lotz-Sisitka (2016) warn that the region is threatened by grave intersecting issues of climate health risk. Reddy (2016) found that young people in KwaZulu-Natal, South Africa may not possess enough awareness about the harmful effects of environmental problems and the ramifications these have on other people. Lotz-Sisitka et al. (2020) further highlight the geographical under-representation of Africa in EE policy studies. Environmental and sustainability education processes are often oriented to change, yet not much is known about 'how' such change emerges (Lotz-Sisitka et al., 2017). This study seeks to provide an insight into the current Grade 9 learners' views concerning the environment, and the factors that shaped such views. The intention is to inform, in a small but significant way, the process of improving current EE practice. The study provides the opportunity for the youth to share their perspectives and provide details of the context of their journey towards environmental awareness. This could be a valuable mechanism to inform EE strategies, programmes, and policy development. Making our learners part of the process and solution is beneficial to all stakeholders in the South African education system.

Environmental justice is one of the principles that underpin the National Curriculum Statement (NCS) Grades R-12 (DBE, 2011). Active and critical learning is also emphasised in the NCS. The curriculum further elaborates on the kind of learner it envisages: Such a learner should understand the *use of* "*scientific knowledge responsibly* in the interest of *ourselves*, of *society* and the *environment*" (p. 9; emphases added). Environmental awareness is enshrined in the learning of Natural Sciences - this is evident in all the specific aims of the learning area (DBE, 2011).

Reddy (2011) points to the importance of affective objectives in his arguments about the development of EE in South Africa. He highlights the role of teachers' capacity to implement EE that entails such objectives, the skills learners must acquire, and the knowledge content specified in the NCS. Sadly, his arguments also present EE as a long-standing challenge to teachers in South Africa, hence the need to explore praxis that might emotionally and intellectually engage learners into a deep approach to learning about the environment. Indeed, Boca and Saraçli (2019) argued that according to the Tbilisi Declaration

> environmental education is a process aimed at developing a world population that is *aware of* and *concerned about the whole environment* and *its associated problems*

> and which has the *knowledge, attitudes, motivations, commitment,* and *skills* to work individually and collectively toward *solutions* of current problems and the *prevention* of new ones. (Gillett, 1997, 2; emphases added)

In this current study the views Grade 9 learners have concerning the environment will be explored in relation to indicators of their profound *perceptions* towards the environment and their *attitudes* towards learning about the environment. This is important because the *affective domain* has an impact on *behaviour* (Walma-Van der Molen & Van Aalderen-Smeets, 2013), and both are key in EE (Boca & Saraçli, 2019).

As suggested in Bloom's taxonomy (Bloom, 1956), teachers should encourage learners to advance through a systematic approach to achieve the desirable outcomes for the developing field of EE. Learners should be guided towards the full development of higher order thinking skills, with the increased ability to apply to and evaluate in other related sustainability contexts. The development of educational outcomes in science education (e.g., scientific skills, knowledge, attitudes, values, behaviour, etc.) can no longer be taught without creating learner awareness of the importance of the environment in our everyday life.

Problem Statement

The importance of the environment cannot be disputed, yet there are critical environmental challenges facing the world today. The United Nations Environment Programme (UNEP) emphasises the need to find solutions to pollution, climate change and biodiversity loss to truly transform societies and economies. The NCS (DBE, 2011) envisages a learner that can use scientific knowledge responsibly in the interest of themselves, society, and the environment. Environmental justice is one of the fundamental principles of our curriculum. The principles of education for sustainable development (ESD) encourages the development of learners with the knowledge, skills, and actions required to create a sustainable world, which promotes both social equity and economic growth, yet in a manner that preserves our natural resources.

Literature implies that learners in South African schools have limited knowledge and awareness on environmental issues (Sethusha & Lumadi, 2013), poor attitudes relating to environmental issues (Mbatha, 2009; Mohammed, 2016), and display negative behaviour

towards the environment (Maluleke, 2015; Mbatha, 2009). Reddy's (2011) arguments present EE as a long-standing challenge to teachers in South Africa.

The purpose of this study was to explore Grade 9 learners' views concerning the environment. The indicators of these views are perceptions, attitudes and behaviour concerning the environment, as seen in the conceptual framework for this study (see Fig. 2.4). As context is equally important, this study further investigated learners' learning experiences concerning the environment. The present study investigated the factors that shaped the learners' views concerning the environment, as limited literature exists on how these views are formed. The study further calculated the statistical correlations that might exist between the learners' perceptions of the environment, their attitudes regarding the environment, and their perceived behaviour towards the environment.

There is thus a pressing need for this study to provide current and relevant insight into learners' views concerning the environment, to inform the field of EE in South Africa. Our learners must be better equipped to play their part in finding solutions to unjust and unsustainable development, that strike a balance between economy, ecology, and society, both here in South Africa, and on a global stage.

Purpose and the Research Questions of the Study

The purpose of this study was to establish Grade 9 learners' views (i.e., perceptions, attitudes and behaviour) concerning the environment, and to investigate factors that shaped the learners' views concerning the environment. An explanatory sequential mixed methods design was used, firstly collecting quantitative data and then distending on this data by the collection of in-depth qualitative data. In the first quantitative phase of the study data were collected through a survey of 354 Grade 9 learners in Msunduzi and the Midlands, KwaZulu-Natal, South Africa, to establish their views concerning the environment. The second qualitative phase was conducted by inviting six individuals to a focus group interview as a follow up to the quantitative results to help understand these results in more detail.

Thus, the study set out to investigate the following specific research questions concerning KwaZulu-Natal province:

- What views (perceptions, attitudes, behaviour) concerning the environment exist among Grade 9 learners?
- What factors shaped the learners' views concerning the environment?

- What statistical correlations might exist between the learners' perceptions of the environment, their attitudes regarding the environment, and their perceived behaviour towards the environment?

Context of the Study

As referred to elsewhere, the research was conducted with Grade 9 learners among the 56 schools at Msunduzi and Midlands in the KwaZulu-Natal province, South Africa (see Figure 1.1). Schools in the Midlands are rural, while Msunduzi has a mix of rural and urban schools. There was an assortment of day scholars and those attending boarding establishments. Edsand and Brioch (2020) and Shobeiri et al. (2007) indicated that the type of school attended might influence learners' environmental awareness. Thus, both public and private schools were included in this study.

Some of the main problems experienced by learners in public schools in South Africa could be lack of teaching material and resources, large class sizes, high fees, bad facilities, a lack of teachers, teacher absenteeism, poor quality of teaching, and teachers striking (South African Market Index, 2019). With more than half of the population in KwaZulu-Natal living below the upper-bound poverty line (Province of KZN, 2015), it comes as no surprise that the accessible teaching and learning of environmental education (EE) is a challenge. Indeed, poor economic status has been found to significantly hamper pro-environmental behaviour (Hak et al., 2016). For instance, in KwaZulu-Natal, more learners walk to school than in any other province (Joseph & Carpenter, 2017), with 8,1% of rural and 5,7% of metro/urban learners in SA in 2013 recorded having to walk more than an hour to get to school (Statistics South Africa, 2018). The primary mode of transport to school for learners in KwaZulu-Natal is walking (66,7%) (Statistics South Africa, 2018). The limited use of fossil-fuel vehicles as a means of transport to school would have been great for the environment if it was not such a haunting reminder of just one of the personal difficulties and barriers to learning many of our learners face.

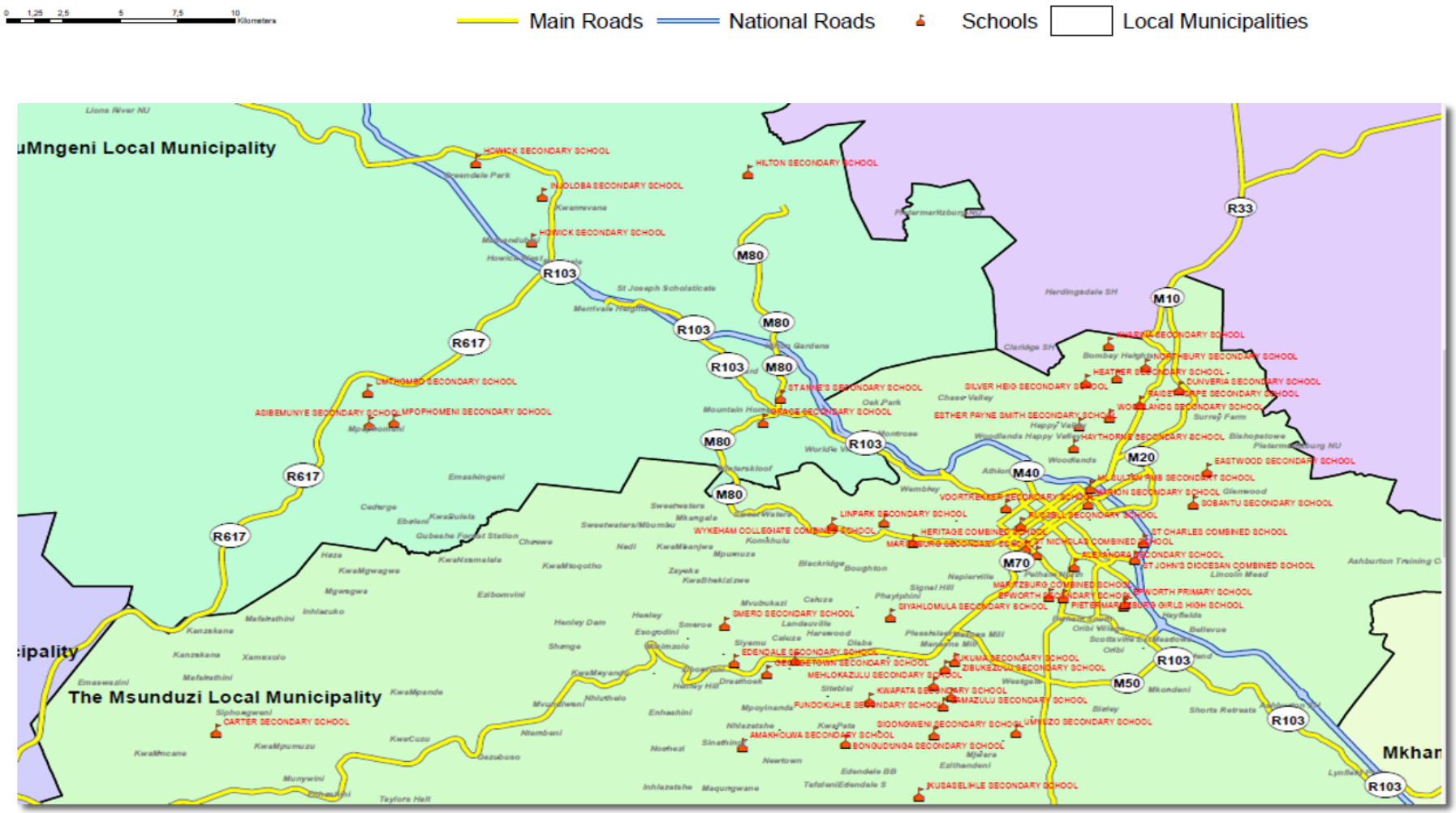
The Impact of COVID-19 on the Study

The global lockdown of educational institutions impacted on the current study: For instance, schools closed sporadically and there was a lot of uncertainty as to when they will

be open. Furthermore, the schools were reluctant to take part in a study by an external researcher and teachers' availability and capacity were under pressure. It should also be noted that strategies to access the sample for data collection and in-person interviews needed to be revised. Bhati et al. (2020) state that the virtual world came to the rescue of researchers to offer alternatives to conventional methods. Indeed, a swift change from traditional methods to online and remote environments had to be made (Kee, 2021). Electronic versions of all documentation and instruments were improvised and made available to the relevant participants. Furthermore, the timeline of the study was impacted, in that the researcher was forced to revise the schedule to suit the current circumstances of the study.

Figure 1.1

Map showing the Location of 56 Schools in Msunduzi and Midlands



Note. Municipal Demarcation Board (2021)

Overview of the Study's Research Design

This study used a mixed-methods research design to investigate the complex concept of environment, with special reference to learners' views thereof. As this research study assumed a sequential explanatory design, a quantitative data collection stage, which entailed data collection using questionnaires, was followed by a qualitative data collection stage. The latter involved collection of data through open-ended questions in the questionnaire and focus group interviews. Thus, the implementation of the data collection process followed a sequential strategy, followed by a deliberate attempt to integrate the results.

The pragmatic paradigm that underscored the design thereof mixed quantitative and qualitative methods to answer the study's research questions in a quest to provide insight concerning learners' views concerning the environment, and possible practical solutions related to environmental education. The mixed-methods research (MMR) approach acknowledges that neither a quantitative nor qualitative methodological approach by itself could sufficiently capture the full scope of learners' views concerning the environment. It (MMR) also increases the accuracy of data, the reliability of the study, the reduction of bias in the research, offers a practical, problem-driven approach to research, and enables compensation between strengths and weaknesses of research strategies (Denscombe, 2014).

Sequential mixed methods sampling was used for concurrent stages of the research. A probability sampling strategy (multistage cluster sampling) was employed in the quantitative stage, and convenience type (sampling) for selecting the participants during the qualitative stage.

The research methods allowed for five steps at quantitative stage (adaptation of the instrument, pilot study, administration of the questionnaire, the capturing and cleaning of data, and the analysis of the data). There were four steps at qualitative stage, namely qualitative instrument design, pilot study, data collection, and analysis of the qualitative data.

The research design further addressed obstacles encountered with the chosen research design, the validity, reliability and rigour of the study, and the importance of ethical considerations involved in the research project.

Delimitations of the Study

The parameters of the study entailed Grade 9 learners' views concerning only the environment, and factors that shaped the views. The study was restricted to learners that were attending classes in Natural Sciences as a learning area in schools in Msunduzi and the Midlands, uMgungundlovu District Municipality, KwaZulu-Natal, South Africa. Data were collected from 11 to 31 October 2021, with a focus group interview conducted on 16 November 2021.

Denzin and Lincoln (2018) suggest that the underpinning theoretical framework of a study guides the research methodology, structure, and the choice of formats for presenting findings. The format of the Likert scale used in the questionnaire supported participants in responding to an inquiry about a complex phenomenon – learners' views concerning the environment. It further increased the manageability of large amounts of quantitative data for data analysis.

Overview of the Dissertation

The present study's conceptualisation, execution and results are presented in five chapters. Chapter one provided the introductions and background to the study, the problem statement, objectives of the study along with the related research questions, the context of the study, an overview of the study's research design, delimitations of the study, and a brief outline of the dissertation.

Chapter two, the review of literature, first explores a contemporary outlook on the concept of the environment and how the definition of this term has evolved to include more than merely the natural, physical world. It further examines the relevance of environmental education in the quest for sustainability, both internationally and in a South African context. Particular emphasis is placed on the crucial role of the affective domain when teaching and learning about the environment. The chapter also outlines the theoretical framework on which the research is grounded. Lucas's (1972) triadic approach of education *about*, *in* and *for* the environment has informed the evolution of holistic, sustainable environmental education. This approach assimilates environmental perceptions, attitudes and behaviour in the pursuit of equipping environmental change-makers who will demand the right to a just, sustainable and equitable world. Theories by Boca and Saraçli (2019), and Hashemzadeh

(2016), with their foundations in the triadic approach, provide the building blocks for the conceptual model for this study.

Chapter three provides a profile of the research paradigm, design, and methodology utilised in this study. It describes both the quantitative and qualitative techniques used to collect and analyse data. The chapter further addresses the validity, reliability and rigour of the study, and outlines the process of ethical considerations taken during the research project.

Chapter four gives a comprehensive account of the data analysis and the subsequent findings. The results are related to the aims and objectives of the research study to provide answers to the associated research questions. In the first part of the chapter, the quantitative data is reported, analysed, and discussed. This is followed by a presentation of the themes identified after an analysis of the qualitative data. The chapter concludes with a summary of the significant findings that emerged during the integration of the data.

Chapter five presents an overall discussion of the findings presented in Chapter 4, and subsequent recommendations for development to environmental educators, teacher educators, researchers, and policy makers. The chapter reflects on the limitations of the chosen research design in terms, for instance, of access. A discussion of the findings is inferred from the literature and the theoretical framework of the study. This is followed by implications to environmental education and recommendations to address current limitations and shortcomings. The significance of the study and recommendations for future research are highlighted. A concluding summary completes the chapter.

Chapter 2: Review of Literature

Introduction

Chapter 2 will be presented in two parts. These will entail the research and literature enshrined in environmental education (EE) and the affective domain, and the conceptual frameworks that underpin the study.

Research and literature point to efforts made so far in addressing environmental issues and problems through development of the field (EE) at international and local levels. Indeed, in South Africa, the importance of the environment and health and wellbeing of others are emphasised in the National Curriculum Statement Grades R-12 (DBE; 2011). Thus, the conception of environmental concern among various stakeholders, such as learners enrolled for Natural Sciences, is fundamental. Before the commencement of the dissection of the existing body of knowledge on EE, it was thus essential that environment in a broader sense is articulated, and that the strategies for educating individuals (e.g., learners) on the environment are outlined. A review of the body of knowledge on the role of the affective domain in productive teaching and learning about environmental and sustainability is effected. These aspects thereof will form part of the literature review.

The aspects outlined above also suggest a framework of education about, in and for education, as proposed by Lucas (1972), which provides a holistic approach to environmental education (EE) and lays the foundation for this study. Education *about* the environment imparts learners with theoretical knowledge and awareness to build their environmental *perceptions*. Education *in* the environment provides nature-based learning experiences intended to create positive *attitudes* towards the environment. Education *for* the environment intersects with the objectives of education for sustainable development (ESD), which aims to empower learners with transformative skills and *behaviour* to address environmental challenges, individually and collectively.

The body of knowledge concerning EE also points to the importance of various aspects essential in the teaching and learning of EE. These are perceptions, attitudes and behaviour. The relationship between, for instance, learners' perceptions, attitudes and behaviour concerning the environment are fundamental. The present study is thus focused on the strength of these relationships as an indication of the mechanism of establishing environmental awareness, affinity and action. Any patterns revealed will provide insight into

the most effective way to bring about sustainability awareness and plan for future action in environmental education. The theories proposed by Boca and Saraçli (2019) and Hashemzadeh (2016) highlight the contextual nature of these three critical aspects of EE (e.g., perceptions, attitudes and behaviour). The conceptual model for this study draws on both these theories, with the indicators used by Boca and Saraçli (2019) providing insights into the factors that shape the learners' environmental views.

As a point of departure, the chapter commences with the dissection of the concept environment.

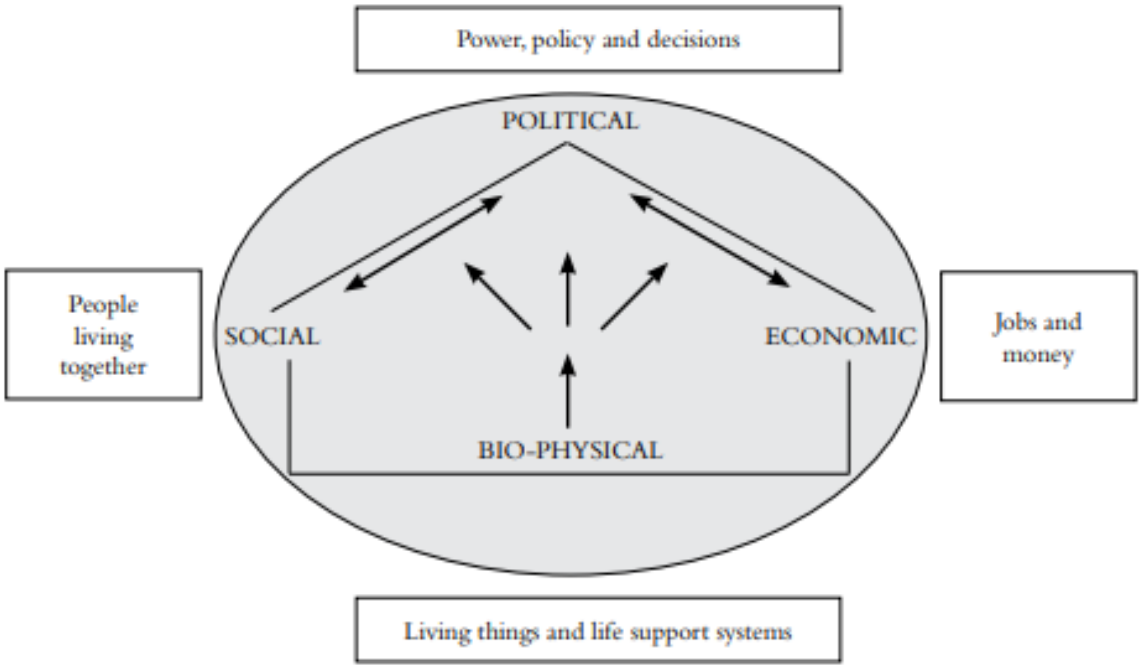
The Environment

The environment is generally understood as our natural capital, with its biodiversity and ecosystems at the heart of essential goods and services for humankind (Barbier, 2019). Teller (2017) listed some of the components of natural capital as fertile soils, multi-functional forests, productive land and seas, good quality freshwater, clean air, pollination, climate regulation, and protection against natural disasters. These are the biotic and abiotic life-support systems underpinning current and future human well-being (Guerry et al., 2015; Singh & Singh, 2017). Natural ecosystem functions and their species are credited for their ability to sustain and fulfil human life (Constanza et al., 2017; Larson et al., 2016; Venter et al., 2020). These very ecosystems have undergone severe degradation of ecological structure, function or composition as a result of human intervention, and are subject to an extremely high risk of irreversible transformation (Molewa, 2011). Drawing from the above arguments, the environment might be defined as the natural life and ecosystems that surround and support us. This is, however, a narrow definition of the environment.

The narrow definition of the environment has evolved. For instance, Reddy (2011) eloquently elaborates on the concept introduced by O'Donoghue and Russo (2004), describing the environment in a broader sense (see Figure 2.1). He reminds us that the term environment is a complex social construct. He identifies the multiple interrelated dimensions that constitute it, namely the bio-physical, social, political, and economic. He traces the dimensions' origins back to the 1970s when an awareness of the human impact on the natural environment gained momentum and people began to understand the need to behave more responsibly and address environmental threats.

the interview guide that was used in the focus group discussion **Figure 2.1**

A Depiction of Environment in a Broader Sense



Note. From "Environmental Education and Teacher Development: Engaging a Dual Curriculum Challenge", by C. Reddy, 2011, *Southern African Journal of Environmental Education, 28,* p. 13. (https://www.ajol.info/index.php/sajee/article/view/122241). Copyright 2011 by Stellenbosch University Language Centre.

Environmental Education

The popular model for environmental education (EE) has been that of education for sustainable development (ESD) – education that required a change in perspectives, attitudes, and lifestyles to build a more prosperous, just and secure future (Brundtland, 1987). This development paradigm has evolved over time to include the UN Decade of Sustainable Development (2005-2014), the Global Action Plan on ESD, and the 2030 Agenda for Sustainable Development. The 17 sustainable development goals put forward by this plan (United Nations, 2015) strike a balance between just economic growth, non-

discriminatory upliftment of all people, all the while ensuring that the consumption of natural resources is sustainable. One particular way to achieve these urgent and monumental goals is through quality education (Goal 4). This education (ESD) allows learners to make informed decisions in favour of environmental integrity, economic viability and a just society for present and future generations by providing the knowledge, skills, attitudes and values necessary to address sustainable development challenges (United Nations, 2015). Likewise, Anyolo et al. (2018) view ESD as quality, multi-disciplinary education that helps people develop the attitude, skills, and knowledge to meet the developmental and environmental needs for a sustainable future.

Boca and Saraçli (2019) suggest that EE is "a collaboration of content and pedagogy that engages students in a study of the environment" (p.1). Reddy (2011) describes EE as a response to the environmental crisis. The two descriptions thereof seem to lack the full scope of the topic. A more comprehensive description of EE might be a pathway to environmental sustainability (Kimaryo, 2011), or a suite of tools to undertake positive environmental action (Ardoin et al., 2020). Jorgenson et al. (2019) suggest that the current rapid and complex social, technological, and ecological changes provide a lens for environmental educators and researchers to advance EE goals. Kwauk and Casey (2021) petition for an education policy that recognises the need to transform social, economic, and education systems to align them toward the goals of justice, fairness, and equity. Their description taps into the abovementioned terminology used to describe ESD. When referring to EE in this paper, it is teaching according to these ESD principles that is implied.

Most importantly, the goal of effective EE is to nurture individuals who have the knowledge, attitudes, and skills to have a real-life impact on the preservation of the environment and creating a sustainable future for generations to come. Leicht et al. (2018) thus present that ESD encourages changes in our knowledge, values and attitudes, and skills to enable a more sustainable and just society for all. The three factors – perceptions, attitudes, and behaviour – framed the current study.

Factors that Influence Environmental Awareness and the Teaching and Learning of Environmental Education

Context arguably plays a role in learners being able to internalise teaching and learning about the environment. Thus, factors that shape their (learners) views concerning the environment are essential. Over the past five decades, many authors have tried to model

the factors that contribute to sustainable environmental behaviour (e.g., Fishbein & Ajzen, 1975; Hines et al., 1986; Phipps et al., 2013). These theories showed us that behaviour is not merely affected by knowledge, values, and attitudes, but to a greater or lesser extent, by various other personal and situational factors. In fact, Heberlein (2012) suggests that setting and factors outside the individual have far more influence on what people do than beliefs, knowledge, or emotion – the drivers of attitudes.

Yeshalem (2013) pointed to factors that have either positive or negative impacts on the development of pro-environmental behaviour. He drew from Kollmuss and Agyeman (2002) to classify such factors (that shape environmental views) as:

- Demographic: These include gender and years of education.
- External: These include institutional, economic, social, and cultural factors.
- Internal: These include motivation, environmental knowledge, awareness, values, attitudes, emotion, locus of control, responsibilities, and priorities.

Research by Mukute et al. (2012), SADC REEP (2012) and UNESCO (2018) substantiate the belief that a learner in the SADC regions faced a myriad of stumbling blocks in the form of demographic, external and internal factors on the road to environmental awareness. Further research strongly points to the fact that who you are, where you come from, what your parents earn and which school you attend strongly determine the educational outcomes and the life chances of a learner (Duncan & Murnane, 2011; Jacob & Ryan, 2018; Jansen, 2019; Spaull, 2013). South African data further suggest that long before children enter school, their futures are already being determined. For instance, it could be argued that:

- this issue is inevitable even during prenatal development (Ashley-Cooper et al., 2019; Slemming et al., 2017);
- the education level and marital status of the mother is a good indicator of children's futures (Slemming et al., 2017);
- the quality of the preschool attended determine subsequent academic success (Jansen, 2019);
- the home environment being a precursor of both educational and life chances (Jansen, 2019).

Despite relatively strong investments in education, research shows that South Africa still consistently appears last or second last compared with other nations in international achievement tests (i.e TIMSS and PIRLS) (Howie et al., 2017; Reddy et al., 2016; Reddy et al., 2020). The poor results achieved in these assessments of basic literacy and numeracy skills point to the inability of our education system to translate resources into equal learning outcomes (Jansen, 2019). Several studies corroborate that the inequality in schools and the glaring disparities in our education system remain a significant blight on the post-apartheid education system (Draga, 2017; Jansen, 2019; Amnesty International, 2020). It could be argued that a learner's exposure to quality EE and their subsequent views on the environment, their attitudes, and behaviour can be projected along these same lines.

Further studies have identified various factors that influence individuals' environmental awareness (Bozoglu et al., 2016; Eom et al., 2016; Joshi & Rahman, 2015; Apichatibutarapong, 2018; Untaru et al., 2015). These include the level of EE and the associated information and socio-demographic factors, gender, awareness levels concerning environmental problems, curiosity levels towards environmental news, culture-specific predictors of pro-environmental behaviour, attitude-behaviour inconsistencies, teacher education, the time required for the adoption of environmentally friendly campaigns, the general standard of living, specific local infrastructure, the institutional and legislative frameworks in existence on environmental protection, and the comfort and willingness to conform to group norms.

The academic community has extensively explored factors that negatively affect the awareness of the importance of EE (Hebe, 2019; Iacob, 2013; Yeshalem, 2013). These include the absence of guidelines that should assist teachers to make informed decisions on pedagogical content and teaching approaches to integrate EE in their lessons, and a lack of locally contextualised environmental ones (lessons). Furthermore, the gap between policy and practice, deficient stakeholder networks, unfavourable learning environment regarding infrastructure, socio-economic factors, large class sizes, high teaching loads, centrally designed curriculums, lack of initiative, teachers' related factors, students' family background, and local community factors have been mentioned.

The role of an EE teacher in implementing curriculum outcomes has been extensively researched by many researchers (Cappy, 2016; De Lange, 2009; Guerriero, n.d.; Jansen, 2019; Knapp, 2000; Mbatha, 2016; Reddy, 2011; Shalem & De Clercq, 2019). Cappy (2016), for instance, argued that South African teachers could encourage learners to reflect critically upon their own lives and take action to improve educational practices for social justice.

However, Thomas (2019), Shalem and De Clercq (2019) and Mawela (2020) posit that gaps in teachers' environmental content knowledge constrain the effectiveness of the teaching of environmental content in their classrooms. Thus, the importance of teachers in the development of learners' perception of environment or EE cannot be overemphasized. After all, the quality of teachers determines that of an education system (Spaull, 2019). Quality teachers might be in a better position to understand that EE is a life-long, forward-looking education that involves the integration of education into the community (Cf. Molefe & Aubin, 2021) before they could even instill appropriate perceptions about the environment in their learners. Wanchana et al. (2020) describe these teachers as having the knowledge and understanding, skills, and attributes to integrate EE to be accessible to all learners. These teachers could also realise the importance of the development of sensitivity, awareness, understanding, critical thinking and problem-solving skills concerning the characteristics of EE in themselves and their learners.

There are also findings from studies that have specifically focussed on EE in South African schools (Maluleke, 2015; Mbatha, 2009; Mohammed, 2016; Sethusha & Lumadi, 2013). The findings suggest a need for comprehensive development of EE in South Africa. For Mbatha (2009), "the level of environmental awareness in learners was average, but with negative behaviour and attitudes" (p. 50). Sethusha and Lumadi (2013) found that learners' knowledge and awareness of environmental issues were limited. In Maluleke's research, teachers experienced difficulties in convincing learners to get involved in environmental activities (2015, p. 367). The results from Mohammed's (2016) study showed "learners lacking motivation towards EE" (p. 144). The issues around environment might actually follow learners to higher education, Indeed, Dlamini et al. (2021) found that students at a university in Gauteng were neutral, non-committal, and ambivalent when asked whether there is a positive future for the environment. Thus, it was important that this research study investigated Grade 9 learners' views concerning the environment in a South African context, and some of the factors that might shape such views. This was essential in order to add on the body of knowledge that has put the South African science curricula under a microscope concerning EE.

Environmental Education and Education for Sustainable Development: A Critical Look at the South African Natural Sciences Curriculum

The curriculum is a structure for the activities of teachers and students or learners and curriculum designers to achieve certain goals (Young, 2014), in this case, the implementation of environmental education (EE). Curricula are constructed by human agency and by social and political constraints and realities (Brady & Kennedy, 2014). Reddy (2011), eloquently argues for key ideas behind calls for EE to be implemented in the curriculum as two-pronged: Developing awareness and concern about the holistic environment and its associated problems, and producing humanity that has skills, knowledge, appropriate attitudes, motivation, and commitment to tackle world problems. Nhamo and Shava (2015) advocate for the inclusion of EE in every curriculum due to the indisputable global concern of climate change threatening human livelihoods. The approach that has been followed in South Africa to implement EE is holistic and integrated through the whole school curriculum (Kimaryo, 2011). EE is located within a specific knowledge strand – environmental studies – across the CAPS curriculum (Mudaly & Ismail, 2016; Theron, 2016).

In 1997, the first Minister of Education in a democratic South Africa, Prof Sibusiso Bhengu, introduced the new *Curriculum 2005* (C2005) (DoE, 1997a, 1997b, 1997c). The curriculum was enshrined in Outcomes-Based Education's principles (Chisholm, 2005*). C2005* introduced the new learning styles of creative learning and problem solving through active participation in the learning process; a change from the apartheid education system (i.e. the racially and departmentally segregated system used pre-1997) that encouraged passive and rote learning with the intention to produce learners who were not supposed to challenge the status quo. *C2005* became a perfect tool to realise the ideals of democracy because it would lead people to be critical citizens (Msila, 2013). Nevertheless, the challenges associated with *C2005* implementation resulted in its review in 2000, and the subsequent revised versions – the *Revised National Curriculum Statement Grades R-9 (RNCS)* and the *National Curriculum Statement Grades 10-12 (NCS)* (DoE, 2011). Chisholm (2005) pointed to the origins of the environmental aspects as part of shaping the curriculum, when

> the environmental lobby sought recognition of environmental issues across the curriculum. It emphasized the importance of the principle of the integratedness of knowledge by reference to the inter-relatedness of environmental, developmental, and educational issues. Through a Ministerial Advisor on Environment, this lobby

> sought to raise *knowledge*, *skills*, and *awareness* of sustainable development in all learning areas. And so, *'a healthy environment'* became a key concept in the curriculum. (pp. 198-199; emphases added)

It could be argued that a major change in the South African curricula was the introduction of EE as a phase organizer to be incorporated in all learning areas, based on every citizen's constitutional right to a **healthy environment**, and which aligned to international trends. For Kimaryo (2011), "education has been recognized as one of the important tools for conserving the environment through the cultivation of knowledge, skills, values and positive attitudes towards the environment among the people" (p. 14). As referred to earlier, in 2000 changes were made to *C2005* and in 2002 RNCS and NCS (DoE, 2002) were established. The reviewed version of the RNCS and NCS became (and still is) the Curriculum and Assessment Policy Statement (CAPS), and **it continued to incorporate environmental justice as a principle across all subjects** (DBE, 2011, p. 5).

Theoretically, every child in school should now engage with environmental issues in every subject area. In developing countries like South Africa, the principles of EE and education for sustainable development (ESD) are a relevant addition to the curriculum. Previous studies have promoted the inclusion of sustainability content to improve the quality and relevance of education (Laurie et al., 2016; Lupele & Lotz-Sisitka, 2012; Mandikonza & Lotz-Sisitka, 2016; Schreiber & Siege, 2016; Shumba & Kampamba, 2017; Van Poeck, 2013). Studies that explore environmental awareness and seek to improve EE teaching praxis became (equally if not more) important. Indeed, several authors advocate for an EE worldview that is distinct in its ontology to teaching other subjects (Iacob, 2013; Monjane, 2013; Radeiski, 2014; Reddy, 2011; Reddy, 2017; Shumba & Kampamba, 2013).

Theron (2016) has questioned the Department of Basic Education's focus on improving essential capacity in literacy and numeracy and diverting the focus from other essential topics like environmental and sustainable development knowledge. It may be argued that the development of knowledge thereof is even critical in a country where:

- gender inequality in education reflects the same fact in society (Zuze & Beku, 2019);
- pro-poor government funding of schools with low quintile ranking has not been able to eliminate inequalities among schools in South Africa (Lumadi, 2020), and "the majority

of black learners still attend overcrowded, under-resourced schools with poor infrastructure and inexperienced teachers" (Dass & Rinquest, 2017, p. 142);

- poor learners, most of whom are black, are condemned to attend classes in school environments that disempower rather than empower them to learn and succeed (Draga, 2017);
- addressing class size, particularly amongst poorer schools, would arguably create an environment for more equitable learning and teaching conditions (DoE, 2019);
- ensuring an adequate supply of skilled teachers in the system is a challenge (DoE, 2019);
- and the supply of teaching and learning support materials and equipment to teachers and learners had to be mandated by the South African Humans Rights Council (DoE, 2019).

It should be noted that the present study is based in the hardest hit province. 78% of schools in KwaZulu-Natal have been affected by inadequate provision of teaching materials and textbooks (DoE, 2019), and 87% of learners attend quintile 1 to 3 schools (KZN DoE, 2020, p. 51) where performance quality is often lacking (Chanee, 2020). The quintile categorisation is based on the socio-economic status of the school's geographic location (Ogbonnaya, 2019). Quintile 1 to 3 schools are non-feepaying schools, relying heavily on government funding. More worryingly, the communities where some of the schools visited are located, saw raw sewerage spilling down a potholed road and illegal garbage dump across them (schools) seem to be the norm. Could this sorry state of affairs play a significant role in learners' environmental concern? With a plethora of compounding social issues to address, Reddy (2011) further reminds us of the very compressed timeframe in which South Africa's curriculum revolution had taken place. He states that these changes were aimed at bringing about systemic, social, and methodological transformation. He however argues that these need to unfold in time to develop the potential outcomes and acknowledges the complexity of the field and the many influences on it.

Kimaryo (2011), Le Grange (2017), Lupele and Lotz-Sisitka (2012), and Schudel (2017) support a real-life, relational approach to EE that encourages learners to find solutions to unjust and unsustainable development patterns, with a balance between economy, ecology, and society. Kimaryo (2011) suggests that the introduction of ESD dissolves the artificial boundaries between these factors. These views are supported by

Schreiber and Siege (2016) and Van Poeck (2013). The issue of environmental justice (DoE, 2011, p. 5) reminds us of a fair, balanced, and equal approach to the environment, which is emphasized in ESD. Lupele and Lotz-Sisitka (2012) argue that ESD, as practised in Sub-Saharan Africa, aims to encourage learners to question unjust and unsustainable development patterns, guided by principles of social justice, equity, sustainability, and care for the community of life.

The real challenge lies in the implementation and impact assessment of EE (O'Donogue, 2014; Paredes Chi, 2015; Wolff, 2014). The importance of exploring issues around EE cannot be overemphasized, and it is especially the interdisciplinarity of EE and ESD and the value it can add to teaching and learning for the improvement of our learners' analytical, evaluative and problem-solving skills, that makes it even more significant today. The 2018 National Senior Certificate (NSC) diagnostic report provides a bleak picture concerning the comprehension of environment-based concepts and the lack of analytical and problem-solving skills displayed by our school-leavers. Apart from Life Sciences (DBE, 2019, pp. 104-105, 112), the environment and its social justice impact on communities were widely addressed in the Geography paper, Agricultural Sciences Paper 2 (DBE, 2019, p. 36), and in the Economics paper (DBE, 2019, p. 69).

My arguments in this subsection do not only show that the teaching and learning of environmental issues are needed for a variety of subjects, but they further rationalise the need to encourage some of the key educational outcomes enshrined in EE (e.g., analytical and problem-solving skills). The interdisciplinary nature of EE reinforces its relevance in a contemporary curriculum that engages learners with educational outcomes that encourage holistic development. Such educational outcomes may entail a mix of knowledge and understanding, various scientific skills and the affective domain.

The Role of the Affective Domain in the Teaching and Learning of Environmental Education

Reddy (2011) argues for the importance of knowledge, skills, and *affective* objectives in environmental education (EE). He eloquently describes the importance of the affective domain in EE. As a facet of this study relates to learners' deep understanding of the environment with special reference to their affective domain, his arguments are compelling and were used as the point of departure to include this (the affective domain) in EE. The importance of the affective domain relates to learners' perceptions about the environment,

attitudes, willingness to change behaviour to be more sustainable, and participation in environmental protection activities. Exploring the learners' attitudes towards the environment, and EE, in particular, is essential. As described elsewhere, Bloom's taxonomy (Bloom, 1956), suggests that learners advance through a systematic approach to achieve the full development of higher order thinking skills. EE should move learners from passively receiving information to relating this information to real-life scenarios. Hashemzadeh (2016, p. 43) encourages the understanding of students' environmental attitudes to give insights into strategies to improve EE programmes. If their attitude towards EE is negative, or they do not feel part of the process, EE will have little personal relevance.

Bornstein (2015) speaks specifically of the development of the adolescent (the informants of the present study) and mentions how attributes such as thoughts, behaviour, and social relations change dramatically during these years. Understanding behaviour and how it may be changed lie at the heart of both mitigation and adaptation responses to climate change (Kurz et al, 2015). Eilam and Trop (2012) further argue that the strategies required for influencing attitudes are different from those required for influencing behaviour. For Laso-Salvador et al. (2017), the key to behavioural change is embedded in the relationship between environmental awareness and the affective domain of students. Their study showed that perceptions, attitudes, and values will determine an individual's willingness to change their behaviour. A variety of authors have documented the impact of incorporating the affective domain in the teaching of EE with young adolescents (Fisher, 2013; Katoch, 2017; Nath, 2017; OECD, 2019; Sadik & Sari, 2010; Thor & Karlsudd, 2020; Zachariou et al., 2020) and authenticated the effectiveness of using this strategy. Thus, it can be argued that effective EE needs to appeal to learners' affective domain to transform their environmental perspectives and behaviour. When learners feel emotionally invested and connected to the environment and their communities it might encourage them to consider the consequences of their environmental choices. Unsustainable behaviour patterns could be changed, the natural environment preserved, and the quality of life of compromised communities improved when our learners' have access to EE that engages their affective domain.

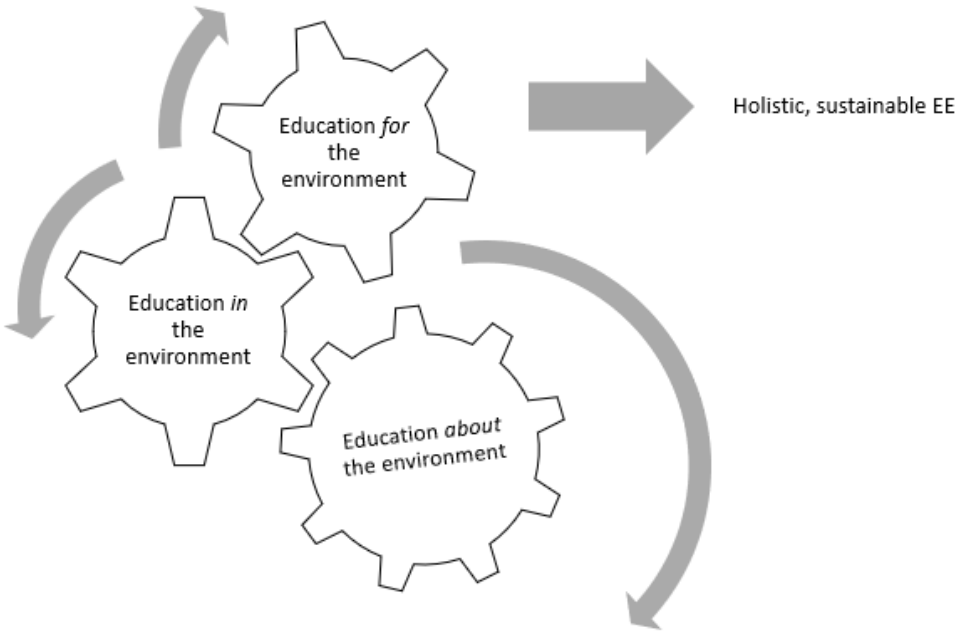
De Lange (2009), Iacob (2013) and Yeshalem (2013) advanced EE as an interdisciplinary approach that is built upon three interrelated concepts – education *about*, *in* and *for* the environment. Thus, it is reasonable that this approach motivates learners to develop sustainable environmental behaviour.

The Study's Framework

This study's framework assumes a triadic approach to environmentally-inclined pedagogy proposed by Lucas (1972), where emphasis is on education *about*, *in* and *for* the environment. This approach was further applied by Fien (1993) and Palmer (1998). However Lucas's arguments eloquently articulate the thrust of the theory in the current study. The framework aims to develop the necessary awareness, attitudes and actions required by learners to enable them to make sustainable lifestyle choices. Kimaryo (2011) put forward that these three approaches are interlinked (as depicted in the author's own figure in Figure 2.2) and complete a holistic approach to environmental education (EE).

Figure 2.2

Framework for Holistic and Sustainable EE through Education about, in, and for the Environment



Appropriate teaching and learning methods of education *about*, *in*, and *for* the environment need to be used to address all three of these constructs for the implementation of EE to be effective (Metz et al., 2010). Hebe (2019) argued that creative and highly competent teachers should use all the three strategies (education about/in/for the

environment) to address perceptions, attitudes and behaviour, even in instances where it is not explicitly stipulated in the curriculum.

The Triadic Approach

Education **about** the Environment could be viewed as a cognitive approach in which information, facts, concepts, patterns, and systems about the environment are communicated from teacher to learners – Kimaryo (2011) described it as a traditional or objective view. Metz et al. (2010) extrapolated that it used traditional or conventional methods of teaching that rely heavily on curriculum content. Hassard (2009) described this framework as content for recalling information at a later stage.

The need for accurate information to create awareness and knowledge on the importance of environmental concerns cannot be argued, and our learners need this to form the basis for their environmental perceptions. Nevertheless, debates regarding this method have propelled to the forefront polarised arguments and/or ideologies on the effectiveness of education about the environment to create positive attitudes, and responsible behaviour regarding the environment (Aminrad et al., 2013; Edsand & Brioch, 2020; Erhabora & Don, 2016; Zachariou et al., 2017).

In relation to ***perceptions***, education about the environment aims to increase learners' awareness about the environment, as this traditional strategy uses a scientific approach that is mostly concerned with increasing knowledge on the effects of environmental problems (Hashemzadeh, 2016, p. 25). The same is true in South Africa, where early conservation education tended to focus on raising awareness on the wise use of natural resources (Irwin, 2007). That said, Reddy (2017) suggested that a clear gap in environmental knowledge in South Africa is still apparent. Early models of environmental awareness formation advocated for increased knowledge to bring about environmental concern and behaviour change, that is, the US linear progression model for pro-environmental behaviour that dated to the early 1970's (Kollmuss & Agyemann, 2002), but soon after the importance of the affective domain was acknowledged (Fishbein & Ajzen, 1975, 1980; Hines et al., 1986). Authors have shaped significant arguments about the teaching of content that will not only inform environmental knowledge and awareness but should be developed to change attitudes and behaviour (Alexandar & Poyyamoli, 2014; Hashemzadeh, 2016; Molapo et al., 2014). Hashemzadeh (2016, p. 25) raised academic dialogue that merely increasing learners' knowledge on the effects of environmental issues

is ineffective if they are not also gaining an understanding about the root causes of these issues or how these might be addressed.

While some studies show positive relationships between environmental knowledge, pro-environmental attitudes, and behaviour (Liu et al., 2018; Ordas et al., 2021), others suggest that this is not always the case (Jackson et al, 2016; Karami et al, 2017; Thongma et al., 2017). Yeshalem (2013) implied that teaching students about the general environment without providing the knowledge and skills necessary to know and experience their local environment is untenable. He went further to suggest that EE detached from local environmental knowledge and skills is ineffective in enabling students to develop a favourable attitude and pro-environmental behaviour in and for their local environment. For Sethusha and Lumadi (2013), the importance of linking the learners' experiences in their local environment with EE at school to make it more accessible to them and improve their understanding is vital.

An environmental curriculum involves far more than the preparation of materials. It should allow for the change of beliefs and values that may result in a healthy lifestyle and sense of responsibility towards the environment. One of the methods advocated to bring about the proposed change thereof is the practice of allowing learners to interact with their natural environment.

Education **in** the Environment is focussed on the direct interaction with the environment as the medium for teaching and learning. It involves practical activities that take place outside the classroom, engaging with the physical environment that is the object of the study (Paredes Chi, 2015). For Kimaryo (2011), this approach was developed after understanding grew that transmitting knowledge about the environment is not enough. Then, contrary to what was expected, people did not act on raised awareness of environmental degradation. Ontong and Le Grange (2014) argued for place-based and place-conscious education to develop a sustainable frame of mind. Ward-Smith et al. (2020) claimed that nature disconnection lies at the heart of the world's socio-ecological crisis. They went further to emphasise the importance of nature-based experiences for psychological, social, and ecological reconnection. This phenomenon (nature-based experiences) and positive attitudes towards nature is well documented (Hashemzadeh, 2016; Katoch, 2017; Sadik & Sadik, 2014; Laso-Salvador et al., 2017). On the other hand, Kopelke (2012) and White et al. (2018) suggested that EE should give attention to processes and activities that enable learners to acquire awareness, values, knowledge,

skills, and development of attitudes that equip them to play a constructive role in addressing environmental problems.

In relation to ***attitudes***, research substantiate the belief that the provision of opportunities for students to have positive learning experiences in nature, as that might inspire an appreciation and valuing of nature and develop both environmental awareness and positive environmental attitudes (De Zylva, 2018; Fretwell & Greig, 2019; Katoch, 2017; Monroe et al., 2021; WWF, n.d.). Hashemzadeh (2016, p. 28) proposed that positive experiences concerning the environment seemed to be fundamental to improving long-term environmental awareness and concern. He noted how vital significant life experiences in a natural environment (e.g., outdoor learning) were for the development of pro-environmental behaviour. Mahambehlala (2019) recommended that teachers should make use of the readily accessible natural ecosystems in their surroundings to teach about and spark learners' passion for the environment. Mandikonza (2019) described this as learning from "context to concept" (p. 14). The issue of context cannot be overemphasised. Schudel (2014) had advocated for context-rich (but not context-bound) exploration of universal environmental issues. For O'Donoghue et al. (2019), EE should be better situated in and resonate with local African contexts and the emerging sustainability concerns in everyday life. Killian and Ferreira (2013) argued that if learners can relate to and are exposed to local environmental issues, that could influence their attitude towards them and correspondingly lead to behaviour change. They elaborated that direct experiences present learners with the information that will focus them on a particular required behaviour and promote positive attitudes.

Attitudes refer to a person's predisposition to evaluate a topic affectively. We often expect the attitude a person holds to be consistent with the behaviour they exhibit towards said topic (McLeod, 2018). Williams et al. (2020) mentioned the influence of values and attitudes as determinants of environmental behaviour. It should be stated that the aim of this current study is not to investigate the theories about or factors that bring about attitude and behaviour change. Nevertheless, it is important to note that "the more self-relevant (an) attitude, the more difficult it will be to change" (Crano & Gardikiotis, 2015, p. 170). In other words, attitudes become more difficult to change once they have been reinforced over time.

The prompt inclusion of attitudes and skills greatly improve the success of environmental programmes, as they (environmental attitudes) are expected to result in a predisposition to act to solve environmental issues (Paredes Chi, 2015, p. 21). Kopelke

(2012) pointed to the fact that education in the environment should give attention to processes and activities that enable the learners to acquire awareness, knowledge, values, attitudes, and skills development that equip them to play a constructive role in addressing environmental problems.

Education **for** the Environment is an approach that is student-centred and interdisciplinary with an emphasis on awareness, values, and attitudes (Hassard, 2009). It focuses on the application of skills and knowledge – taking action to improve outcomes. This approach has its roots in the socially critical and constructivist paradigms oriented towards action for social change (Peden, 2006). The advocation of inquiry, problem-solving and practical environmental action is emphasised. Learners and teachers became co-fighters for the environment to bring about social change (Kimaryo, 2011). O'Donoghue et al. (2018) described these learning environments as participatory, reflexive, learner-led, inclusive, and action-oriented. O'Donoghue (2018) went further to argue on continuing optimism and increasing urgency by Southern African civic organisations for change of our environmental and sustainability education in a post-apartheid state, as they (the organisations) contemplated restorative socio-ecological justice and sustainable development practices. There is a strong focus on the mediation of human agency through a learning-led change in times of climate change. Thus, there had been calls to consider both prevailing institutional knowledge and intergenerational knowledge practices. This had led to the emphasis on co-engaged, collaborative social learning about environmental and sustainability issues that consider the wider influences of socio-ecological, economic, and political mechanisms influencing change. Taylor et al. (2009) in fact argued that people from lower socioeconomic groups (like the 87% of learners in the geographical area where this study was conducted) can only go on to look beyond their livelihood, explore global issues, and make connections between the environment and wealth generation when they are involved practically and directly with their local environment.

Kimaryo (2011) put forward that education for the environment focused on ethics that should develop action competence in learners. Paredes Chi (2015) argued that this educational theory is based on critical theory and participatory paradigm and seems to be a kind of EE that regards proactive, critical, participatory, action-oriented, and holistic inquiry. This approach broached the divide between EE and education for sustainable development (ESD), as it reminds us of the UNESCO definition for it (ESD) that empowers people to change their thought patterns and behaviour and work towards a sustainable future.

Concerning ***behaviour***, Crano and Gardikiotis's (2015) research on attitudes provides insights into the complexities of human social behaviour and suggests how actions are affected by beliefs. Interestingly, Joshi and Rahman (2015) argued that attitude alone does not affect behaviour, nor the strength of the attitude-behaviour relationship. The two contrasting arguments point to the complexity of such a relationship and the possible influence of a myriad of factors. Thus, it is reasonable that Alexandar and Povyamoli (2014) argued that EE and ESD should go beyond the teaching of environmental concepts, to also impart students with attitudes, behaviour, knowledge and practical skills to enable them to facilitate sustainable lifestyles.

Zwelibanzi (2016) portrayed teachers' knowledge of EE as superficial. Her argument was based on the finding that teachers only taught *about* the environment, and occasionally *in* the environment. They did not teach *for* the environment which is considered as the main goal of effective EE. For Yeshalem (2013), there is also need for EE practices that will respond to local environmental needs.

The terminology used in education for the environment and ESD shows a significant cross-over. As referred to elsewhere, it is through ESD that changes in knowledge, values and attitudes, and skills can be realised in a quest for a more sustainable and just society for all. Leicht et al. (2018) suggested that EE should empower and equip individuals to meet their own needs using an integrated approach to the sustainable development of the environment (economic, social and environmental dimensions). Mandikonza and Lotz-Sisitka (2016) stated that EE, at its core, should be critically reflexive and allow people to consider a view of development and progress that charts innovative pathways that reduce human impacts on the earth system. It should further seek out new social progress models that take future generations into account.

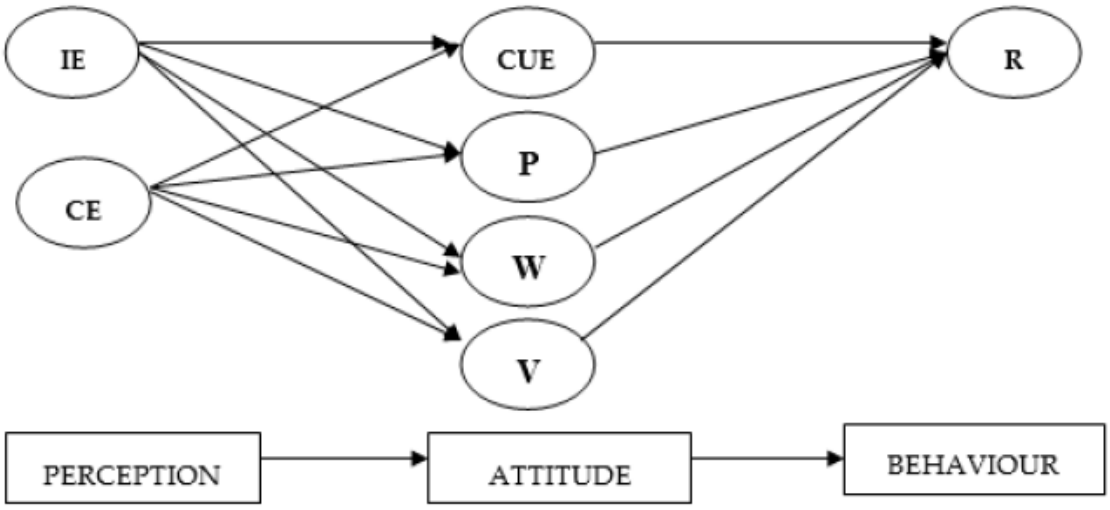
The Synergy Between Perception, Attitudes and Behaviour: A Conceptual Model

Boca and Saraçli (2019) proposed increasing the amount of practical environmental activities (education **in** the environment) over merely imparting knowledge (education **about** the environment) to overcome the rift between ecological awareness and lack of involvement in environmental protection activities. They further suggested giving priority to specific methods of moral and civic education, including debate, case analysis, moral conversation, and team cooperation (characteristics of education **for** the environment) (pp. 1-2). Thus, it can be argued that quality EE requires all the three elements (e.g., education *about, in,* and *for* the environment) to bring about behaviour change for sustainable living in learners.

The constructs embedded in the learners' views concerning the environment are shown through their *perceptions*, *attitudes*, and *behaviour*. The relationships among the constructs are shown in Figure 2.3. The factors and the associated keys are stated in Table 2.1. The interrelatedness of knowledge, awareness, attitudes, and behaviour is not a new phenomenon (see Lin & Shi, 2014). For Boca and Saraçli (2019), the focus has been on students' environmental perceptions and how their attitudes towards EE influenced their environmental behaviour. The relationship between these three constructs, within the context of EE in South Africa, was equally a subject of interest in the present study.

Figure 2.3

Research Model to determine the Relationship between Perception, Attitude and Behaviour



Note. From "Environmental Education and Student's Perception, for Sustainability", by G.D. Boca and S. Saraçli, 2019, *Sustainability, 11*(6), p. 1553. (https://doi.org/10.3390/su11061553). CC by 2.0

Table 2.1 presents the factor keys used in Figure 2.3 when modelling environmental perceptions, attitudes and behaviour, and the relationships between these constructs.

Table 2.1

Factor Keys in the Construct of Perception, Attitude, and Behaviour Concerning the Environment

Factor	Key	Construct
Importance of environment	IE	Perception
Concerns about environment	CE	
Culture environment	CUE	Attitude
Participation in different activities regarding environment	P	
Warning attitude regarding environment	W	
Volunteering activities, non-harmful actions	V	
Re-use 3R's	R	Behaviour

Note. Extracted from Boca and Saraçli (2019)

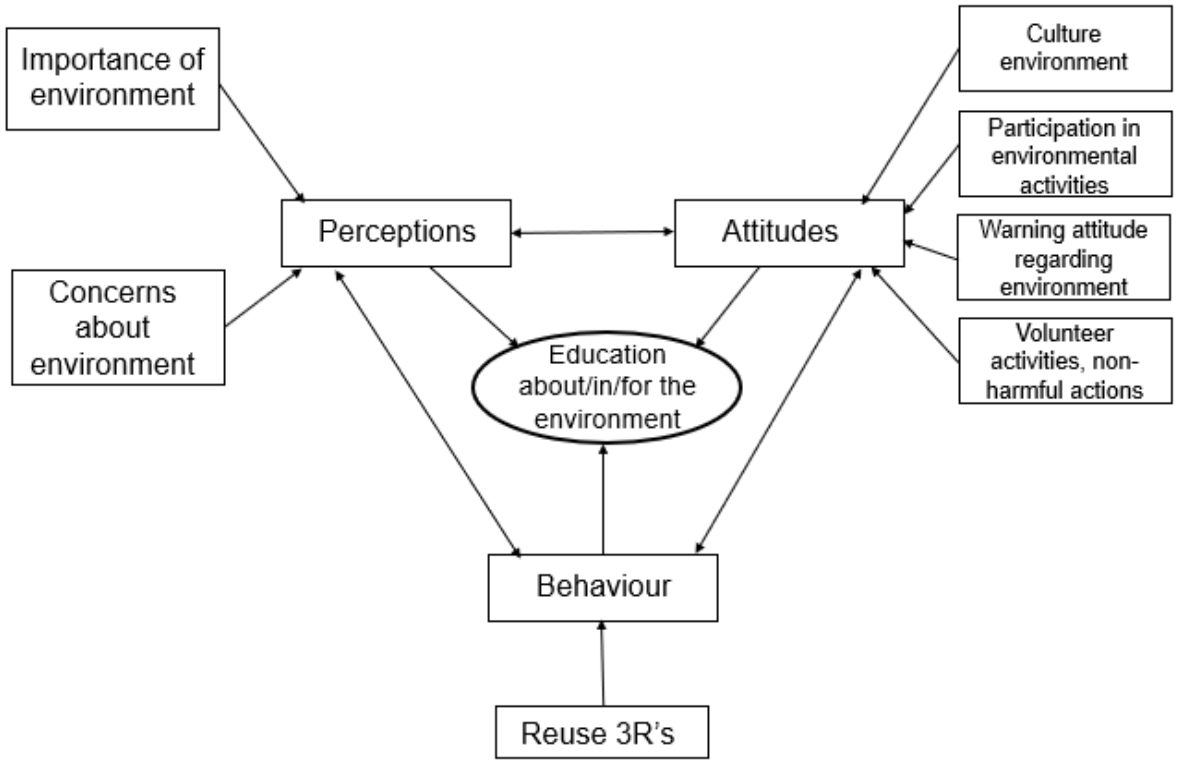
Hashemzadeh (2016) called attention to the importance of EE to move learners towards environmental awareness. He highlighted how education approaches could be better informed when conducting research on learners' environmental awareness/perceptions, attitudes and behaviour. In this study, it was important that the possible contextual factors that might have influenced learners' path towards pro-environmental behaviour were investigated. Hashemzadeh (2016, p. 55) further emphasised the importance of a deep understanding of environmental issues, as well as appropriate affective pedagogies (p. 55). He argued that the absence of either could be a reason for the lack of pro-environmental behaviour, as action is closely related to both cognitive and affective variables (p. 220). Hashemzadeh (2016) employed Lucas's (1972) triadic approach of education *about*, *in*, and *for* the environment in the pursuit to investigate learners' environmental views and to inform future developments in EE. The model for this study explored the theoretical relationship between environmental awareness, attitudes, and behaviour.

The Relationship Between the Three Constructs: Conceptual Model for the Present Study

Figure 2.4 provides a summary of the conceptual model for this study. It illustrates the relationships between the contributing factors that theoretically impact learners' views of the environment and EE. This model integrated theory and literature to bring together related concepts. The synthesis of concepts provided a dynamic and specific direction for the study.

Figure 2.4

A Conceptual Model for this Study



Note. Adapted from Boca and Saraçli (2019) and Hashemzadeh (2016)

It is my view that, for efficacious EE, learners should be competent in the theoretical content, be given the opportunities to experience the wonders of our natural world, be able to analyse the consequences of their behaviour on the planet, strive for healthy lifestyle and

develop the sense of responsibility for their actions concerning the environment, be equipped with the skills that empower them to action, be given the opportunity to voice their contributions and concerns, and feel vested in a collective approach to overcome local and global environmental issues.

Chapter Summary

This chapter reviewed the literature that formed the conceptual basis for the study. Literature on the term environment provided evidence that this is a more complex concept than merely the biophysical environment. The consideration of the social, political, and economic factors that come into play formed a point of comparison with those addressed in education for sustainable development (ESD). The key features of ESD identified the tension between social, economic, and political prosperity of communities with ecological sustainability to form the basis of holistic environmental education (EE). This implied that contemporary EE should lead the way in developing pathways towards a just society for future generations while maintaining environmental integrity.

In the second part of the chapter, the factors that may positively or negatively impact on environmental awareness and the teaching and learning of EE were explored. As the context is a crucial point of departure for environmental awareness, some of the localized contributing influences on learners in South Africa were discussed. The widely recognised factors that may determine environmental awareness were reviewed. Finally, the role of the EE teacher was considered.

Thirdly, the chapter put the South African Natural Sciences curriculum under the microscope for its impact on developing awareness and concern about the holistic environment, and producing learners with the skills, knowledge, appropriate attitudes, motivation, and commitment to tackle world problems. A short historical overview of the introduction and integration of environmental justice as a principle across all learning areas was given.

Fourthly, this chapter outlined some of the advantages and recommendations of including sustainability content in the curriculum. Literature on EE showed that the inclusion of sustainability content is a central concept in improving the quality and relevance of education. However, it was revealed that there had been a shift in focus on the areas

prioritised by the Department of Basic Education, and this has caused misconceptions on the importance of prioritising EE implementation. To put these into context, attention was given to the tremendous difficulties faced by the Department of Education in KwaZulu-Natal specifically. Indeed, it was further shown that South Africa's post-apartheid curriculum reform has taken place in a very compressed timeframe. However, some of the lines of research included how South Africa's inclusion of environmental justice as a principle across learning areas advances fundamental curriculum needs.

The associated problems with the implementation and impact assessment of EE in our curriculum were also addressed. These were briefly dissected within the context of the 2018 Department of Basic Education NSC diagnostic report.

In the final part of the chapter, the interdisciplinarity of EE was presented as an instrument to advance key educational outcomes. The triadic approach proposed by Lucas (1972) and the related theoretical constructs put forward by Boca and Saraçli (2019) and Hashemzadeh (2016) highlight the contextual nature of effective EE. The conceptual model for this study builds on these foundations, with the indicators used by Boca and Saraçli (2019) providing insights into the factors that shape the learners' environmental views.

The next chapter will give an in-depth account of the research methodology used in this study.

Chapter 3: Research Methodology

Introduction

This chapter presents a detailed description of the research design to provide substantiation for the chosen research methodology, the sampling techniques utilized, and the instruments and techniques used to collect and/or generate data.

The methodology is described in nine stages. An overview of the first five quantitative stages provides clarity on the adaptation of the instrument, pilot study, administration of the questionnaire, the capturing and cleaning of data, and the analysis of the data. The next four stages outline the qualitative instrument design, pilot study, data collection, and the qualitative data analysis. Table 3.3 provides a comprehensive overview of the research methodology. The final parts of the chapter are focused on the validity, reliability and rigour of the study, as well as the importance of ethical considerations involved in the research project. The chapter will conclude with a summary.

The Study's Philosophical Stance

This study used a research design involving mixed methods, which took place in two stages. To understand a complex phenomenon like environmental views, it was vital that this dual method was adopted because it was most likely to provide rich, comprehensive data. Thus, to provide answers to the research questions posed in this study, data were collected at both quantitative and qualitative data collection stages. This was vital. A mixed-methods approach allows for exploring a subject through a quantitative research approach, followed by an exploration of participants' perspectives and experiences of the same subject through qualitative research approaches. It should be noted that the approach thereof has philosophical basis.

The researcher followed the pragmatic paradigm because of its suitability to answer the associated research questions. Paradigm debate had long shown that pragmatism is an acceptable way of mixing qualitative and quantitative methods in a research study that sought different types of data to answer the research questions (Tashakkori & Teddlie,

2009). Mertens (2015) added on the characteristics of this multifaceted approach. According to her, researchers may collect qualitative and quantitative data to answer the research questions. The process allows for sequential data collection. For Cohen et al. (2018), its base - pragmatism - assumed "a matter-of-fact approach to life, oriented to the solution of practical problems in the practical world. It prefers utility, practical consequences, outcomes and heurism over the pursuit of a single, particular kind of accuracy in representing 'reality'" (p. 36). For Shannon-Baker (2016), pragmatism mixes quantitative and qualitative approaches (to come up with a **mixed-method approach**) in its quest to identify practical solutions that, in the present study, are related to environmental education (EE).

Mixed-Methods Approach

The research approach adopted in this study was equally pragmatic, incorporating mixed method research (MMR). As this study aimed to explore learners' views concerning the environment, a complex concept in a broader sense, neither quantitative nor qualitative methods by themselves could sufficiently capture the full scope of them (learners' views). A mixed-method approach was essential as it could "provide more nuanced and authentic accounts of the complexities of phenomena under investigation...[and it] welcomes multiple methodological traditions, as these catch diversity and difference and are 'anchored in values of tolerance, acceptance, respect' and democracy" (Cohen et al., 2018, p. 33).

MMR is characterised by the combination of at least one qualitative and one quantitative research component (Schoonenboom & Johnson, 2017). This study followed both these methodological approaches. Multistrand data collection was effected across two stages. The implementation of the process (data collection) occurred sequentially, with the quantitative data taking priority over the qualitative type. The study aimed to utilize both sets of results, each gleaned from the findings of their respective strand of the study, followed by a deliberate attempt to integrate these inferences (Tashakkori & Teddlie, 2009). Tashakkori and Teddlie (2009) further suggest that while qualitative research questions tend to be exploratory and concerned with theory generation, quantitative types tend to be confirmatory, and are typically more concerned with theory verification. Using a mixed-methods approach enables the researcher to answer both types of questions. The qualitative data were used to enrich the data from the quantitative stage.

The multifaceted dynamic of MMR provides other benefits. Mertens (2015) and Salehi and Golafshani (2010) list five advantages of using a mixed-method approach. The first of

the benefits is the *complementarity* of findings. In this case, it can be used to "seek elaboration, illustration, enhancement, and clarification of the findings" from quantitative data (Stage 1) with results from Stage 2 (Mertens, 2015, p. 369). The intention will be to try and fill in any gaps and shortcomings had only a quantitative approach been followed. Data analysis of learners' responses in Stage 1 of the study was anticipated to elicit results from opposite ends of the scale, as well as some contradictions, which would purposefully be targeted to explore further during focus groups in Stage 2 of the study. This strategy of using data from multiple stages to inform the study is the primary purpose of *initiation*. Mertens (2015, p. 369) also points to *expansion*. Expansion adds depth and detail to a study by using different methods to examine phenomena to expand it (the study) for other possibilities and opportunities. This will be brought into practice when focus group interviews are conducted in Stage 2 of the study. Participants will be challenged to consider other possibilities to their views on the environment and Environmental Education (EE). As the results from Stage 1 will be used to inform Stage 2 (*development*), data analysis from Stage 2 of the study will thus potentially *enhanced significant findings* from Stage 1 of the study. Indeed, the plural approach of MMR independently could give different perspectives on the topic of EE.

Another advantage of using an MMR approach is that results from the two-stage can provide multiple points of view to improve the accuracy of a study (Neuman, 2014), eliminating "either/or" findings and corroborating findings (Tashakkori & Teddlie, 2009). For Denscombe (2014), MMR increases the accuracy of data and reliability of the study, the reduction of bias in the research, offering a "practical, problem-driven approach to research…[and enabling] compensation between strengths and weaknesses of research strategies" (p. 160). This counteracts the weaknesses each of the methods have by themselves and improves the validity of the study's results.

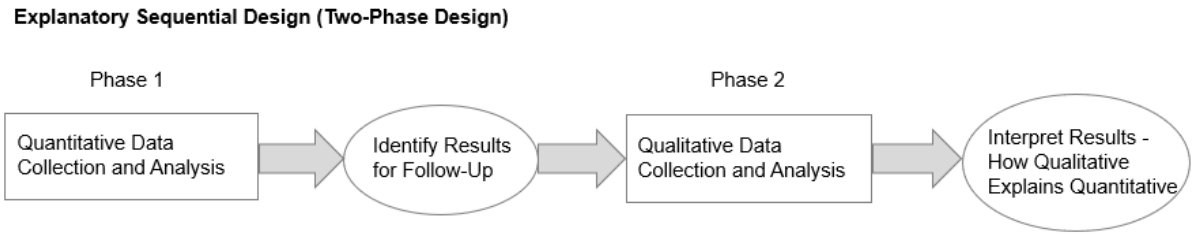
While MMR can lead to divergent and sometimes conflicting results from time-to-time, these should be embraced and consolidated with the existing conceptual frameworks and the underlying assumptions of each of the components (qualitative and quantitative) (Tashakkori & Teddlie, 2009). These divergent results reflect the different perspectives and narratives of the participants in a study. Thus, MMR allows researchers to gradually make sense of complex social phenomena through an investigative process. It further allows for reflexivity about the study's objectives and can lead to the development and evolution of further fields of study.

Sequential Mixed-Method Design

This study will be embedded in a sequential explanatory design. Thus, priority will be on collecting quantitative data (QUAN) (Cohen, et al., 2018, p. 39). The collection and analysis of qualitative data (Qual) (Cohen, et al., 2018, p. 39) will form the basis for explanations of the quantitative type (data), hence maximisation of the findings' trustworthiness of the approach used. Figure 3.1 provides an overview of the sequential explanatory design, as illustrated by Creswell and Creswell (2018).

Figure 3.1

The Stages of a Sequential Explanatory Mixed-Method Design

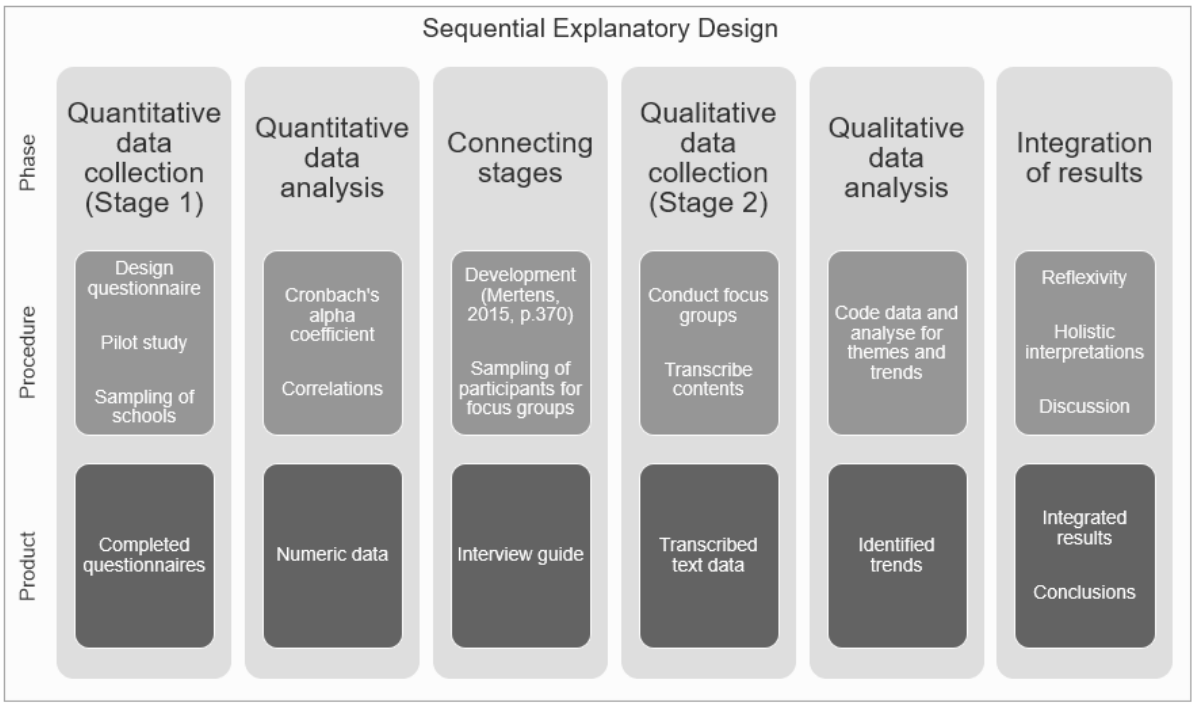


Note. Adapted rom *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches* (5th ed., 342), by J.W. Creswell and J.D. Creswell, 2018. Copyright 2018 SAGE Publications, Inc.

Figure 3.2 (author's own figure) provides a more detailed overview of the intended application of the sequential mixed method design that was employed (Figure 3.1). This involved various phases, including the quantitative and qualitative data collection stages. The former (quantitative) determined learners' views (perceptions, attitudes and behaviour) regarding the environment, and the latter explained any trends identified in the first stage. Also included was the integration of the results phase.

Figure 3.2

A Diagrammatic Depiction of the Study's Data Collection and Analysis Phases, Procedures, and Products



Research Methods

The previous sections gave an overview of the research paradigm, research approach, and the design of the study. This subsection accounts the research route that was followed. It provides a description of the sampling strategy, the stages of quantitative data collection (adapting the questionnaire, pilot testing, administering the questionnaire, capturing and cleaning the data, and data analysis), and the stages of qualitative data collection (design of the interview guide, pilot testing, data collection, and data analysis).

Sampling Strategy

Sequential mixed methods sampling was adopted for this study. This was essential as two different types of sampling methods were utilised for concurrent stages of the research. After all, "sampling is an area where MM (mixed-method) studies can employ both probability (primarily QUAN) and purposive (primarily QUAL) procedures…" (Tashakkori & Teddlie, 2009, p. 32).

As the first objective of this study was to explore Grade 9 learners' views concerning the environment, **probability sampling** was used for **quantitative data** collection. In multistage cluster sampling, instead of "sampling individual units, which might be geographically spread out, the researcher sampled groups that occur naturally in the population" (Tashakkori & Teddlie, 2009, p. 154) (i.e., Grade 9 Natural Sciences classes at different schools). The researcher selected Grade 9 learners because they were in their final year of the Senior Phase. The phase is the end of the compulsory General Education and Training, and the associated learners would have had the maximum benefit of learning about the environment during their compulsory school years.

The following process was followed to select the schools to participate in the study:

- A list of the schools in the accessible sample area was readily available through the KwaZulu-Natal Department of Education database. The 56 schools were ordered alphabetically, and every 6th school was included in the theoretical sample (11 schools). The strategy allowed for a 5% margin of error, and a 95% confidence level. The calculations are shown in Table 3.1.

Table 3.1

Determining the Sample Size for Quantitative Data Collection

Sample	Numbers
Population size (approximation)	15 000
Sample size *95% Confidence level, 5% Margin of error*	375
Average class size (approximation)	35
Number of classes in the sample *(Sample size/average class size)*	11

- The 11 schools were contacted during the period 23 March 2021 to 26 March 2021. Information concerning the study was sent through email, telephone, or in person (i.e., delivering information sheets and consent forms to the schools if no phone facility was available).
- Of the original 11 schools approached, two declined taking part in the study citing, a variety of COVID-19 related reasons (i.e., disrupted teaching and learning time, an added burden to teachers with an already increased workload etc.).
- An additional two schools were approached to supplement the sample. Some schools never responded, despite follow-up reminders sent. The researcher discovered that many schools did not have access to email facilities to return the consent form, so these could be sent through WhatsApp or would be collected by the researcher.
- Additional schools were approached during the period 24 May 2021 and 1 June 2021. In the end, 26 schools were approached, and nine finally agreed to participate in the study.
- Three schools agreed on the condition of total anonymity and requested that no information divulged would be able to identify them.
- Of the nine schools that had agreed to take part in the study a further three were not able to complete the questionnaire.
- 46% of schools in the sample area were approached to take part in the study, and six schools (11%) finally completed the questionnaire. Some schools were willing to complete the questionnaire with more than one class, so data were collected from 14 classes. This equated to 354 participants instead of the 365 required by the sample calculations (see Table 3.1).

Table 3.2 provides a descriptive summary of the schools participated in the study.

Table 3.2

A Summary of Schools that Participated in the Study

School	Location	Administration	Gender System	Quintile Rating	Socio-Economic Status of Location
1	Urban	Government	Gender segregated	5	Low SES
2	Urban	Government	Co-educational	5	Medium SES
3	Urban	Government	Co-educational	5	Low SES
4	Urban	Private	Gender segregated	Private	Medium SES
5	Urban	Government	Co-educational	5	Medium SES
6	Rural	Private	Co-educational	Private	High SES

It should be noted that for the second stage of data collection - the **Qualitative Stage** - the same sampling strategy was incidentally used (multistage cluster sampling) because the participants who completed the questionnaire also completed the open-ended questions that provided qualitative data. The questions thereof were included in the questionnaire as a contingency measure in case the researcher could not gain access to schools to conduct in-person focus group interviews. Nevertheless, to select participants for the **focus group interview**, the **convenience sampling strategy** was used. A small group of participants from schools that had taken part in the quantitative data collection stage were asked to volunteer to participate in a focus group discussion.

Note. For the focus group interviews, one most convenient school was approached. No further schools participated because data saturation point had been reached with many responses from the completed questionnaires.

The Quantitative Data: Stages

As referred to earlier, the research was conducted with Grade 9 classes taking Natural Sciences. Data were collected across a range of schools in the UMDM, concentrating on Msunduzi and Midlands. Both government and private schools were included in the study as, drawing from Edsand and Brioch (2020) and Shobeiri et al. (2007), the type of school attended might influence learners' environmental awareness. A questionnaire was administered to investigate and analyse the participants' views concerning

the environment. It should be noted that survey studies are used to provide scaled responses or opinions of a sample from a particular population (Creswell & Creswell, 2018), which could include correlations among the investigated variables (or factors) (Cohen et al., 2018).

Stage 1: Adapting the Questionnaire. A Likert scale type questionnaire, with a range of 1 (Totally Agree) to 5 (Totally Disagree), was adapted from a Boca and Saraçlı instrument (2019, pp. 9-11) to fit the purpose of this study. The section titles were retained verbatim, as used in the original instrument. The original authors were contacted to inform them of the intended study. The questionnaire (Appendix A) comprised 42 items divided into seven sections, with at least four per section. Each section assessed a single trait and entailed various items about the environment, categorised under the following factors:

- A: Importance of environment (A1 – A4)
- B: Concerns about environment (B1 – B7)
- C: Culture environment (C1 – C10)
- D: Participation in different activities regarding the environment (D1 – D7)
- E: Warning attitude regarding environment (E1 – E4)
- F: Volunteer activities, non-harmful actions (F1 – F4)
- G: Reuse 3R's (G1 – G6)

These factors give insight into the constructs of learners' perceptions, attitudes, and behaviour concerning the environment (see Chapter 2, pp. 26-28). Some adaptations were made to the original instrument (see Appendix B for comparison). Section A (Personal information and characteristics) of Boca and Saraçlı's (2019) instrument was removed to ensure complete anonymity of the participants. Care was taken to use language younger respondents would be familiar with. All negatively phrased items were reversed to only have positive statements in the questionnaire to avoid confusion and indecision, especially for learners who are not English first language speakers. Most importantly, some of the items were adapted and contexualised to a younger South African learner. For example:

- *the use of technology devices* and *fashion items* replaced *economic concerns* and *business life decisions*.
- At times an example was given to help participants understand a concept, that is, item B7 "*urban growth (cities)*".
- Some questions were removed (if they were irrelevant to a young South African learner's context) or rephrased to make the items as clear as possible to avoid errors (e.g., '*I use both sides of papers when I am writing or studying*' instead of '*I will use the back of papers when I am studying'*).

- Some items were added to increase the scope to apply to a younger South African learner's context: '*I buy sustainably even if it means I can't have the latest fashion clothes, shoes, or technology device*'.
- The validity and reliability of these items were tested with the same tests done by the original authors. Slight adaptations were made to suit the South African context (e.g., referring to *rhino poaching*, the common practice of *re-using containers*, and the "*Proudly South African" campaign*), and to align them to content in the Natural Science curriculum.

Items in the questionnaire were based on the background content of the topic **Interactions and interdependence within the environment** (DBE, 2011), which entails an introduction to ecology, ecosystems, feeding relationships, energy flow in food chains and food webs, balance in ecosystems, species adaptations and conservation of ecosystems. Learners encountered this topic in Grade 8, so it should provide them with a context and content framework they were familiar with.

Likert scales allow researchers to record observations about complex phenomena (like environmental views) by breaking down and grouping together themed items related to the specific subject matter (in this case perceptions, attitudes, and behaviour concerning the environment). This method also allows researchers to conduct statistical testing of the data by calculating attitudinal scores (Kumar, 2011). Likert scale instruments commonly use either a 5-point or a 7-point scale. Psychometric literature suggest that using a 7-point system might increase the sensitivity of the scale and provide more accurate results (Joshi et al., 2015; Taherdoost, 2019). However, research results also show that there are no statistically significant differences in terms of reliability (Altuna & Müge Arslan, 2016). For this reason, the 5-point scale, as used by Boca and Saraçli (2019) was retained, as extra items in a 7-point scale (i.e., 'somewhat agree' or 'more or less agree') could be vague and interpreted differently by respondents, especially those learners who are English second-language speakers. All schools were given an option to use a version of the instrument that was translated into either the school's language of instruction or the majority home language of the learners (where the home language was not English). They (schools) declined the offer.

An electronic version of the instrument was made available to schools that opted for this option. It was a replica of the original instrument but allowed learners to complete it remotely using an accessible electronic device (e.g., mobile phone).

The questionnaire included four open-ended questions where learners could provide further details on their views concerning the environment, and the factors that shaped them (their views). This contingency measure was put in place to ensure that qualitative data were collected, even if schools would not allow in-person focus group interviews to be conducted.

Stage 2: Pilot Testing. Once the instrument was finalised, a pilot study was conducted with two classes from one school that formed part of the sample. The pilot sample represented 8% of the final total sample. Mertens (2015) suggests that in "many studies, pilot testing of the instrument and procedures is necessary" (p. 544). The group of participants was informed of the purpose of the study and the process of completing the questionnaire. While completing the questionnaire, they were encouraged to point out any words, phrases or items they found difficult to understand. At the end of the session, participants were asked to provide feedback on the instrument format, instructions and procedures. Moreover, they were requested to point out any aspect that was complicated to understand or complete. According to Tashakkori and Teddlie (2009) researchers are expected to test drive the procedures to identify possible problems in the data collection protocols, and set the stage for the actual study (p. 178). The researcher used this experimental trial to determine whether respondents could easily follow the instructions supplied in the instrument, understood all the questions, cope with the procedures to complete an attitudinal instrument, and track the adequacy of time provided to complete the questionnaire.

After piloting the questionnaire, it was established that the learners who took part in the pilot study were able to understand the purpose of the study, the procedures to follow, the questions, and were happy to consent to take part in the study. However, logistical problems were encountered with the questionnaire, information sheet, and a permission letter (it was made up of too many pages). As the result, learners lost track of which document was being referred to and required one to act. It was evident that a format change was needed (e.g., condensing the documents into one page) to maximise the workability of the instrument. The subsequent change to the format proved useful as it increased the environmental friendliness of the study, and reduced printing costs.

Most respondents completed the questionnaire in a shorter time than anticipated (15-25 minutes), but the suggested duration (25-30 minutes) was not changed. That allowed individuals who needed assistance or more time to complete the study to do so without pressure. Furthermore, the researcher could comfortably introduce the study to participants at the start, and give a comprehensive overview of the procedure to complete the

questionnaire, afford respondents time for questions, and debrief at the end of the session, if that was necessary.

The piloted instrument was then ready to be administered to the remainder of the sample for quantitative data collection.

Stage 3: Administering the Questionnaire. Once the pilot study was completed, the schools in the sample were contacted to obtain parental consent for minors to take part in the study, and to confirm suitable dates and times for the administration of the questionnaire. A hard copy of the parental permission form, as well as an electronic version through the JotForm electronic platform (link [click]), was provided to schools. The researcher liaised with the contact person assigned by the school. In October 2021 the questionnaires were administered over a three-week period. Of the six schools, 17% opted to complete the electronic version of the questionnaire through a Google Forms platform (link [click]), 33% of schools requested hard copies to complete with their learners themselves, and 50% of schools allowed the researcher to administer the questionnaire in their schools.

Data were collected with entire Grade 9 classes in a single venue. The researcher was introduced, and a summary of the study was supplied (also provided in writing in the document). Participants in the study were reminded that completion of the questionnaire was voluntary, and they were ensured of the anonymity of their responses. Participants were asked to complete the participant consent section if they were happy to participate in the study. All but six participants in the sample agreed to take part in the study (they did however all complete the questionnaire, but did not complete the consent part).

The process was explained to all participants, and they were given a thorough review of the process of completing a Likert scale questionnaire. Special emphasis was placed on ensuring participants understood the response keys for the various columns, as well as the purpose of the 'Uncertain' option if they did not understand the question. Respondents were taken through the layout of the instrument, pointing out the two different types of responses required. The wording of the qualitative items (2a, 2b, 2c, and 3) was explained. Participants in the sample were given the opportunity to ask any questions they might have and were again given the option to decline to participate in the study. The learners who were prepared to participate in the study were then given time to complete the instrument. If they had questions during the completion of the instrument, the researcher/administrator was available to clarify the queries. Participants submitted their documents at the end of the session. The researcher thanked all participants and gave them a small gift as a token of appreciation for

their participation. All participants were allowed to debrief. The instruments were gathered in a sealed envelope for data collection.

Stage 4: Capturing and Cleaning of the Quantitative Data. Each questionnaire was given a unique identifier code, which was recorded in an Excel365 spreadsheet for anonymous treatment of the data. The code was linked to information related to the school, class, and collection date to track the questionnaires should queries arise. The questionnaires were meticulously examined to withdraw from the sample any that were suspicious or invalid. The criteria for this included instances:

- Where respondents did not consent to participate in the study (six participants completed the questionnaire but did not complete the permission letter).
- Where the questionnaire was not completed (two participants).
- Where a participant selected the same response for each item (three participants).
- Where the participant responded to items in a pattern (i.e., 1, 2, 3, 4, 5, u, 5, 4, 3, 2, 1) without reading the questions (two participants).

The remaining data were captured by item in a Microsoft365 Excel spreadsheet by the researcher with six years of data capturing experience. Most responses were read out by helpers. They also checked the capturing of the data as it progressed. Each page was checked for accuracy of data capturing after it had been entered. As mistakes with the manual capture of data is a real possibility, a random specimen of 40 questionnaires (12%) were selected to confirm the accuracy of the data capturing process. No errors were encountered.

The five response categories were converted to numerical values. **The scale points for questionnaire items were recoded to let the lowest score be the most 'negative', as shown in Table 3.3.**

Table 3.3

Response Categories, Response Scores, and Recoded Response Scores for use in Statistical Data Analysis

Response	Response score	Recoded score
Strongly Disagree	5	1
Disagree	4	2
Neutral	3	3
Agree	2	4
Strongly Agree	1	5

Validation of the quantitative data was done by checking for and tagging any apparent irregularities. Spoilt questionnaires were removed. Items where "uncertain" was selected and all "no responses" were eliminated from the data set to ensure the data was in an accessible form for analysis.

The data were then transferred to an SPSS file for analysis.

Stage 5: Analysis of the Quantitative Data. Data obtained from a Likert-type questionnaire represent ordinal responses: Response categories are ranked by a scale and have a set order, however, the distances between the categories are not established. Likert data are thus commonly treated as ordinal. However, there can be exceptions when a Likert scale is created by combining a series of items to measure a particular trait (Boone & Boone, 2012). Likert scales are totals of answers to multiple interrelated (Likert) items where the interrelatedness and reliability of them (scales) have been checked (by establishing Cronbach's Alpha Coefficient [α] in this study), and where there is an adequate sample size (Sullivan & Artino, 2013). Studies have shown that parametric tests (e.g., correlation analysis) can be used to analyse Likert scale responses (Murray, 2013; Norman, 2010), if this is intentional and forms part of the study's methodology (Sullivan & Artino, 2013). Sullivan and Artino (2013) recommend creating Likert scales when less concrete concepts are measured and single survey items are unlikely to fully capture the concept being studied. The above recommendations were followed for data analysis in this study, and the data set

was treated as interval data. To describe the data, means, and frequency distribution of responses will be used.

Seven Likert scales were created when the 42 Likert items were combined into categories that measured the same trait. Each respondents' answers to each item were summed to create a single score by item. The series of items that represent similar questions, measuring the same trait were combined into a single composite score. As Likert scale data can be analysed as interval data, the mean was calculated as the best measure of central tendency.

As referred to elsewhere, the questionnaire was adapted from the one designed by Boca and Saraçlı (2019). Thus, a similar data analysis strategy and statistical technique were used. Their study applied Explanatory Factor Analysis (EFA) to determine the respondents' environmental perception and how their attitude toward environmental education influenced their behaviour. Lisrel software was used to establish connections and correlations between variables and compile a structural equation model. A variation to their study was that the present (study) answered research questions instead of accepting or rejecting hypotheses. Thus, it did not use the *t*-test for hypothesis testing nor computing explanatory factor analysis (EFA). Factor analysis and correlation coefficients are similar enough in indicating connections within datasets. Therefore, one of the two tests can be used.

It should be noted that the present study aimed to integrate the quantitative and qualitative data to better understanding of learners' views concerning the environment, rather than doing an in-depth statistical correlation study investigating all the contributing factors. Thus, the suitable statistical test was calculating correlations between the factors contributing to the learners' views, hence a bivariate correlation test like the Pearson's correlation coefficient (*r)* will suffice to show these correlations.

The Qualitative Data: Stages

Participants in the study completed the qualitative questions that formed part of the instrument. Furthermore, after quantitative data analysis, some learners were invited to participate in a focus group discussion. Gibbs (2012) states that group interviews are a way to gather many opinions from individuals within a group setting. Thus, focus groups can be

defined as interactive discussions with a selected group of individuals to gain their views about the research topic,

Stage 6: Design of the Interview Guide. A qualitative tool - an "interview guide" (Gibbs, 2012, p.188) (Appendix C) of five to seven open-ended questions (as suggested by Mertens [2015]) - was designed for the present study. This was finalized after the pilot study and analysis of data from Stage 1 of the research were completed, and themes and topics for clarification had been identified. Questions for the semi-structured focus group discussion interview guide were designed to enable the researcher to better interpret information from stage 1 (i.e., explain the quantitative data using the qualitative type), hence answer the research question 2. It should also be noted that four open-ended questions were included in the questionnaire.

Stage 7: Pilot Testing. A pilot study was undertaken with a small representative group from the sample (Stage 1) to refine the interview guide questions, understand how the focus groups might evolve, check recorder equipment, rehearse interview skills, and determine the amount of time needed for meetings. The questions from the interview schedule were posed to the group to validate that everyone understood the meaning of the questions. The conversation was allowed to develop and learners were encouraged to air their views so the researcher could understand how the discussion in the focus group might unfold. Small changes were made to these guideline questions to ensure that all learners could understand the meaning of all concepts and that the questions directly related to the research questions. The researcher also knew how much time to request from participating schools to conduct the focus group interview in. The interview schedule was now ready to be used with a small group of learners (Kumar, 2011) from the selected schools for a focus group discussion.

Stage 8: Qualitative Data Collection. Tashakkori and Teddlie (2009) recommended conducting focus groups until a saturation point is reached. Mertens (2015) suggested using semi-structured questions that would enable the researcher to cover all the important topics and allow an organic conversation to flow. The questions should also allow for discussion of concerns, ideas, and views caused by interaction among group participants (learners taking part in the focus group discussion) - one of the major benefits of focus groups. A facilitator usually controls the interview to ensure that all participants express themselves, more articulate participants do not dominate the discussion, encourage the more introverted participants to speak, and ensure that all important topics re discussed. These were adhered to in order to secure rich data that might explain findings from the quantitative stage. The

focus group interview was conducted in November 2021 at a school near the researcher's home. Learners were engaged in a discussion centred around the questions in the focus group interview guide (Appendix C). This interview revealed that the saturation point for qualitative data had been reached, as no new information came to light. This was probably due to the large amount of qualitative data collected when participants completed the questionnaire in the first stage of the study.

Stage 9: Analysis of Qualitative Data. The data from the qualitative questions in the questionnaire (Questions 2a-c and Question 3) and that from the focus group interview were combined to represent the overall (qualitative data) for this study. Post-interview keynotes were kept for contextualising data from the focus group discussion. The audio recording from the interview was transcribed and made available to participants for member checking and respondent concordance (Kumar, 2011) to ensure verification and credibility. This allowed participants to feel in control of how they presented their views and ideas.

The responses to the qualitative questions in the questionnaire were typed out to create a softcopy version to be used in the applicable software. The responses from the qualitative questions in the questionnaire and the transcripts from the focus group interview were read several times to gain a thorough understanding of the overall content. The researcher then identified central themes in the data. The themes were elicited from the data by highlighting related content, enumerating the related content under the same codes, and creating categories of the main themes and sub-themes. These categories would become the nodes (as used in NVivo12) for coding during qualitative data analyses.

Data analysis was completed using NVivo12, a CAQDAS (Computer-assisted qualitative data analysis software), which organises, analyses and reveals common themes within qualitative data. Bazeley (2013) suggests that this software allows for quick and reliable sorting, matching, and linking of data. Primary themes were combined to form the basis of the discussion. Cohen et al. (2018) recommend identification of relevant and illuminative quotes and narratives (these are incorporated in Chapter 4's discussions). The quotes were mostly used verbatim, although some were adjusted only to increase their readability without compromising the original meaning (low inference).

Five themes were identified, with 32 sub-themes varying between five to 13 of them (sub-themes) in each theme. Where the theme was very complex, and it was useful to break the sub-themes down even further, this was done by creating sub-nodes within the node classification in NVivo (coding-on). The data were organized by the five primary themes and

sub-themes, analysed, and presented under the research questions, as suggested by Cohen et al. (2018) (see Table 3.4).

Table 3.4

The Themes according to the Research Questions they addressed

Theme	Research Question
Learners' views concerning the environment	RQ1
Factors that shaped learners' views concerning the environment	RQ2
Learners' perceptions concerning the environment	RQ3
Learners' attitudes towards environmental education	RQ3
Learners' perceived behaviour towards the environment	RQ3

Table 3.5 provides a summary of the research questions, data collection and generation strategies used, the justification for their use in this study, and the data they collected.

Table 3.5

A Summary of Research Questions, the Associated Data Collection and Generation Strategies, Justification for their use, and the Data to be Collected

Research questions	Data collection/generation strategy/method	Justification for use	Data to be collected
What views (perceptions, attitudes, behaviour) concerning the environment exist among Grade 9 learners? What statistical correlation might exist between the learners' perception of the environment, attitude towards the environment and their perceived behaviour towards the environment?	Questionnaire (*n = 354) (Adapted from Boca & Saraçli, 2019)*	Use of attitudinal scales to "explore, measure, determine the intensity and combine attitudes to different aspects of an issue to arrive at one indicator that is reflective of the overall attitude" (Kumar, 2011, p. 157).	Numeric data on learners' views concerning the environment.

Research questions	Data collection/generation strategy/method	Justification for use	Data to be collected
▪ What views (perceptions, attitudes, behaviour) concerning the environment exist among Grade 9 learners? ▪ What factors shaped the learners' views concerning the environment?	Questionnaire (open-ended questions section) *(n=354)* and focus group interviews (*n = 6).*	There is the potential for free-text responses to enhance quantitative findings (LaDonna et al., 2018) "**Focus groups** are a form of strategy in qualitative research in which *attitudes*, opinions or *perceptions* towards an issue, product, service or program are explored through a free and open discussion between members of a group and the researcher" (Kumar, 2011, p. 124; emphases added).	Qualitative supplementary and complementary data elicited from learners' views concerning the environment, and the associated contextual factors that shaped such views.

Validity, Reliability and Trustworthiness of the Approach used

To investigate the construct of learners' views concerning the environment the contributing factors (perceptions, attitudes, behaviour) were operationalized using a Likert scale. As referred elsewhere, the items for the questionnaire had been adapted from an instrument used by Boca and Saraçli (2019) for a South African context. It included 'uncertain' in the scale to avoid the participants' acquiesce in decisions related to questions they might not fully understand.

Drost (2011) recommends determining the reliability coefficient of a questionnaire to determine the level of internal consistency. The coefficient measures the inter-relatedness of the questions to ensure that they all measure the same characteristics, constructs, concepts, or behaviours. Boca and Saraçli used Cronbach's Alpha Coefficient (α) for reliability analysis (also called Tau-equivalent reliability) to measure the reliability of the scales used in the study. The Cronbach's Alpha Coefficient (α) was found to be .863 in the general validity and reliability analysis of the scales (which is above the .7 threshold to be considered reliable). After reliability analysis, they applied exploratory factor analysis (EFA) and removed items with factor loadings lower than .45. The rigorous checks ensured that their instrument was fit for use in Environmental Education (EE) studies.

In this study, it was important that Cronbach's Alpha Coefficient (α) was again calculated for each factor to ensure the validity of the instrument was not compromised. After all, the adaptations were made to the instrument for use in the current study. Table 3.6 shows the internal consistency reliability guidelines for brackets of Cronbach's Alpha Coefficient (α) scores.

Table 3.6

Guideline Brackets for Cronbach's Alpha Coefficient (α)

Cronbach's Alpha Coefficient (*α*)	
>.90	Very highly reliable
.80 – .90	Highly reliable
.70 – .79	Reliable
.60 – .69	Marginally/minimally reliable
<.60	Unacceptably low reliability

Note: Sourced from Cohen et al. (2018, p.774)

Table 3.7 shows the present study's Cronbach's Alpha Coefficient (α) for the items in each scale. Also included is the description of the coefficient alpha value to indicate its validity for use (Cf. Table 3.6).

Table 3.7

Cronbach's Alpha Coefficient (α) by Scale

Scale	Scale Code	Number of Items	α	Description
Importance of environment	IE	4	.635	Marginally/minimally reliable
Concerns about environment	CE	7	.842	Highly reliable
Culture environment	CUE	10	.773	Reliable
Participation in different activities regarding the environment	P	7	.759	Reliable
Warning attitude regarding environment	W	4	.728	Reliable
Volunteer activities, non-harmful actions	V	4	.740	Reliable
Reuse 3R's	R	4	.713	Reliable

The first scale (Importance of environment) has the lowest Cronbach's Alpha Coefficient (α) . At **.635**, it has reliability considered 'Marginally/minimally reliable', which is not ideal. One way of increasing the reliability of the scale is to remove items that lower the internal reliability of the scale. However, removing any of the items only lowers Cronbach's Alpha Coefficient (α) (see Table 3.8), and the scale will then contain fewer than the four items required for a valid scale. Therefore, the researcher retained the original four items with a marginally reliable scale rating.

Table 3.8

Cronbach's Alpha Coefficient (α) when Removing Selected Items from Scale IE (Importance of Environment)

Item	*α* if Item Deleted
I believe environmental issues like global warming are very serious	.551
I believe human behaviour is causing environmental problems	.588
I think that environmental pollution will make the world an uninhabitable place	.516
I believe that the extinction of animals and plants will destroy the world	.618

A further adjustment to improve the internal validity and reliability of the scale was to remove item G6 from the 'Reuse 3R's' scale. Table 3.9 shows the adjustment increased as the Cronbach's Alpha Coefficient (α) , .677, to an acceptable .713.

Table 3.9

Changes in Cronbach's Alpha Coefficient (α) when Removing Item G6

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.677	.701	6

Note: Item G6 included. Sourced from SPSS

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.713	.718	5

Note: Item G6 removed. Sourced from SPSS

The rest of the scales had a Cronbach's Alpha Coefficient (α) higher than the desired .7 threshold. Thus, the items in these scales remained unchanged (was fit for use).

It should be noted that the pilot study was conducted to contextualize the Boca and Saraçli (2019) instrument, increase its face validity, and test the procedures. It was also conducted to assess the interview schedule used in the qualitative data generation stage for credibility and trustworthiness of the approach used, as in qualitative research it can be

challenging to ensure standardisation of research tools and the related processes (Kumar, 2011). For the qualitative stage, the focus of reliability was on whether new information is compatible with current findings (is the data dependable and transferable). As the sequential explanatory design allows for qualitative data to be collected after analysis of quantitative data, it increased the convergent validity and reliability of the study through triangulation of data from the two stages. It should be noted that triangulation formed the basis for credibility of the results, confrirmability of data and dependability of the study – all of which are important in the trustworthiness of the approach used (Cohen et al., 2018) The more data from the two stages overlap, the higher the correlation and corroboration. Furthermore, the study was embedded in a sequential explanatory design where the collection and analysis of qualitative data (qual) formed the basis for explanations of the quantitative type (data), maximising the findings' credibility and trustworthiness of the approach used.

A current restriction that impacted the study was the COVID-19 crisis and government recommendations for social distancing under the current state of disaster, which advised that best practice was for the research not to be conducted in person at schools. Thus, some schools opted for an electronic version of the questionnaires. One positive result was that an electronic instrument minimised the subject effect and improved the reliability and confirmability, as results should be the same regardless of when the test is administered or who is administering it (Denscombe, 2014) .

Ethical Issues

Before the commencement of the study, it was vital that ethical issues were adhered to. This ensured that no physical, psychological, or social harm came to the participants as a result of taking part in the study (principle of primum non-nocere [Smith, 2005]). To safeguard schools, school administrators, teachers, and learners against any potential harm that may come from participating in the study, the following steps were put in place:

- The researcher contacted the KwaZulu-Natal Department of Education to obtain permission to conduct research in the public schools in the sample – Reference Number 2/4/8/1803 (Appendices D and E).
- Ethical clearance for this study was obtained from the University of KwaZulu-Natal Ethics Board – Reference Number HSSREC/00003153/2021 (Appendix F)

- The researcher contacted the participating schools to inform them of the intended research. Furthermore, she provided them with an information sheet on the study, a draft copy of the instruments to be used, and a gatekeeper permission letter (Appendix G).
- Gatekeepers at the schools were requested to provide consent for the study to take place in their schools.
- Parents/guardians of the participants were approached with an information sheet concerning the study. This was to secure parental/guardian permission letters to allow the participants to take part in the study (Appendix H).
- The participants were supplied with an information sheet, letters of invitation, and participant permission letters (Appendix I) (Gibbs, 2012, p. 188). Learners were allowed to decline to be part of the study.

Permission letters contained information regarding the aim of the study and its procedures, the non-disclosure of the participants, their schools, and the material audio-recorded during interviews for any purpose other than the research study.

For focus groups, Sherriff et al. (2014) suggest that the researcher make participants as comfortable as possible by making explicit what it (focus group) will involve through an informed consent form and verbally at the start of the interview. The researcher is also expected to seek permission to audio record responses, follow all the appropriate consent procedures for minors taking part in research, select a comfortable setting that participants are familiar with, and facilitate the discussion in a democratic way to guard against group conflict. Participants were reassured that they did not have to answer questions that they felt uncomfortable with and that all responses will be anonymous. Pseudonyms were used for the names of schools, participants or any reference to teachers or school management members to retain their anonymity (Cohen et al., 2018). The participants were offered the chance to withdraw from the study at any stage during the interview and debrief at the end of it (the interview) (Gibbs, 2012), if this was desired or necessary. If any participants felt that they were harmed during the study, they were offered professional counselling support. Participants were presented with a copy of the transcribed data for verify its contents.

Hard copies of questionnaires and audio transcripts will be stored in a safe and locked cabinet in a secure location. Electronic data and audio recordings of interviews will be kept in a secure password-protected location, and only the researcher and supervisor will have access to the data. Devices, documents, and wi-fi connections are password protected. All raw data will be analysed without reference to the schools or individuals involved. The content will be destroyed, and devices formatted after five years.

Chapter Summary

This chapter explained the research methodology and methods adopted for the study. This study took place in two sequential data collection phases – the primary quantitative phase, followed by a qualitative phase. This mixed-method approach allowed for the integration of quantitative data with qualitative data to answer the study's research questions, hence maximizing the findings' accuracy, credibility and trustworthiness.

For the quantitative phase, a Likert scale instrument was adapted from Boca and Saraçli's (2019) to determine learners' views concerning the environment. The associated items were arranged according to seven factors to provide insight into learners' perceptions, attitudes, and perceived environmental behaviour (environmental views).

A pilot study was undertaken to customise the questionnaire before collecting data from 354 Grade 9 learners in six schools. Probability sampling (multistage cluster sampling) was used by selecting Grade 9 classes taking Natural Sciences as a learning area (from an alphabetic list of the schools in the chosen sample area). Data collection was followed by data cleansing and analysis. Detailed description of the methods and tools used was provided. These results can be found in Chapter 4.

The qualitative instrument was designed to enrich findings from the quantitative phase. The focus group interview guide was refined after a pilot study. Participants for the interviews were selected through convenience sampling. The collected data were transcribed and analysed, and purposefully integrated with the quantitative data.

The chapter was concluded with a focus on the issues related to the validity, reliability and rigour of the study, and the importance of ethical considerations involved in the research project.

The results and analyses of the study's research follow in the next chapter (Chapter 4).

Chapter 4: Results

Introduction

This chapter presents analyses of data on Grade 9 learners' views (i.e., perceptions, attitudes and behaviour) concerning the environment. As referred to elsewhere, it was important that factors that shaped the learners' views concerning the environment were also investigated. The chapter will thus be presented in three main sections.

First, as this study sought to establish the relationship between the key constructs that constituted the learners' views concerning the environment, an explanation of the strategy used for the integration of quantitative and qualitative data is provided. Second, the focus (of the second section) will be on the quantitative data to give an overall description of learners' environmental views. The relationship between the constructs that make up learners' views will also be established and reported. Evidence from the questionnaire that was used to collect quantitative data from 354 learners in six schools will be used. Third, to establish the learners' deeper understanding of the environment, the analysis of the qualitative data will be provided. This will outline patterns within the data by identifying, exploring, and reporting common themes from the focus group interviews and the open-ended questions in the questionnaire.

Strategy for the Integration of the Quantitative and Qualitative Data

Cohen et al. (2018) argue that the boundary between description (quantitative data) and explanation (qualitative data) is not clear-cut. Thus, they posit that a greater level of integration and contextualisation can be achieved by mixing data analysis methods. They further recommend that researchers should consider possible explanations presented by the empirical data before establishing valuable links in the normative data. In other words, before researching the full extent of themes, patterns or narratives evident in the qualitative data, it would be premature to comment on any significant findings in the quantitative data. The purpose of the qualitative data is therefore to provide emerging context for considering the relative importance of factors causing a particular outcome in the quantitative data. For

this study, qualitative data will be used to not only explain the quantitative findings but to also evaluate their validity.

If data is not integrated adequately, it limits the benefits of mixed-method approaches to their field of study (Tashakkori & Teddlie, 2009). Without integration of data, the value of the approach is therefore diminished to merely a quantitative or qualitative study done independently. The consolidation of the two sets of data provides the real advantages.

The embedding of quantitative statistics in qualitative narrative usually provides multiple linking points for data analysis (Fetters et al., 2013). The fit of integration then describes the extent to which the qualitative and quantitative findings cohere.

As referred to elsewhere, the present study adopted explanatory sequential design. The design allowed for the qualitative phase to build on the results from the quantitative phase. The synergy created by this design allowed for the collection of rich, inclusive data. There were two advantages to this methodology, as highlighted by Wisdom and Creswell (2013). First, of particular importance to the current study was that contradictions between quantitative and qualitative data could be explored. Second, the study's participants could be given a voice to ensure that the findings from the study were grounded in their experiences. They further suggest that this approach can strengthen the rigour and enrich the study's findings and facilitate deeper, more meaningful learning (in this case in the field of EE). The final consideration is that the results can be embedded within the theoretical model of the research, in this case the triadic approach as introduced by Lucas (1972). This ensures that empirical findings can be related to theories to understand multiple perspectives on a single issue. This will be addressed in Chapter five.

Following the recommendations by Fetters et al. (2013) for integration at the interpretation and reporting level, the *contiguous* approach to quantitative and qualitative data integration will be used. This involves the presentation of findings within a single chapter, but the qualitative and quantitative findings are reported in different sections. The following fits of integration will be intentionally identified:

- **Confirmation** in which the two data sources provide similar conclusions.
- **Expansion** where the findings from the two sources of data diverge and expand insights of the phenomenon.
- **Discordance** if the qualitative and quantitative findings are inconsistent, incongruous, contradict, conflict, or disagree with each other.

These will largely be commented on during the discussion of findings framed from the qualitative data.

Findings from the Quantitative Data

A combination of Excel365 and SPSS was used for data analysis. It should be noted that the strategy depended on what was most suitable for the current data. Where both products could run the same processes, the researcher intentionally corroborated the accuracy of the data analysis. The statistical tests done include descriptive and inferential analyses. All the results are presented in both pictorial (e.g., tables, figures, and graphs) and textual (i.e., an explanation of the relevant information contained therein) forms.

Table 4.1 presents the data for the number of questionnaires completed during quantitative data collection, the number of spoilt questionnaires, and the final number of questionnaires utilised for data analysis.

Table 4.1

The Number of Questionnaires Completed, Removed, and Used for Data Analysis

Description	Number
Total number of questionnaires completed	354
Questionnaires that could not be used - 4%	
Consent not given	6
Questionnaire not completed	2
Suspicious activity (same item selected, pattern responses, etc.)	5
Number of questionnaires used for QUAN data analysis	341

Forty-two items in the questionnaire were divided across seven sections (with at least four items per section [see Appendix A]). Each section represented a scale that assessed a single factor investigated for its contribution to the learners' views concerning the environment. As outlined in Chapter 2, these factors will be considered together to give insight into the constructs that constitute the learners' views, that is, their perceptions,

attitudes, and behaviour concerning the environment. Composite scores were calculated by adding answers to four or more items together to indicate the abovementioned factors influencing the learners' views. This was thus treated as an overall Likert scale, and the scale of data was considered as the interval type. The numerical scores from each item in the questionnaire were added together to find the mean per item (see Table 4.2 and Figure 4.1). These will be used for statistical testing of data and model correlations. It should be noted that probability sampling methods were used for data collection. Thus, these statistical tests could be performed.

As mentioned in the previous chapter, **the Likert scale responses were recorded to allow the lowest scores to be the most 'negative'.** The items that represented each factor were then added together to find means (see Table 4.2):

Table 4.2

Means for each Combined Factor

Factor	Items	Mean
Importance of environment	A1 – A4	4.2454
Concerns about environment	B1 – B7	4.1830
Culture environment	C1 – C10	3.8134
Participation in different activities regarding the environment	D1 – D7	3.5734
Warning attitude regarding environment	E1 – E4	3.7911
Volunteer activities, non-harmful actions	F1 – F4	3.5157
Reuse 3R's	G1 – G6	3.5847

Note. A given factor (e.g., Importance of environment) is comprised of several items (i.e., A1-A4).

Next, the factors (see Table 4.2, Appendix A) representing each attribute of the learners' views concerning the environment were added together to obtain means (Table 4.3).

Table 4.3

The Means for each Attribute

Attribute	Categories included	Mean
Environmental Perceptions	A, B	4.16
Environmental Attitudes	C, D, E, F	3.76
Environmental Behaviour	G	3.61

Note. A given attribute (e.g., Environmental perceptions) is comprised of several categories (i.e., A and B).

The data were now in a form to allow for descriptive and inferential data analysis.

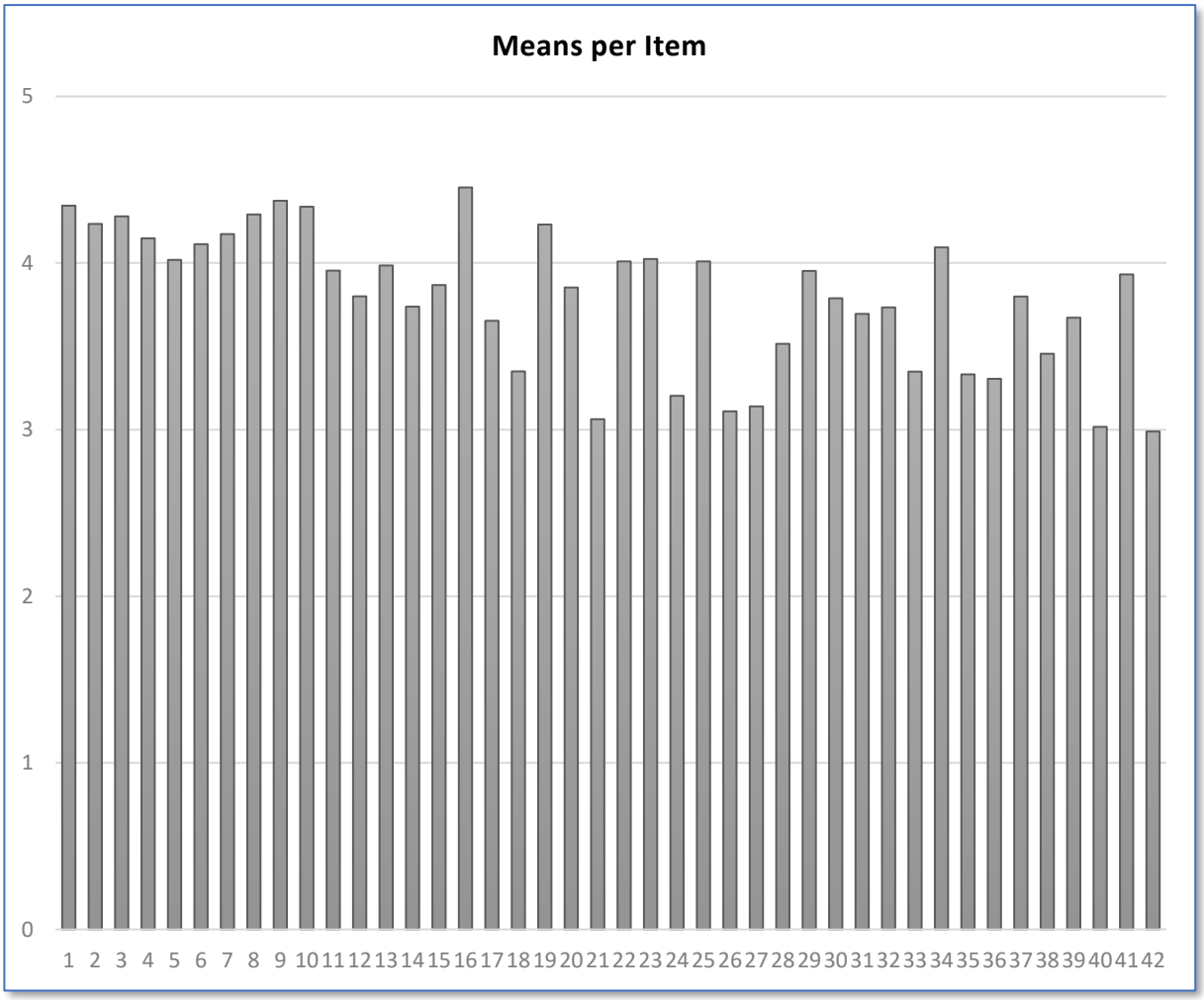
Descriptive Statistics Analysis

Descriptive statistics were used to present the collected data in a simple numerical summary. Questions that measure a single trait were combined as factors for analysis (as described above). The responses to the individual items were first recoded (as shown in Table 3.3) and then summed to get an overall score for each participant before the mean per item was calculated (see Figure 4.1). It should be noted that the higher the mean, the stronger the learners agreed with positive environmental statements related to their environmental views (perceptions, attitudes, and behaviour).

The results reported in Table 4.3 for the learners' views (concerning the environment) show that their perception about the environment was more positive (M = 4.16) compared to their attitudes (M = 3.76) and behaviour (M = 3.61) towards it. The results are further corroborated in Figure 4.1. The learners had higher discernment about the environment. The results suggest that, in general, the learners felt strongly about the environment. However, interestingly they (learners) felt less strongly about the associated practical aspects (i.e., those about attitudes and behaviour) that should naturally go with the claimed importance and concern about it.

Figure 4.1

A Bar Chart Showing the Average Mean per Item in the Questionnaire



The means, standard deviations, modes, and medians per item are presented in Table 4.4.

Table 4.4

Means, Standard Deviations, Modes, and Medians per Item in the Questionnaire

Item	Mean per item	Standard Deviation	Mode	Median
A1	4.3443	0.9175	5	5
A2	4.2347	1.0675	5	5
A3	4.2802	1.0201	5	5
A4	4.1483	1.4077	5	5
B1	4.0188	0.9865	4	4
B2	4.1132	1.1042	5	4
B3	4.1737	0.9641	5	4
B4	4.2917	1.0714	5	5
B5	4.3738	0.9213	5	5
B6	4.3380	1.0044	5	5
B7	3.9545	1.1101	5	4
C1	3.8000	1.1586	5	4
C2	3.9853	1.1959	5	4
C3	3.7381	1.1185	4	4
C4	3.8679	1.1315	5	4
C5	**4.4537**	**0.9061**	**5**	**5**
C6	3.6533	1.3100	5	4
C7	3.3495	1.2312	3	3
C8	4.2311	0.9748	5	4
C9	3.8531	1.1359	4	4
C10	**3.0625**	**1.2652**	**3**	**3**
D1	4.0096	1.0120	4	4
D2	4.0242	0.9873	4	4
D3	3.2029	1.2367	3	3
D4	4.0097	1.1260	5	4
D5	3.1099	1.1309	3	3
D6	3.1393	1.3885	3	3
D7	3.5150	1.3250	5	4
E1	3.9526	1.0389	4	4
E2	3.7885	1.1297	4	4
E3	3.6947	1.0538	3	4

E4	3.7337	1.1493	4	4
F1	3.3483	1.1327	3	3
F2	4.0939	0.9320	5	4
F3	3.3317	1.2088	4	3
F4	3.3050	1.2118	3	3
G1	3.7990	1.1122	5	4
G2	3.4554	1.2126	4	4
G3	3.6720	1.1012	4	4
G4	**3.0167**	**1.2459**	**3**	**3**
G5	3.9317	1.2209	5	4

The results reported in Table 4.3 and Figure 4.1 are further illuminated in Table 4.4. They (results) show that the two factors indicating environmental **perceptions** - IE (*Importance of Environment*) and CE (*Concern about Environment*) - scored the highest means (see Table 4.2). The four factors that indicate environmental **attitudes** (i.e., *Culture environment, Participation in different activities regarding the environment, Warning attitude regarding the environment, and Volunteer activities, non-harmful actions*) all scored lower than those for environmental perceptions. Only two (*Volunteer activities, non-harmful actions and Participation in different activities regarding the environment*) scored marginally lower than the indicator for environmental **behaviour** (*Reuse 3R's*). This data implies that respondents have stronger convictions about environmental concerns like global warming, loss of biodiversity and pollution, but feel less strongly about affective issues like joining in volunteer activities, or having a warning attitude against others harming the environment. It appears from this data that they have an even lower concern about pro-environmental behaviour (i.e., recycling, or avoiding single-use plastic).

A closer inspection of the data revealed significant and interesting results. For example, Item C5 in the questionnaire (*Protecting the environment for future generations is important*) (see Appendix A) had the highest mean (M = 4.45), and the lowest standard deviation (SD = 0.91). This item is related to learners' environmental **attitudes** (*Culture Environment*) (see Tables 4.2 and 4.3). The finding, therefore, suggests that the learners on average considered the item particularly an essential part of culture for the environment (CUE).

Interestingly, Items C10 (My family will not use manmade fertilizers, pesticides, and herbicides in our garden, M = 3.06) and G4 (I do not buy items packaged in single-use

plastic, *M* = 3.01) scored the lowest means. The two items were related to learners' environmental attitudes (*Culture Environment*) and behaviour (*Reuse 3R's*) respectively. The finding suggests that on average the learners considered the two items of less importance in terms of culture for the environment and reuse.

Item G6 (There is a recycling station near my home or school) was excluded from the data analysis for reliability reasons. Nevertheless, it illuminates a very concerning phenomenon. Furthermore, this matter is only included here to point out the urgency of addressing it.

Table 4.5

Mean, Standard Deviation, Mode, and Median for Item G6 in the Questionnaire

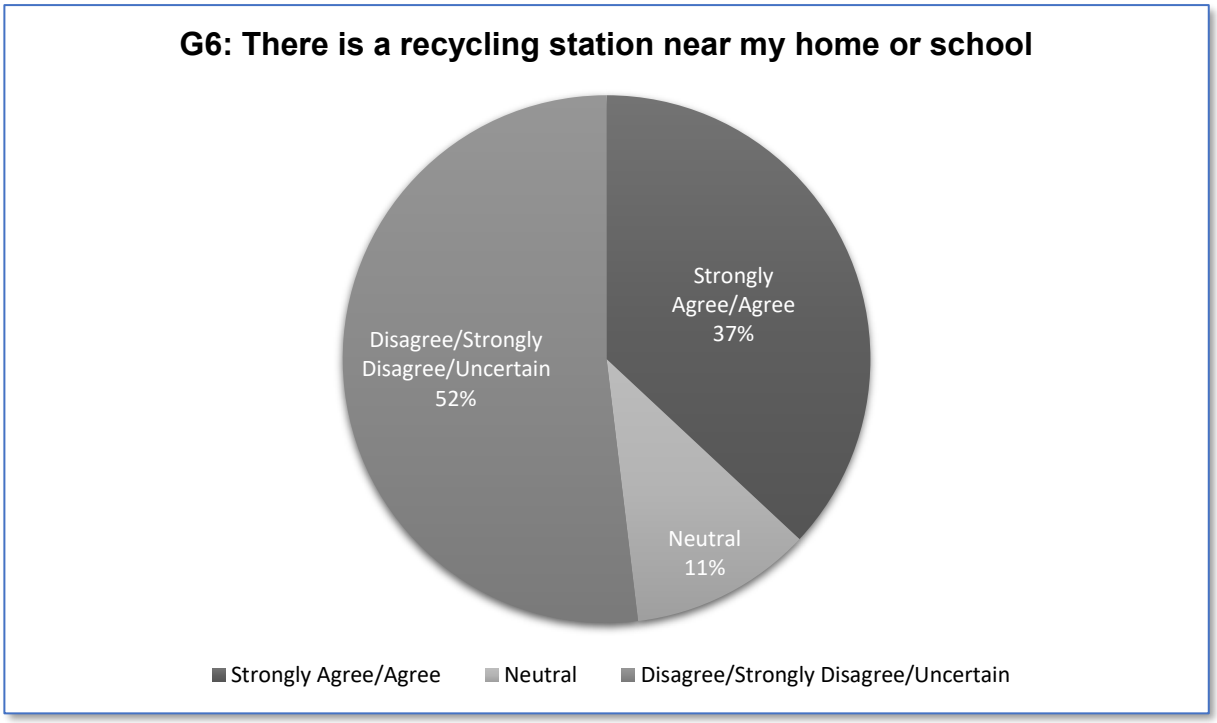
Item	Mean	Standard Deviation	Mode	Median
G6	2.9889	1.5308	1	3

Table 4.5 shows that Item 6 had the lowest mean score (*M* = 2.99, *SD* = 1.53). Moreover, it was the only item with a mode lower than three (1 - Strongly Disagree), and had a median of the same number (three). It further had the most significant standard deviation. That shows a significant degree of polarity in the learners' responses, which could indicate that there are groups with conveniently located recycling stations, whereas other groups are entirely excluded from this (they do not have access to these facilities).

Figure 4.2 shows a pie chart of the learners' responses to item G6. The results show that only 37% of them agreed that they have access to a conveniently located recycling station.

Figure 4.2

A Pie Chart Showing Responses to Item G6



From the above pictorial information (Figure 4.2), it is evident that a recycling facility is a matter which should be addressed with the utmost urgency in the area/location of this study. After all, government-mandated legislation regarding the recycling of waste has been hugely successful not only internationally (Xevgenos et al., 2015) but also in certain African countries (Vetter, 2021). Distressingly, Owojori et al. (2022) present the various obstacles in managing solid waste, as encountered by students at a higher education institution in South Africa. These are a lack of knowledge and awareness, a call for monetary incentives to change attitudes, and the need for external motivation to change students' personal action related to environmental behaviour.

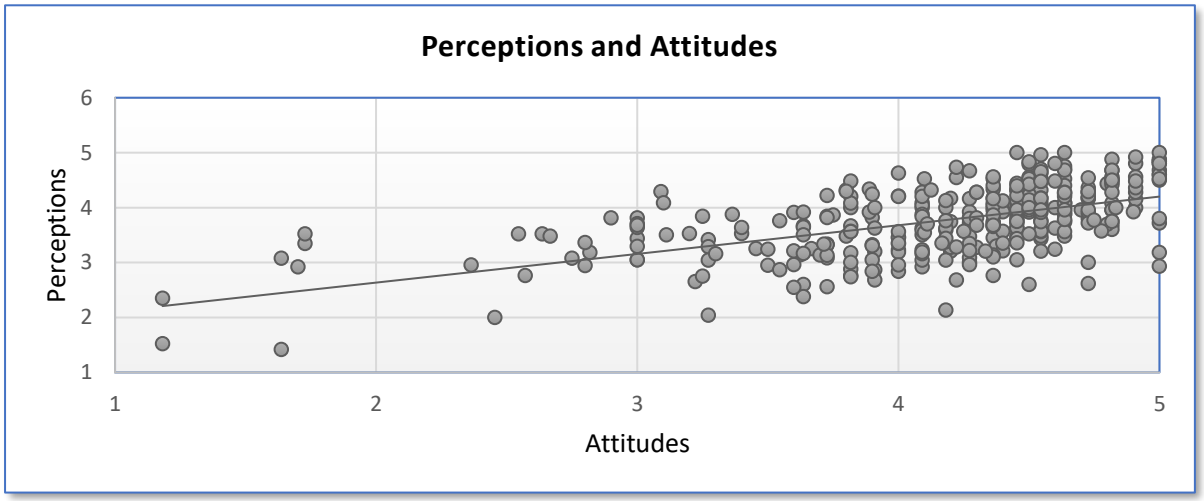
Some interesting patterns in this research study were further revealed when looking at some pictorial information, that is, graphic representations of learners' environmental perceptions, attitudes, and behaviour.

Figure 4.3 shows a scatterplot of the learners' responses concerning the constructs - environmental perceptions and attitudes. In most cases, the data show a linear relationship

(as perception increases, attitude increases), with a fairly close relationship between the data points.

Figure 4.3

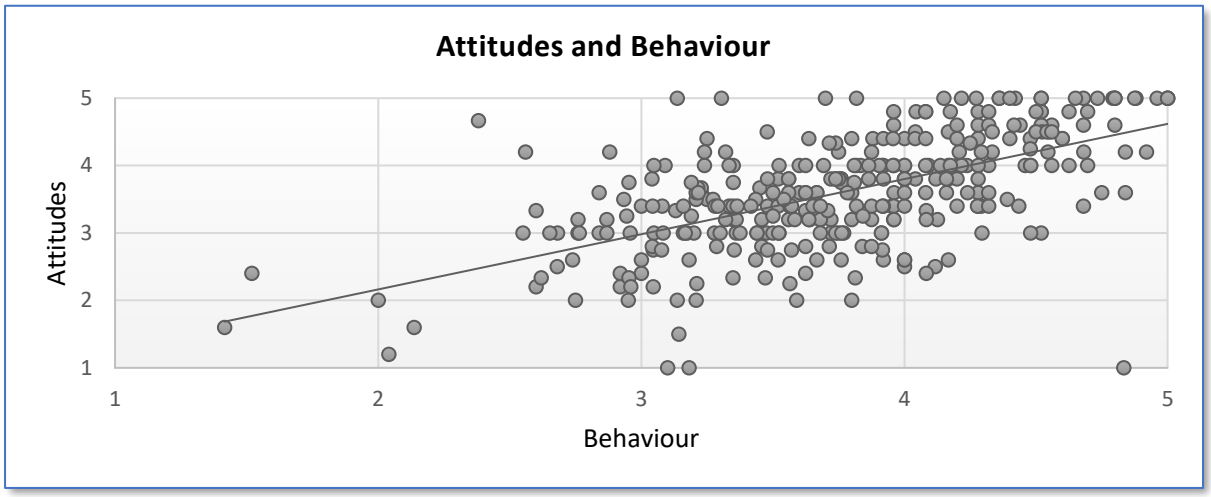
A Scatterplot for the Relationship between Environmental Perceptions and Attitudes



In Figure 4.4 (environmental attitudes and behaviour) the data are more dispersed. Although a linear relationship is still apparent, it is not as visible, and many more outliers are observed.

Figure 4.4

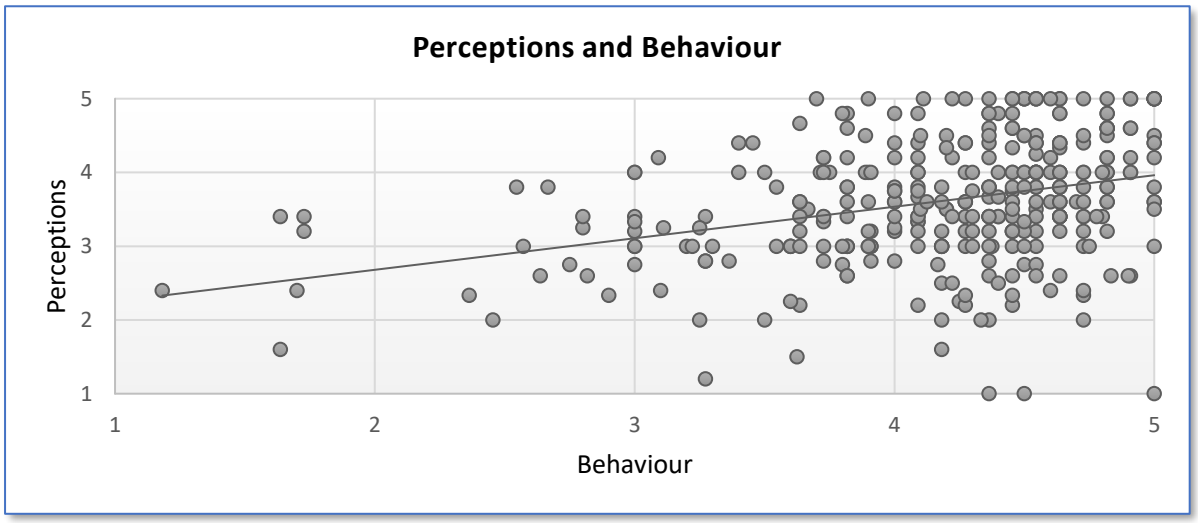
A Scatterplot for the Relationship between Environmental Attitudes and Behaviour



When looking at the data for environmental perceptions and behaviour in the scatterplot shown in Figure 4.5, a relationship is barely evident. There appears to be a large number of outliers that do not follow a linear trend. There appears to be a weak relationship between the data points in this data set.

Figure 4.5

A Scatterplot for the Relationship between Environmental Perceptions and Behaviour



Although these are not clear indicators of a cause-effect relationship, and no other factors were taken into account, it was worth further investigating these findings by doing a correlation analysis with the data.

Inferential statistics

Inferential statistics were used to examine the correlations between factors in the dataset. The Pearson's Coefficient was calculated as a bivariate parametric test to determine correlations between overall Likert scores. Table 4.6 presents a summary of the Correlation Coefficient brackets as described by Cohen et al. (2018).

Table 4.6

Pearson's Correlation Coefficient Brackets

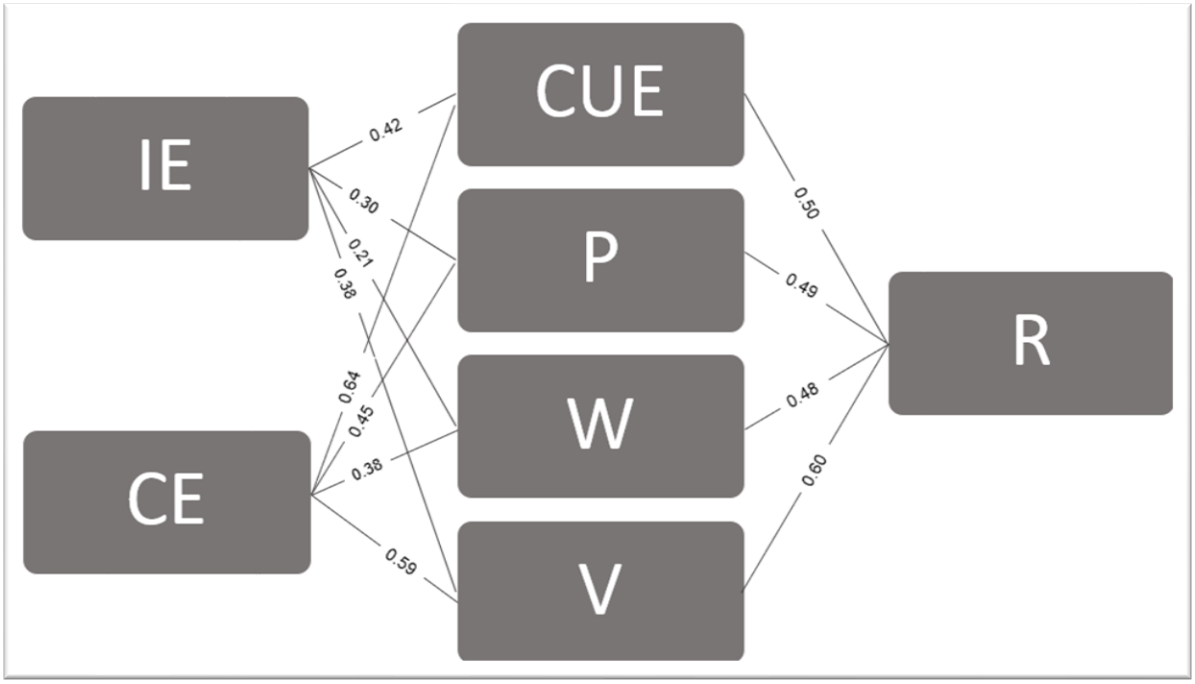
Pearson's Correlation Coefficient (r)	Correlation
<0.20	No to low correlation
0.20 to 0.35	Very slight correlation
0.35 to 0.65	Statistically significant correlation
0.65 to 0.85	High correlation
>0.85	Close relationship

Note: Sourced from Cohen et al. (2018, p. 772)

Figure 4.6 presents a model of the correlations between the various factors involved in the learners' views concerning the environment. Comprehensive correlations are shown in Table 4.7. It should also be noted that the table contains the correlation calculation summaries. This enables one to compare the results for the various correlations in one concise table. To illustrate this correlative interaction, the correlation table for all the participants will be used.

Figure 4.6

A Model for Correlations between the Factors involved in Leaners' Views Concerning the Environment



Note. Adapted from "Environmental Education and Student's Perception, for Sustainability", by G.D. Boca and S. Saraçli, 2019, *Sustainability, 11*(6), p. 1553. (https://doi.org/10.3390/su11061553). CC by 2.0

Table 4.7

Bivariate Correlations by Factor

Correlations								
		IE	**CE**	**CUE**	**P**	**W**	**V**	**R**
IE	Pearson r	1	.636	.421	.300	.218	.379	.218
	Sig. (2-tailed)		.000	.000	.000	.000	.000	.000
	N	341	341	341	340	339	340	338
CE	Pearson r	.636	1	.615	.446	.380	.594	.350
	Sig. (2-tailed)	.000		.000	.000	.000	.000	.000
	N	341	341	341	340	339	340	338
CUE	Pearson r	.421	.615	1	.591	.546	.858	.495
	Sig. (2-tailed)	.000	.000		.000	.000	.000	.000
	N	341	341	341	340	339	340	338
P	Pearson r	.300	.446	.591	1	.552	.855	.493
	Sig. (2-tailed)	.000	.000	.000		.000	.000	.000
	N	340	340	340	340	339	340	338
W	Pearson r	.218	.380	.546	.552	1	.767	.479
	Sig. (2-tailed)	.000	.000	.000	.000		.000	.000
	N	339	339	339	339	339	339	337
V	Pearson r	.379	.594	.858	.855	.767	1	.601
	Sig. (2-tailed)	.000	.000	.000	.000	.000		.000
	N	340	340	340	340	339	340	338
R	Pearson r	.218	.350	.495	.493	.479	.601	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	
	N	338	338	338	338	337	338	338

Cohen et al. (2018) warn against the dangers of interpreting correlation coefficients. One should take care not to attach too much significance when comparing the sizes of the correlations, as these are simple numbers merely indicating how two factors correlate to each other (as opposed to showing detailed relationship percentages). Furthermore, correlations do not necessarily indicate cause-and-effect relationships, nor can they be interpreted in an absolute sense and extrapolated to a population outside of the study sample. However, simple deductions like those made by Boca and Saraçli (2019) were elicited from the results (Table 4.7) showing the intercorrelations between the factors which make up the learners' views concerning the environment.

All but two of the connections show a statistically significant correlation; however, none offer a high correlation (Table 4.6). The results in the table for each factor of the learners' views concerning the environment show statistically significant correlations, except for IE (*Importance of environment*) and P (*Participation in different activities regarding the environment*), and IE (*Importance of environment*) and W (*Warning attitude regarding environment*). The results thereof could suggest that while learners might view the environment as important, that does not affect their feelings towards participation in environmental activities, nor their attitudes concerning warning those around them who show destructive behaviour towards the environment. It might also suggest that there may be no connection between the learners' perceptions about the environment and their attitudes towards it. In elaboration, the learners' perception about the importance of the environment may not mean that they will participate in different activities related to the environment nor warn people around them about their attitudes regarding the environment.

However, it was interesting that the most statistically significant correlation (and it was positive [0.64]) was between CE (*Concern about environment*) and CUE (*Culture environment*). This result thereof suggests that the learners whose perceptions about the environment showed considerable concerns about it (environment) are likely to have a positive and firm attitude in terms of culture environment (i.e., protecting the environment for future generations, and the importance of being seen caring for the environment). The results further show that the lowest positive connection was between IE (*Importance of environment*) and W (*Warning attitude regarding environment*). On the other hand, the results show that the strongest positive connection, which was second to 0.64 mentioned earlier, was based on attitudes and behaviour. It is between factors V (*Volunteer activities, non-harmful actions*) and R (*Reuse 3R's*). This finding suggests that those learners, who strongly felt that taking part in volunteer activities (including non-harmful actions) is essential,

are likely to change their environmental behaviour into one that advocates for a sustainable environment.

Table 4.8

Correlations between Attributes concerning Learners' Environmental Views

Attribute	Correlation
Correlation Perception vs Attitude	0.56
Correlation Attitude vs Behaviour	0.60
Correlation Perception vs Behaviour	0.33

It should be noted that only a longitudinal study of learners' views concerning the environment could predict the direction of the relationships shown in Table 4.8. Thus, the findings are only a result of a correlation. They do not suggest any causality between the environmental factors. For example, the highest correlation between CE and CUE may just indicate that learners had similar scores in these two categories due to common importance for learners rather than these variables leading to a change in environmental attitudes.

The three attributes on the learners' views concerning the environment (perceptions, attitudes, behaviour) were correlated not necessarily as a cause-effect relationship. The researcher acknowledges that she could not make concrete assumptions about the results. Nevertheless, in the environmental sense, it would appear that a closer relationship exists between attitudes and behaviour (0.60) than that between perceptions and attitudes (0.56). That said, both values indicate a statistically significant correlation (see Table 4.6). A very slight correlation seems to be between perceptions and behaviour (0.33; Table 4.8).

As referred to earlier, the results cannot provide evidence of any relationship between environmental attitudes and behaviour. However, the significant correlation may imply that learners' environmental attitudes could be a driver for their behaviour concerning the environment. On the other hand, there was a low correlation between environmental perceptions and behaviour. The implication may be that the former (perceptions) has a very slight impact on the latter (behaviour) in this study – an interesting finding because it disrupts the notions of the "perception-behaviour link" eloquently debated by Chartrand et al. (2006). Another reason that may explain the low correlation thereof could be the low impact of

increased environmental knowledge on environmental behaviour, as we shall discover in Chapter 5.

Findings from the Qualitative Data

In this section, the analysis of the qualitative data was done through the identification of themes by research question. Coding was done thematically insofar as the responses from the open-ended questions, and the focus group discussions were arranged by the related research question. Within these themes, subthemes were identified in an emergent way, where the responses from participants were the drivers in identifying themes and patterns of importance. Further 'coding-on' was done within these aforementioned subthemes when the theme was very complex and required a larger degree of analysis.

The open-ended questions (2a - 2c) in the questionnaire (see Appendix A) and relevant data from the focus group interview related to research question one (environmental views of learners) were coded under the themes environmental perceptions, environmental attitudes, and environmental behaviour in SPSS. Each of these themes (called nodes in SPSS) were broken down into sub-themes according to patterns and trends that emerged from the data. The full summary reports can be found in the relevant appendices (i.e., Appendix J: Environmental Perceptions; Appendix K: Environmental Attitudes; Appendix L: Environmental Behaviour; Appendix M: Influential Factors).

While analysing the data, the fits of integration that were intentionally sought out were those related to *confirmation*, *expansion*, and *discordance*. The intention was to integrate the results and to come up with robust and comprehensive conclusions from the two data sets.

Table 4.9 shows an extract of the themes and subthemes that relate to the learners' perceptions concerning the environment. Data were generated from the question – *What do you think of the environment regarding its importance?* The data is dissected/analysed in more detail with learners' response rankings related to how important they perceived the environment to be.

Table 4.9

Frequencies of Nodes and Sub-nodes for Coding Data Concerning Environmental Perceptions

Nodes/Sub-nodes	Number of occurrences (n=159)	%
Do not care	4	2.5
Important	49	30.8
Holistic description given	5	3.1
With example given	70	44.0
Not important	3	1.9
Somewhat important	3	1.9
Too late to care	2	1.3
Uncertain	6	3.8
Irrelevant answer given	17	10.7

Note: Sourced from SPSS

Table 4.9 further shows that nearly 80% of learners indicated that the environment is *at least* somewhat important to them. The majority's perception that the environment is important shows a commonality that was drawn out of the analyses of both the qualitative and quantitative data. However, nearly 5% of the learners indicated that the environment is either not important, they do not care or it is too late to care. This is of concern. Some of the responses included "No, it is not our job to clean [it] or care about the environment", "I don't care because my parents pay tax", and "Nothing much, we're just a kid", while one respondent added, "I see no possible way we could save it".

It was interesting that only five participants hinted that they understood the term environment in a broader sense (Reddy, 2011) - a link to the theoretical foundation for this study. One of the participants pointed to the impact of our decisions in the long term by saying, "I think caring for the environment means we are making a better future for ourselves. We depend on the environment for natural resources and life. Therefore the handling of the environment is absolutely important to me". Another participant added, "I think it's important to take care of our environment since we live in our environment and whatever happens [to] it

affects all of us". Two participants alluded to the economic and social aspects of the environment:

> The environment is important because it is the only place you can build. It is a place where you can enjoy and be happy. It has natural habitat. I think the environment plays a big role in the community and that leads to the community's behaviour.

> Making a genuine effort to protect our environment on a daily basis will make all the difference to our future. Protecting the environment also has benefits for the economy. A healthy environment helps to boost nature based-tourism and encourage responsible travel practices. I think that it is important for us to look after our environment and to do our part to protect it. I think it is the key to everything on earth. We cannot destroy all of nature as that is how we breath(e), relax, eat, drink, and live.

Table 4.10 shows an extract of the themes and subthemes that relate to environmental attitudes. In this case, data were generated from the question - *What do you think of learners' attitudes towards the environment and learning about the environment?*

Table 4.10

The Percentage of Occurrences of Nodes and Sub-nodes for Environmental Attitudes

Nodes	Number of occurrences (n=146)	%
Negative attitude	75	42.9
Neutral attitude	10	5.7
Other	28	16.0
Positive attitude	25	14.3
Split (some positive, some negative)	37	21.1

Note: Sourced from SPSS

To give an overall impression of the learners' attitudes towards the environment, and environmental education, the data of their responses are scrutinised a bit closer. Nearly 43%

of the participants indicated that they (and their peers) have a negative attitude towards the environment and learning about it (the environment). A further 21% of respondents (Table 4.10) indicated a split between participants who have a negative attitude towards the environment and those who have a positive attitude towards the environment. This attributes negative environmental attitudes to well over half of the participants in the study. One respondent stated: "Most of us don't care, we all just give up". Only 14.3% of the participants could categorically state that they (the learners and their peers) have a positive attitude towards the environment and environmental education (EE).

Concerning EE, 58 participants (40%) felt that more of it (EE) would be helpful in terms of increasing their perception concerning the environment and the associated attitudes, hence assisting them to become "more interested" in the field. Some participants stated that "learning about the environment would change the views of many people towards their environment", "teaching them about the environment might raise aware[ness] about it", "learning about the environment will help us realize its importance" and "may change…[people's] attitudes towards the environment". This (results concerning attitudes towards EE) is nearly double the number of participants who stated that learning about the environment is "boring", they "do not care and do not want to learn about the environment" and that EE "should not be compulsory".

One of the stated reasons for environmental apathy was a sense of disconnection from global environmental concerns and tangible, personal experiences. For some learners, "feel[ing] it has no effect on them", "they [are] comfortable, they don't have to worry about any of it" and "children choose to disregard the environment because it [does] not affect them". Other participants suggested that most of them (learners and/or peers) "…do not care about the environment even though they'll say otherwise" and that they "…know how to take care of it, but…just don't".

Some participants reported a feeling of helplessness when facing environmental concerns. For them, "environmental topics are talked about and solutions are provided, but no action is taken". One learner added that they "…enjoy being taught about their environment, but the problem comes in practicing how to protect their environment". "I think there are very few learners that care about the environment, because they feel that there's nothing they can do about it", said one seemingly powerless learner.

As the literature discussed in Chapter 2 suggested, there were also some disheartening responses from learners with negative attitudes concerning the environment. For instance, "learners don't like learning about their environment. Just like me", "learning

about [the environment] doesn't bother them - they couldn't care", "we don't give a damn about it, maybe our parents [do], not us." Nevertheless, it was encouraging that one of the participants did not entirely see the issue of the environment as one of gloom and despondency (despite a previous negative attitude): "I'm sure we can make a comeback".

One old cliché or a commonly cited reason for cultivating positive environmental attitudes is related to future generations. For instance, the thought of it "be[ing] passed on from generations to generations" or "help[ing] the next generation combat [the] said issues". This was congruent with the findings elicited from the questionnaires' analysed quantitative data. Item C5 (*Protecting the environment for future **generations***) had the highest mean of all items in the questionnaire (M = 4.45, SD = 0.91). Interestingly, only 1.9% of learners mentioning the corresponding theme – *Consideration of future generations* – as a significant influence on their environmental views.

It was also interesting that one learner suggested that positive environmental attitudes "depend on the type of person you are, as well as the external factors of influence such as your family, community, even the environment. Your background has a chance of influencing your attitude towards the environment". This is a topic for expansion and it will be further illuminated in the section (subsequent to the next one) in which the factors that shaped learners' views concerning the environment are analysed (also see Table 4.11).

Table 4.11 presents an extract of the themes and subthemes that relate to environmental behaviour. Data were generated from the question - *What do you think of learners' behaviour towards the environment?*

Table 4.11

The Percentage of Occurrences of Nodes and Sub-nodes for Environmental Behaviour

Nodes	Number of occurrences (n=146)	%
Negative	67	45.9
Neutral	7	4.8
Other	17	11.6
Positive	21	14.4
Split (some positive, some negative)	34	23.3

Note: Sourced from SPSS

Upwards of half of the responses to the question thereof indicated perceived negative behaviour towards the environment. The responses confirmed the results from the quantitative data in which the learners seemed to have a very low concern about pro-environmental behaviour (*M* = 3.61). Many learners voiced their frustrations towards their peers' destructive behaviour concerning their immediate environment, especially concerning littering, pollution and water wastage. The significant emphasis on littering as a benchmark for adolescents' environmental behaviour could be twofold: It is an easily observable and tangible factor in their direct environment and a sphere that is in their perceived locus of control. The item in the questionnaire with the lowest mean was item G4 (I do not buy items packaged in single-use plastic; *M* = 3.02, *SD* = 1.22), which would generate a lot of waste. Thus, the learners' responses confirmed the result from the analysed quantitative data. One respondent mentioned that "learners think that the environment is just nothing to them, but it's something to me". There were also some reasons raised concerning indifferent environmental behaviour. They were rooted in Grade 9 learners being "still (too) young to know", "youth these days don't care about the environment", they "don't care because they are kids", it is "inconvenient for lazy teenagers" and "some just don't have the time". As mentioned in the literature review, this very age group is going through dramatic thought and behaviour changes that will have a lasting impact on their lives.

Some learners displayed signs of shifting responsibility to others. For instance, they stated that "future generation should take better care of their environment or we will all die", and felt that "it is not their responsibility to take care of the environment".

Certain learners appeared to be unconcerned about their environmental behaviour. For them, "as long as they're getting what they need, they [are] fine by it", and they can act "without thinking about the consequences of their actions". Sadly, those who did not give indifferent responses seemed to "care about it but don't want to participate".

Amid the apathetic responses thereof, one learner mentioned a valuable point

> I believe most learners I have come across know that it is our problem to deal with these issues and make sure the next generations do not have to deal with them, however, I am concerned that many people know but are not actually actively taking part in the struggle against environmental issues.

The point suggests that learners' behaviour might not necessarily be influenced by their environmental knowledge, which was confirmed by the quantitative findings (Perception vs Behaviour $r = 0.33$). These results present an opportunity for the further expansion of this trend (correlation between knowledge and behaviour) in this field of study (EE).

Table 4.12 shows an extract of the themes and subthemes that relate to research question 2 (What factors shaped the learners' views concerning the environment). Similar to the previous three questions, data were generated from an open-ended question in the questionnaire, namely *What are the influential factors that shaped your views about the environment?*, as well as the related information gleaned from the focus group interviews.

Table 4.12

The Percentage of Occurrences of Nodes and Sub-nodes for Factors that Shaped Environmental Views

Nodes/Sub-nodes	Number of occurrences (n=365)	%
I don't care	1	0.3
Enviro clubs	5	1.4
Considering future generations	7	1.9
Intrinsic motivation	13	3.6
Media		
Campaigns	2	0.5
Knowledge from unknown source	78	21.4
Movies and documentaries	6	1.6
Print media	4	1.1
Social media	13	3.6
TV and News	19	5.2
Nature experiences	8	2.2
No influences	5	1.4
Observations	2	0.5
Negative observations	45	12.3
Positive observations	21	5.8
School	14	3.8
Current	1	0.3
Curriculum content	3	0.8
Primary school	3	0.8
Specific teacher	8	2.2

Significant people other than school	5	1.4
Activists	4	1.1
Community	10	2.7
Elders	3	0.8
Family	28	7.7
Mentor	2	0.5
Peer discussions	7	1.9
Significant personal experience	18	4.9
Unknown influence	10	2.7
Irrelevant answer	20	5.5

Note: Sourced from SPSS

The themes that emerged from this data were vast and varied. The most significant influence on learners' views concerning the environment seemed to be rooted in their basic knowledge about environmental concerns. The learners did not provide direct acknowledgement of the source of the information provided. The influence of schools, teachers and curriculum content was alarmingly low (5.5% of learners mentioned them as important). According to 17% of the learners, influential people outside of school however had a significant impact on views concerning the environment.

The learners' observations of the environment around them significantly influenced their views about it (as evident in 28.6% of their responses). The learners made positive observations such as "seeing some people [from the community] are trying their best to keep it clean" or having a "glimpse of how life would be if we took care of our environment". There were also negative observations. For instance, "taking hikes and going out into nature and seeing the pollution and litter in an area that should have been clean", and "witnessing a lot of litter around the city and their schools".

As expected with this age group, several learners mentioned various media platforms (i.e., social media, YouTube, television and news) that played a significant role in shaping their views concerning the environment.

A surprisingly small number of learners credited natural experiences (2.2%) and environment-based clubs (1.4%). The finding suggests that these two aspects thereof may not be primary influential factors concerning the learners' views concerning the environment or a limited number of learners have had experiential learning through, for instance, environment cleaning expeditions, fieldwork and/or club or school field trips. Indeed, findings from the analysed quantitative data of the questionnaire revealed that the two factors that scored the lowest average means were V (*Volunteer activities, non-harmful actions, M* = 3.52) and P (*Participation in different activities regarding the environment, M* = 3.79). These low means however showed a high degree of discordance with the strong correlation (0.60) between the environmental attitude factor V (*Volunteer activities, non-harmful actions*) and the environmental behaviour factor R (*Reuse 3R's*), and the theoretical underpinning of the study that suggested that this link should be present.

A startling observation was the five respondents who felt they had no significant influences in their lives that were shaping their environmental views.

Chapter Summary

This chapter reported on the quantitative and qualitative data collected in the study. Both sets of data were integrated using a contiguous approach, and the fits of integration were identified and discussed.

The quantitative results for the study were obtained through statistical tests and data analysis: descriptive and inferential analysis (frequencies, descriptives, bivariate correlations) were displayed graphically and accompanied by an explanation of the associated information. The **main findings from the quantitative data** suggest (but does not provide irrefutable evidence) that there is a significant correlation between learners' environmental perceptions and their environmental attitudes (r = 0.56), as well as between their environmental attitudes and their environmental behaviour (r = 0.60). Similarly, the low correlation between environmental perceptions and environmental behaviour (r = 0.33) could show the low impact that merely increasing environmental knowledge has on environmental behaviour.

The qualitative data were organised according to themes to provide comprehensive answers to the associated research questions. The **primary findings of the qualitative**

data were that most of the Grade 9 learners in the study regarded the environment as important (79.8%), while less than a fifth of participants thought that their peers show positive attitudes towards the environment and environmental education, and most participants perceived Grade 9 learners in this study's environmental behaviour to be negative.

The key indicators in the development of Grade 9 learners' environmental views appear to be media platforms (33.4%), learners' observations of the state of their environments (18.6%), and input by significant people outside of the school environment (16.1%). Curriculum content, learning at school and teachers were only cited by 5.5% of participants as a significant influence on their environmental views.

The **overall results** suggest that Grade 9 learners in this study have positive environmental perceptions, but less positive environmental attitudes and their environmental behaviour is perceived to be approaching negative. It appears that EE at school is ineffectual and lacks the vibrancy to give most of our learners a robust foundation to become responsible stewards for a sustainable future.

The next chapter will discuss the findings in detail, make various recommendations, and conclude the research done on learners' environmental views.

Chapter 5: Discussion and Conclusion

Introduction

This chapter presents a discussion of the results presented in Chapter 4. Firstly, it reintroduces the setting of the study and the associated objectives and research questions to ensure the findings are placed in context. A brief overview of the study's research design and its limitations follow. A reflexive section is then presented to highlight challenges encountered during this study. The chapter continues with the discussions of the answers to the study's research questions in terms of how they are consistent with, refute, or extend relevant findings in the literature, and their (present study's findings) implications. The practical implications of the findings are discussed and recommendations for the field of EE are put forward. The significance of the study addresses gaps in knowledge of the South African learners' views concerning the environment, that is, their perceptions, attitudes, and perceived behaviour towards the environment. Recommendations for future EE studies are mentioned and then the concluding remarks round off the study.

In the previous chapter, statistical tests and data analysis procedures were used to provide the quantitative results for discussion. Descriptive and inferential analysis, such as frequencies, descriptive and bivariate correlations, were displayed in the form of tables and graphs, accompanied by an explanation of the relevant information in these diagrams. The qualitative data were organised according to themes to provide comprehensive answers to the research question. Both sets of data were integrated using a contiguous approach, and the fits of integration were identified (confirmation, expansion, and discordance).

The study was undertaken to investigate Grade 9 learners' views concerning the environment. This specific age group was selected as they have completed the compulsory general education and training (GET) phase. They would have been exposed to an extensive scope of environmental education (EE). As referred to elsewhere, through the course of the post-apartheid curriculum reform, *environmental justice* was introduced and integrated as a principle across the curricula. Theoretically, all learners would have engaged with environmental content in every learning area.

During the apartheid regime, the South African education system was racially segregated, and unequal educational opportunities were offered to learners based on their race (Thobejane, 2013). Schooling for black learners was characterised by grossly inadequate facilities and resources, poorly trained teachers, and irrelevant curriculum content. The abovementioned curriculum restructuring post-1994 created the opportunity for a democratic society with equal educational access. The emphasis on environmental awareness generated a setting where teachers were able to teach their learners about the responsible application of knowledge in the interest of themselves, society, and the *environment* (DBE, 2011). It is envisaged that the results of this study will not only add on the body of knowledge on learners' views concerning the environment but also factors, within the context of the new curriculum, that may shape such views. After all, the study included learners who have completed all their schooling in a post-apartheid education system.

Contemporary EE and education for sustainable development (ESD) focus on developing pathways towards a just society for future generations while maintaining environmental integrity. Emphasis has long been on a change in *perspectives*, *attitudes* and *behaviour* to build a more prosperous, just and secure future (Brundtland, 1986) while considering the tension between the social, economic and political prosperity of communities, and ecological sustainability. Thus, it was essential that, in this study, the relationship between environmental perspectives, attitudes and behaviour was investigated to highlight the principal mechanisms through which teachers can best assist their learners to learn about the environment. To further inform our understanding of the process of effective EE, an enquiry was made into the factors that play a pivotal role in shaping our learners' views concerning the environment. This chapter discusses the significant findings that emerged during the integration of the data and relates them to the relevant literature.

It should be noted that this study sought to explore Grade 9 learners' views (i.e., perceptions, attitudes and behaviour) concerning the environment, and investigate factors that shaped such views. The study was guided by answers to the following research questions:

- What views (perceptions, attitudes, behaviour) concerning the environment exist among Grade 9 learners?
- What factors shaped the learners' views concerning the environment?

- What statistical correlations might exist between the learners' perceptions of the environment, their attitudes regarding the environment, and their perceived behaviour towards the environment?

Overview of the Research Design

A contemporary mixed-methods research approach was followed to capitalise on the strengths and compensate for the weaknesses of two research strategies (Denscombe, 2014), and offer a pragmatic, practical, problem-driven approach to the research. The intention was to provide accurate, trustworthy and credible answers to the research questions that investigated the complex phenomenon of learners' environmental views.

The sequential mixed-method design firstly collected quantitative data using a Likert scale questionnaire adapted from an existing instrument (Appendix A) designed by Boca and Saraçli (2019), before collecting qualitative data through open-ended questions in the questionnaire, as well as through a focus group interview. The data collection was done in nine stages (five quantitative followed by four qualitative). This multifaceted design provided a robust foundation for the collection of data that could explore environmental views, and answer the study's research questions. The design was the driver for the sampling strategies used, the data collection strategies employed, and the data analysis methods utilised (see Chapter 3, pp. 36-52).

Multistage cluster sampling (probability sampling) was chosen for the quantitative stage to select entire Grade 9 classes at schools in the sample area, and participants for the qualitative stage were selected through convenience sampling. Quantitative data were collected over a three-week period from 14 classes at six schools (n = 354), and a focus group interview was conducted with six participants at a single school.

Quantitative data from the instrument were combined into categories that measured the same trait (creating a Likert scale) and meant the data set could be treated as interval data. To describe the data the means were calculated as the best measure of central tendency, and the frequency distribution of responses were used. Excel365 and SPSS were used for data analysis. A bivariate correlation test was done (to calculate Pearson's Coefficient) to calculate correlations between the factors that contribute to environmental views (*perceptions, attitudes,* and *behaviour*). The statistical tests included descriptive and inferential analyses (frequencies, descriptive, bivariate correlations) and the results were displayed in the form of tables, figures, and graphs.

The focus of the study was to gain a better understanding of learners' environmental views through the integration of quantitative and qualitative data. All learners who completed the questionnaire also answered four open-ended questions (qualitative data) that were included in the instrument. This was followed by a focus group interview which revealed that the saturation point for qualitative data had been reached. Both the abovementioned sets of qualitative data were transcribed and analysed using NVivo12 software to identify common themes. The data were organized by five primary themes and 32 sub-themes and discussed under the research question they address (see Table 3.4).

A contiguous approach to data integration was used. The findings were reported within a single chapter (Chapter 4), but the qualitative and quantitative findings are reported in different sections. The fits of integration (*confirmation, expansion*, and *discordance*) were intentionally identified and discussed.

Limitations of the Study

Mertens (2015) reminded us that "it is not possible to design and conduct the 'perfect' research study in (the field of) education" (p. 509). In social research, the extent to which circumstances can be manipulated is limited (Denscombe, 2014). Certain limitations need to be taken into consideration when exploring the contributions the current study makes to the field of environmental education studies. Each phase of the study had limitations and strengths (Kumar, 2011). Even though this study employed mixed-methods strategies because of its strength of drawing on both qualitative and quantitative research and minimising the limitations of both approaches (Creswell & Plano Clark, 2011), there were a few drawbacks that were encountered regarding the study.

During data collection, schools closed sporadically (it was during the COVID-19 lockdown and state of disaster), and there was a lot of uncertainty as to when schools will be open (Motshekga, 2020). Furthermore, classes would have to be isolated at short notice when learners or teachers fell ill. Many schools were practising rotational attendance, making it harder to isolate an entire Grade 9 class at a time. The implication is that the COVID-19 crisis impacted on the proposed timeline and sampling for the study. Indeed, Kumar (2011) mentions obtaining the sample as one of the limitations for a researcher. This escalated during the COVID-19 era.

The issue around access also escalated during certain lockdown levels. First, the UKZN Human and Social Sciences Research Ethics Committee (HSSREC) introduced necessary prohibitions on in-person data collection strategies to keep all stakeholders free from harm. Second, due to COVID-19 protocols in place, schools were barred from allowing visitors on-site, making it challenging to visit principals to discuss the purpose of the study and obtain permission to conduct the current research in their institutions. Some schools opted for an electronic version of the instrument, while others allowed quantitative data collection with their learners but refused in-person interviews. The implication is that due to extended COVID-19 related disruptions to teaching and learning, a large portion of schools in the sample area declined to take part in the study altogether. These schools also stated the extra burden on teaching staff, considerable stress levels of staff and pupils, and the impact on already reduced teaching time as reasons for not taking part in the study.

In this study, the instruments and interviews were in English. Some participants might have better understood the questionnaire items or expressed themselves more clearly and comfortably in their mother tongue. The implication is that some items might have been difficult to understand despite the measures taken to alleviate items' ambiguity (i.e., piloting of the instruments, and the offer of a translated instrument to the schools). Indeed, a few participants found certain questions difficult to understand, even though these weren't mentioned as problem areas in the pilot study. As examples of this, three participants asked for the meaning of "influential factors" (Question 3) to be explained, and two participants asked for clarity on 'Neutral' (as a scale option). In retrospect, this phrase (Neutral) could have been replaced by 'Neither agree nor disagree'.

Three logistical issues were encountered during the study. First, most learners took a shorter time to complete the questionnaire than was anticipated. However, time was not adjusted, which allowed for sufficient time for an in-depth introduction of the study and its procedures to the participants and offered them time to debrief at the end of the session. Second, a low Cronbach's Alpha Coefficient eliminated item G6 from the data. Third, factor 1 (Importance of environment) had a Cronbach's Alpha Coefficient of 0.635. One way of increasing the reliability of the scale is to remove items that lower the internal reliability of the scale. However, for this factor, removing any of the items only lowered Cronbach's Alpha Coefficient, and the scale contained fewer than the four items required for a valid scale. In retrospect, all scales should have contained at least five items to allow for better data manipulation.

The findings from this present study are specific to learners in Grade 9 in the UMDM area, and the focus was on Natural Sciences. The implication is that generalization to a wider learning area in different grades, and outside this allocated area can only be made on extra-statistical grounds.

The above limitations (and the reflexivity below) should be considered when answering the study's research questions.

Reflexivity

This section gives the researcher the opportunity for critical reflection on potential biases and predispositions that may have affected the research methodology and conclusions. Researcher subjectivity can privilege personal presuppositions and value-systems over those of the study's participants, and shape the data collection and statistical modelling according to the researcher's worldview. This self-awareness allows personal bias to be addressed through disclosures from notes kept in a reflexive journal throughout the study.

Fetters et al. (2013) recommend that researchers examine methodological assumptions and procedures, and look for potential sources of bias when reporting the findings. They further suggest gathering additional data, seeking explanations from theory, discussing reasons for conflicting results, and laying out future research options. Denscombe (2014) also suggests using a mixed-methods research approach to increase the accuracy of data, the reliability of the study, the reduction of bias in the research, and to offer a practical, problem-driven approach to research, and to compensate between the strengths and weaknesses of multiple research strategies. These recommendations were followed when the following safeguards were put in place:

- The research methodology was drafted to be a mixed-method type drawing from two data sets to confirm results.
- Research findings were related to the relevant theoretical underpinnings.
- The contiguous data integration strategy intentionally pointed out discordant fits of integration (where the qualitative and quantitative findings were inconsistent, incongruous, contradicted, conflicted, or disagreed with each other) for discussion.
- Recommendations were made for future research to extrapolate findings from the current study.

It is acknowledged that the researcher's fingerprint may be evident in the conceptualisation of the study, its design, the conclusions made and the suggestions for further research. After all, the very motivation of this study was the researcher's pro-environmental views, frustrations with current EE praxis and the desire to inspire learners and communities to live more sustainably.

An additional advantage of reflexivity is that the researcher can review and debrief on obstacles and problem areas encountered whilst conducting the study. A considerable stumbling block encountered was the COVID-19 pandemic impacting schools that agreed to take part in the study, sampling, data collection and in-person interviews. Electronic versions of all documentation and instruments had to be made available. Qualitative questions were included in the quantitative instrument as open-ended questions to allow for data to be collected.

The problems encountered during the pilot study allowed for the refining of a much more streamlined document to be used during data collection.

Some of the researcher's own reflective notes that were kept included post-interview keynotes to contextualize data from the focus group discussion, and notes taken at schools regarding learners' level of English proficiency. One interesting note made, after visiting a school for data collection, was of a teacher mentioning the impact of not being able to do field trips over the past two years, the impact of that on education related to the environment and the associated learners' views concerning environment. That strongly ties in with suggestions from the theoretically framework for the study, however, contradicts the low impact learners credited to field trips on their views concerning the environment.

Answers to the Research Questions

To gain a comprehensive understanding of Grade 9 learners' views concerning the environment, this current study integrated the results from the quantitative data analysis with the results from the qualitative data analysis. This study based its foundation on Lucas's (1972) theoretical framework that advocates for education *about*, *in*, and *for* the environment. An existing instrument (Appendix A) was adapted from an internationally administered and reliable instrument designed by Boca and Saraçli (2019) to investigate the learners' views concerning the environment. The adaptations involved changes to fit a younger South African audience, with content related to what learners encountered in the

curriculum (see Appendix B for a comparison between the items from the two instruments). The section on personal information and characteristics was removed, as this was not part of the current study's research objectives.

As referred to elsewhere, the instrument was designed to collect data on learners' views concerning the environment. Three constructs – perceptions, attitudes and behaviour – were investigated as indicators of these views. The learners' **perceptions** were determined by investigating their responses to 11 items (in the first section) related to *Importance of the environment* (IE) and *Concern for the environment* (CE). The learners' **attitudes** were determined by investigating their responses to 25 items related to *Culture environment* (CUE), *Participation in different activities regarding the environment* (P), *Warning attitude regarding environment* (W) and *Volunteer activities, non-harmful actions* (V). Their (learners) **behaviour** was determined by investigating responses to six items related to *Reuse 3R's* (R) (Chapter 3, pp. 54-56). A pilot study confirmed that, in general, the participants understood the items, the procedures and the response format of the Likert scale (Chapter 3, pp. 52-53)

The research followed a multistage cluster sampling strategy, and the sample included 354 learners (Chapter 1, pp. 46-48) in Grade 9 classes attending lessons in Natural Sciences as a learning area in schools in Msunduzi and the Midlands, uMgungundlovu District Municipality, KwaZulu-Natal, South Africa (Chapter 1, pp. 15-19).

A variation in the current study was that three research questions were answered instead of testing hypotheses, as Boca and Saraçli (2019) did. As this was an existing, validated instrument, no further testing of its reliability was necessary. Cronbach's Alpha Coefficient was calculated on the collected data to determine the reliability of the scales, and adjustments were made as necessary (Chapter 3, pp. 55-56; Chapter 4, pp. 62-64).

In the next section, the research questions will be answered. The results of the statistical analyses of the quantitative data validly collected from 341 Grade 9 learners (see Table 4.1) are used to provide reliable and trustworthy answers to the study's three research questions. A mixed-method approach was followed because the present study investigated a complex phenomenon – learners' views concerning the environment. The results from the qualitative data analysis (the open-ended questions in the questionnaire and focus group interview) will be convoluted with the quantitative data in the discussion to answer the study's research questions. Research question two will be discussed based solely on the qualitative data collected. Empirical findings will be related to theory by connecting themes identified in the data to the trends in the literature study and to the theoretical framework that underpinned the study.

Research Question 1

What views concerning the environment exist among Grade 9 learners?

The Likert scales in the instrument provided an overview of learners' environmental perceptions, attitudes, and behaviour – indicators of learners' views concerning the environment, as described in Chapter 2. These relate closely to the triadic approach to environmental education (Lucas, 1972). The conceptual model for the study consolidated the same approach with indicators of the learners' views, as proposed by Boca and Saraçli (2019) and Hashemzadeh (2016).

The results following the analysis of the data showed that Grade 9 learners in the sample had positive environment **perceptions** (M = 4.16 [out of possible 5]). From the qualitative data, it became apparent that most learners thought the environment was important and a topic to be concerned about. Furthermore, the findings indicated that most learners had some basic level of environmental content knowledge. The findings can probably be attributed to the inclusion of *Environmental Justice* in the current curriculum, and the importance of learners "critically showing responsibility towards the environment and the health of others" (DBE, 2011, pp. 5). It is thus reasonable that *Protecting the environment for future generations is important* had the highest mean (M = 4.45). It should be noted that this item is based on the learners' attitude to the environment.

Despite the learners claim that protecting the environment for future generation is important, they had lower environmental **attitudes** (M = 3.76). The finding is contrary to that obtained in Boca and Saraçli (2019) in which the participants' overall mean score for attitudes was the highest (M = 4.14) compared to the other constructs (behaviour and perception). The present finding indicated that the learners had stronger environmental perceptions than environmental attitudes. The findings from qualitative data showed that many learners had or perceived their peers to have negative attitudes about the environment. The overall findings of the study may also be explained in terms of teaching about the environment, rather than in the environment in the schools visited. Teacher barriers to teaching might not allow them (teachers) to involve the affective domain in their environmental content. Indeed, the association between outdoor learning and positive environmental attitudes is well documented (De Zylva, 2018; Fretwell & Greig, 2019; Hashemzadeh, 2016; Katoch, 2017; Monroe et al., 2021). Sadly, teachers' unwillingness to teach through fieldwork, which might have a positive impact on the association thereof, is a challenge even in developed countries (see Scott et al., 2015).

It should also be noted that the highest mean concerning *Protecting the environment for future generations is important* points to the notion of including ESD principles, which are related to education for the environment, to bring about attitude and behaviour change. Crano and Gardikiotis (2015) remind us that attitudes become more difficult to change once they have been reinforced over time. They further point out that attitudes are easier to manipulate when individuals can see the relevance to themselves. The inclusion of relevant ESD is a pressing matter that needs addressing.

The present learners scored the lowest concerning environmental **behaviour** (*M* = 3.61). This finding showed that the learners did not like joining volunteer activities nor warning others against harming the environment. The findings thereof were reinforced by comments from qualitative data, which were even most concerning. Many participants perceived their peers to have very negative behaviour towards the environment. The findings of the present study are congruent with those of Boca and Saraçli (2019) (*M* = 3.48), particularly in relation to pro-environmental behaviour (i.e., recycling, or avoiding single-use plastic) of learners.

Research Question 2

What factors shaped the learners' views concerning the environment?

As referred to in Chapter 2, context is fundamental to the internalisation of teaching and learning about the environment – a reason many authors have tried to model the factors that contribute to sustainable environmental behaviour. In this study, the themes that emerged from the qualitative data to answer this research question were extensive and diverse (Table 4.12).

Interestingly, the results showed the low impact schools, teachers and curriculum content have on learners' environmental views (5.5% of participants listed this as a significant influence). This result, through the lens of the framework for the study (see Figure 2.4), suggests that the EE in our schools focuses mainly on education *about* the environment (as opposed to the holistic approach of education *about*, *in*, and *for* the environment), which learners do not regard as influential. When considering the strategies that learners did describe as impactful to them, it might indicate that the pedagogy that is used in EE in our schools is not as effective as it might be. It supports the argument by Le Hebel et al. (2014) that it is the influence of the social not the educational that may shape, for instance, a learner's attitude towards the environment. The reality of what most learner

regard as the most significant influence on their views concerning the environment was visual media (35.6%). This relates closely to international studies (Ardoin et al., 2013; Aslani & Shobeiri, 2016; Pearson et al., 2011) that provide evidence for the successful use of visual media in EE. A basic knowledge of environmental concerns through visual media (without a direct acknowledgement of the source of the information) accounted for 21.4% of this figure. As expected with this age group, several learners mentioned various media platforms (i.e., social media, movies and documentaries) as an influence in shaping their environmental views. When considering the largest influences on forming our learners' environmental views, it could be useful to incorporate some of these in EE pedagogy to better engage our learners with environmental content in a way that they can relate to.

When combining learners positive and negative observations of the physical environment around them, it contributed to a further 28.6% of responses. Influential people outside of school (including family members and peers) had the next highest impact (17%). The results hereof reiterated Le Hebel et al.'s (2014, p. 342) argument on environmental awareness and attitudes, and the influence of the social among 15-year-old learners in France. This was further corroborated by comments from participants that indicated they were influenced by seeing people from their community showing pro-environmental behaviour. This is discussed in further detail in the section below on Implications and Recommendations (pp. 101-106).

The remainder of the factors mentioned included personal experiences (4.9%) (relate to education *in* the environment), intrinsic motivation (3.6%), unknown influence (2.7%), experiences related to nature (2.2%), consideration of future generations (1.9%) and environmental clubs (1.4%). The positive influence of personal experiences related to nature (e.g., out-of-school settings, field trips, environmental clubs) is well documented (Gough et al., 2020; Güler & Afacan, 2013; Jose et al., 2017; Kruger, 2020). The grounds for these influences (personal experiences related to nature) not being well-cited by participants in this study could be two-fold – either learners do not find them influential in shaping their views regarding the environment, or many learners simply might not have access to these experiences, hence their influence is unknown. In fact, Kruger (2020) found that when ESD principles were introduced at schools (through Eco-Clubs at Eco-Schools) where these (Eco-Clubs) were not available in the past there was widespread interest by learners. They (learners) responded well to the critical thinking strategies that were encouraged, and displayed transformative pro-environmental views. When we take a closer look at the results from the current study against the backdrop of the theoretical framework it could be suggested that teachers should be incorporating non-formal settings in their lessons.

There were also very few learners who stated that they had no influences on their environmental views (1.4%), and did not care about the environment or environmental influences at all (0.3%).

Research Question 3

What statistical correlations might exist between the learners' perceptions of the environment, their attitudes regarding the environment, and their perceived behaviour towards the environment?

Bivariate correlation calculations were done (Chapter 4, pp. 83-85) to answer this research question. The interviews and open-ended part of the questionnaire provided complementary and supplementary results to answer the question.

The answers to the first two questions provided a good foundation for further exploration of learners' environmental views. Thus, it was essential that the three attributes regarding the learners' views concerning the environment (i.e., environmental perceptions, environmental attitudes and environmental behaviour) were correlated to provide a clearer picture about them (views concerning the environment).

It should be noted that no concrete assumptions can be made about the direction of the correlations or the cause-effect relationship. Still, a closer relationship exists between the leaners' attitudes and behaviour (0.60) concerning the environment than between their perceptions and the former (i.e., attitudes) (0.56) (see Table 4.8). Both values indicate statistically significant correlations (Table 4.6). The higher correlation between attitudes and behaviour, in particular, is reasonable. The former (attitude) is considered to be the determinant of the latter, hence a need to evaluate environmental attitudes that facilitate environmental behavioural change (Izadpanahi, 2018). In this study, similar to Boca and Sahaçli (2019), the learners seemed to recognise the need for activities essential for the betterment of the environment (attitude) and reuse (behaviour) (see Figure 4.6). The weakest correlation seems to be between the learners' perceptions and behaviour (0.33) concerning the environment, which shows a very slight correlation (Table 4.6). As referred to elsewhere, the finding was noteworthy. It is contrary to the "perception-behaviour link" debated by Chartrand et al. (2005), hence a need for further illumination in the qualitative data.

One of the primary findings of the qualitative data was that most of the Grade 9 learners in the study regarded the environment as important (79.8%). However, less than a fifth of the learners thought that their peers showed positive attitudes towards the environment and environmental education. On the other hand, most of them felt that their peers had negative environmental behaviour. There were indications that these factors are not correlated because there was a claim that "most learners do not care about the environment even though they'll say otherwise". These results confirm what was indicated by the quantitative data.

The overall results therefore suggest that Grade 9 learners in this study had positive perceptions about the environment. On the other hand, their attitude about the environment was less positive. Their environmental behaviour is perceived to be approaching negative.

Implications and Recommendations

This current study highlighted some significant findings that can be used to improve environmental education (EE) praxis with Grade 9 learners in South African schools. Based on these findings, particular recommendations for classroom praxis, teachers, and policymakers can be made. These are discussed below.

Furthermore, the present study's research findings were related to the relevant theoretical underpinnings as described in the research model for this study (see Figure 2.4). The study's conceptual framework was framed upon the triadic approach to environmental pedagogy (i.e., education *about, in,* and *for* the environment) proposed by Lucas (1972), and provides a holistic approach to environmental education (EE). The theories proposed by Boca and Saraçli (2019) and Hashemzadeh (2016) (see Chapter 2, pp. 26-30) highlight three critical indicators of EE (i.e., *perceptions, attitude*s and *behaviour*). The conceptual model for this study draws on both these theories, with the indicators used by Boca and Saraçli (2019) providing insights into the factors that shape environmental views. Education *about* the environment gives learners the theoretical knowledge and awareness to construct their environmental *perceptions*. Education *in* the environment relates to physical learning outside the classroom and nature-based learning experiences that will create positive *attitudes* towards the environment. Education *for* the environment integrate with the philosophy of education for sustainable development (ESD), that empowers learners with the skills and *behaviour* to address environmental challenges, and create a sustainable and just society for all. Any relationships revealed between these factors (*perceptions, attitudes*, and

behaviour) will help us understand the most constructive pathways to bring about sustainability awareness and allow us to plan for future action in EE. The contributions of the findings from this study on the framework will be highlighted in the recommendations below.

Regarding classroom practice and procedures, it is crucial to understand that the modification of learners' views concerning the environment is a product and a process. There will be more long-term benefits if this is not forced in a compressed timeframe or seen as a 'box that needs ticking'. This study indicated the importance of the affective domain in altering environmental behaviour; however, environmental attitudes cannot change overnight. The effect of better attitudes toward the environment might allow more students to display more sustainable, pro-environmental behaviour (see the correlations concerning the three constructs [Table 4.8], and the theoretical framework of the study [Figure 2.4]), but then classroom praxis needs to facilitate this process of attitude transformation through incorporating principles of education *in* and *for* the environment. The importance of the affective domain, as emphasised by Reddy (2011), cannot be negated.

Hashemzadeh (2016) encouraged the understanding of learners' attitudes regarding the environment to give insights into strategies to improve EE programmes. Though Reddy (2017) describes a clear gap in environmental knowledge in South Africa, Hashemzadeh (2016) argued that merely increasing it (environmental knowledge) will only lead students to learn about the effects of environmental issues without necessarily gaining understanding about the root causes of these issues or how they might be addressed. This was confirmed by the correlation data in this study (see Table 4.8). To create an environment that is conducive to attitude change, the theoretical underpinning for this study does not dispute the need for quality education *about* the environment, but suggest the inclusion of outdoor learning activities, and teachers stimulating debate whereby learners are allowed to question and explore contemporary sustainability content.

To improve learners' attitudes towards EE, pedagogy can be modified to be more learner-centred. This could guide students toward meaningful learning. Data from this study revealed that learners have a range of environmental perceptions, attitudes, and behaviour. For teachers to improve their teaching approaches, it could be useful to do a baseline assessment of learners' views concerning the environmental to establish the best practice with a specific group of them (learners). Attitudes and perceived behaviour could be established based on the indicators proposed by Boca and Saraçli (2019) (i.e., culture environment, participation in environmental activities, warning attitude regarding environment, volunteer activities, and reuse 3 Rs).

Hashemzadeh (2016, p. 27) documented that positive environmental experiences are fundamental to improving long-term environmental awareness and concern. He noted how vital significant life experiences in a natural environment (i.e., outdoor learning) were for the development of pro-environmental behaviour. Furthermore, the value of context-rich EE is paramount (Killian & Ferreira, 2013; Mahambehlala, 2019; Mandikonza, 2019; O'Donoghue et al.,2019; Schudel, 2014). The valuable principles of education for sustainable development will further allow learners to experience how our environmental decisions impact all spheres of our lives (see Figure 2.1).

Context is also important. Thus, teaching and learning need to relate to learners' immediate needs and environments. This can be achieved by involving learners in real-life scenarios, ideally within their communities, getting out of the physical classroom, and not merely teaching *about* the environment. This supports the triadic approach underpinning this study. Those factors that most influence learners' views concerning the environment could be integrated in EE lessons. This study revealed some of the significant influences our learners respond to in relation to forming their environmental views. Thus, it could be useful to incorporate some of these (the use of media, education *in* the environment for actual observations of their surroundings, and the influence of significant persons as role models) in lessons to better engage with environmental content on their terms. Learners partaking in this study indicated the low impact of education *about* the environment, as is often used in current EE praxis, to bring about behaviour change.

The principles of education for sustainable development and education *for* the environment can be the most effective strategy to spark pro-environmental behaviour in our learners. EE content and praxis should be designed to bring about discussion on social justice transformation. Learners can be encouraged to be conscious of the impact of people's actions on the local communities in any African context. They (learners) should be educated about the link between our social, political, economic and bio-physical aspects (O'Donoghue & Russo, 2004; Reddy, 2011). The interrelatedness of the components of the environment in a broader sense cannot be overemphasized. As a practical implementation of this, classroom discussion could centre around behaviour concerning the environment, the problem of littering, and the local landfill site (in the sample area). 128 of the participants in this study mentioned littering as a very real concern in their communities. However, only 10% of South Africa's trash enters recycling plants, and nearly all the landfill sites are reaching critical capacity (Daniel, 2020). Furthermore, the Human Rights Commission has been investigating the environmental, social, and economic impact of the hazardous

Msunduzi landfill site since early 2020 (South African Government, 2020; The Witness, 2021; Langa 2021). This provides the opportunity for education *for* the environment.

The present study showed that learners, generally, have high perceptions about the environment. Thus, teachers should focus more on the other two factors related to one's views concerning the environmental – attitudes and behaviour. The focus, within the context of EE, should be on incorporating the affective domain as this correlates to behaviour (see Table 4.8). In a field like EE, where foundational knowledge is essential for further developing more complex concepts, teachers should use teaching approaches in ways that help learners develop ideas through scaffolding (Cf. Luckay, 2010).

Concerning teachers, there should be a substantial shift to support them (teachers) to implement holistic EE better. Teachers might be the single-most-important factor to positively influence their classrooms and facilitate learners' journey to greater environmental sustainability. Dube (2012) highlighted that some teachers need support in addressing conceptual barriers concerning the nature of EE and ESD, and overcoming difficulties in identifying EE and ESD themes in the curriculum document. They further need a resource to reach out to if they need help in terms of incorporating these (EE) themes in their lessons. Teachers with weak conceptual frameworks might need even more explicit guidelines.

Teachers further need support from policymakers when implementing EE content. The guidelines for teaching from curriculum policy documents and workshops need to be clear, consistent and explicit. Mokhele (2011) made a revelation that many schools have all but ignored the environmental learning mandate in the curriculum. Dube (2012) supplied two reasons for this. Firstly, teachers prefer using traditional teacher-centred approaches (education *about* the environment) which enable them to finish syllabuses in time for examinations. Secondly, the use of outdoor learning such as fieldwork (education *in* the environment) and learner-centred approaches (education *for* the environment) are hindered by barriers such as shortage of resources, class time, large classes, deteriorating discipline, heavy workload and policy contradiction. These are all real concerns that teachers face daily, and for which there are currently not many solutions.

Constructing a deep comprehension of environmental and sustainability concepts takes time. As mentioned by Dube (2012), teachers often cite a shortage of teaching time as a barrier to incorporating EE. One way to alleviate this problem would be to reduce the current EE content coverage and supplement it with education for sustainable development content as a real-life learning experience.

The present research findings may suggest to policy stakeholders that the status quo is not very effective in changing our learners' views concerning the environment. The first recommendation would be to contextualise the current EE content in CAPS Natural Sciences to closely relate it to ESD principles. Sustainability content is not something that can only be looked at once a decade when policies are reformed. EE content needs to be relevant, contemporary and relatable, as it is a dynamic field that is constantly in flux.

A careful balance needs to be maintained between supporting teachers with weak conceptual frames (who might even need explicit guidelines and assistance with interpretation of policy documents) and entrusting the teaching community with the practical classroom pedagogy and curriculum implementation. One way of creating this balance would be to guide teachers insofar as to manage their time, the sequence and pace of their lessons for meaningful teaching and learning, along with a basic framework based on ESD principles. If curriculum guidelines have explicit instructions on how to implement EE principles, then teachers should be able to develop a deeper understanding of the curriculum and pedagogy. This might allow them to independently evaluate and use the concepts contained in the curriculum in practical and effective ways.

Our teachers need to be better trained in environmental content, and higher education institutions should incorporate these same ESD principles in their courses. This will allow a natural progression of young teachers incorporating EE in their classes in an organic way. If our teachers are taught to value the environment, then it should be logical for these principles to infuse their learning areas. Hashemzadeh (2016) called attention to the importance of EE to move people towards environmental awareness. The code of professional ethics for the South African council for educators (Parker, 2002) reminds us of the noble calling of the profession to educate and train the learners of our country. The attitudes, dedication, self-discipline, ideals, training and conduct of teachers will determine the quality of education (including EE) in this country, and uphold and promote basic human rights (including those about the environment), as embodied in the Constitution of South Africa (The Bill of Rights, 1996).

Studies on EE best praxis should be encouraged, supported and the results carefully considered. Data generated by NGOs and civic groups should be reviewed for their value in improving the field of EE.

Khumalo (2014) advocates for EE as a standalone subject. However, if it is not feasible to increase the amount of class time devoted to this learning area, then policy-makers could consider re-examining the amount of content included in the current syllabus.

There is a myriad of excellent resources available designed by reputable NGO's. For instance, Fundisa for Change (Brundrit, 2014; Slattery & Reddy, 2014; Songqwaru, 2012), Sustainability Starts with Teachers (UNESCO Global action programme on education for sustainable development, 2018) and others endorsed by the Environmental Education Association of Southern Africa (www.eeasa.org.za). These resources could be incorporated or recommended in parallel with the current curriculum without spending large amounts of money on redesigning an EE curriculum that needs constant review.

We can work smarter, not harder, to incorporate ESD principles across themes and learning areas. After all, that was the original intent of the integration of the environment in the revised curriculum. Some teachers might just need some additional support in achieving this.

Significance of the Study

Le Grange and Reddy (1997) advocate for environmental education (EE) as an essential instrument in social transformation for redress, social justice and equal participation in society by all South Africans. Likewise, the United Nations Educational, Scientific and Cultural Organization: UNESCO (2018) lobbies for EE to create more cohesiveness and equality. These opportunities concern the wellbeing of southern African people and are critical for our youth. Environmental issues present problems that disproportionately affect women, children and the underprivileged (Parker, 2019; Le Grange et al., 2011; Bangay & Blum, 2010), with those already being at-risk groups in South Africa (Statistics South Africa, 2019). We have witnessed (and still are) the contribution of our heavy carbon footprint around us. That is why, as Musiya (2019) reminds us, the health and prosperity of humanity are directly tied with the state of our environment.

Although environmental issues are supposed to be addressed through EE, some teachers feel frustrated, burdened, and ill-equipped with teaching them (Rahman et al., 2018). Reddy (2011) highlights the role of teachers' capacity to implement EE and presents the long-standing challenges to teachers in South Africa. Results from this study might help teachers to better inform their teaching praxis, act as a guide to be sensitised to the needs of their students and assist in identifying ways in which they can offer them more support. This study seeks to make a small but significant contribution to the field of EE in South Africa by

lobbying relevant stakeholders to the rethinking of the teaching and learning of EE in our current curriculum. Indeed, Schudel (2014) argues that a re-emphasis and review of new environmental knowledge and learning support materials is necessary.

There is a considerable amount of global and local literature showing that EE has not been taught effectively (Abbas & Singh, 2012; Ntanos et al., 2018), teachers can be better trained to teach it (EE) (Hinojo-Lucena et al., 2019; Reddy, 2011; Türkoğlu, 2019), there are many factors that affect environmental awareness to consider (Ziadat, 2009; Bozoglu et al., 2016; Eilam & Trop, 2012), the affective domain has a significant effect on environmental views (Aho, 1984; Brett et al., 2012; Hoch, 2017; Laso-Salvador et al., 2017; Littledyke, 2008; Yanofsky & Nyquist, 2010; Zeidler & Newton, 2017) and communities are willing to live more sustainably, regardless of obstacles (Al Mamun et al., 2018; De las Heras-Rosas & Herrera, 2019; Khan et al., 2019). Previous studies also suggest ways to improve EE (Ashmann & Franzen, 2015; Chen et al., 2020; John Frank et al., 2011) and point out the constraints to teaching it (EE) (Sukma et al., 2020). In South Africa, there are limited studies that have empowered learners by giving them a voice concerning their environment-based experiences and by tapping into their aforementioned educational outcomes. This study intended to allow participants to express their views about, their attitudes towards, and their behaviour concerning the environment.

In recent years, there has been growing interest (globally and locally) on the impact of human behaviour concerning the environment. Thus, most of what is taught should be linked with creating learner awareness of the importance of the environment in a broader sense in everyday life and all spheres of their lives.

Although the present study's findings cannot be generalised beyond its population, it may open the doors for similar studies in other areas, with other age groups or other learning areas. Killian and Ferreira (2013) underline the need for more research that is focused on closing the gap between environmental teaching methodology and attitude change, which will lead the way to pro-environmental behaviour. Hebe (2019) draws attention to the fact that the integration of EE is not on an upwards trajectory and that it is necessary to conduct ongoing enquiries that seek to find solutions for this shortcoming. He urges us to fill the gaps in the field of EE by exploring the research focus points that would contribute towards it (EE).

Recommendations for Further Research

The results from this study provide a launch pad and/or starting points for further research. A much-neglected area in environmental education research is the poorly understood link between the affective domain and behaviour. Suppose it is assumed that there is a relationship between learners' attitudes and behaviour concerning the environment (see Figure 4.6). In that case, the argument can be raised that merely increasing learners' environmental knowledge will not change their behaviour if we are not also considering the affective domain (Boca & Saraçli, 2019; Reddy, 2011; Van der Molen & Van Aalderen-Smeets, 2013). Correlation data suggested that learners' environmental knowledge had a limited impact on their behaviour, and presents an opportunity for further expansion of this trend. Limited contemporary literature is available on the correlation between learners' environmental perceptions and behaviour in a South African context, yet it is an interesting finding which can open the way for further studies.

The results of this research cannot be ignored despite their limitations, as they do provide a foundation for future research. The degree to which they suggest a relationship between environmental perceptions, attitudes, and behaviour must be understood with caution. For any significant conclusions to be made on the relationship between these indicators of environmental views, further studies must be conducted. The nature, direction and degree of the relationships between the indicators were not determined, and further exploration needs to be conducted. This would entail a more in-depth study over an extended period with more participants.

Future research could focus on investigating what would increase the level of learners' views concerning the environment or the factors that caused certain individuals to have positive ones (environmental views) while others do not.

A study with other age groups could determine whether learners' views concerning the environment change during a school career. Yeshalem (2013) lists a different range of demographic factors that could influence environmental views. The personal information that was removed from the original instrument could be included to provide supplementary context that may be used to check for patterns concerning the current study. Of significant interest would be whether the internal factors referred to by Yeshalem (2013) and Kollmuss and Agyeman (2002) (i.e., motivation, environmental knowledge, awareness, values,

attitudes, and emotion) could be incorporated in a study to determine the impact thereof on environmental views.

Yeshalem (2016) pointed to factors that could influence learners' views concerning the environment (pp. 12-13). The views are also mentioned in Kollmuss and Agyeman (2002), and Hines et al. (1987). These (factors) include financial, social and cultural issues, knowledge of environmental issues, knowledge of action strategies, action skills, locus of control, intention to act, personal responsibility and situational factors. The consideration of these factors raises many relevant questions for further research.

As mentioned elsewhere, nature experiences and Enviro clubs (a component of education *in* the environment) were mentioned by a surprisingly small number of participants in the qualitative data. As suggested, these findings could indicate that these learning experiences were not very effective in influencing views concerning the environment or might indicate that not many learners have access to these experiences. Contrary to that (the findings from the qualitative data), the bivariate analysis suggested a strong correlation between V (Volunteer activities, non-harmful actions) and R (Re-use 3R's). A study to investigate this relationship would be a valuable addition to our knowledge of EE praxis.

A further point of interest revealed by the qualitative data was the number of learners who mentioned various media platforms as an influence in shaping their views concerning the environment. Many international studies have been done on using technology in EE (Buchanan et al., 2018; Cheng et al., 2013; Sadik and Sadik, 2014), but this is a field that is under-researched in South Africa.

This study was conducted with only a few schools in a single district municipality and cannot be generalized, but the findings obtained are expected to contribute to future research. The results obtained open opportunities for future research in other areas, and with different grades. What would be of particular interest would be to conduct this study in an African context, possibly even comparing learners between countries in the SADC region to investigate tension or harmony concerning their learners' environmental perceptions, attitudes and behaviour. Studies in an African context could help redefine and better understand the cultural factors that impact views concerning the environment. It would allow for the transfer of best-practice in a local context. The cross-cultural environmental research can result in effective strategies and solutions to combat environmental problems facing our communities.

Concluding Summary

The primary objectives of the study were to investigate Grade 9 learners' views concerning the environment, and the factors that shape such views. The study adapted an instrument used by Boca and Saraçli (2019) to a younger, South African context. The items in the scales were designed to investigate seven factors that contributed to learners' environmental views. The views consisted of their environmental perceptions, attitudes (including those towards environmental education), and perceived behaviour. The instrument was used with 354 Grade 9 learners in Msunduzi and the Midlands, uMgungundlovu District Municipality, KwaZulu-Natal, South Africa. This was followed by the collection of qualitative data in the form of open-ended questions and a focus group interview.

Results from the study suggest that Grade 9 learners in this study have positive environmental perceptions, but less positive environmental attitudes and their environmental behaviour is perceived to be approaching negative. It was further implied that there are strong relationships between environmental perceptions and attitudes and between attitudes and pro-environmental behaviour. However, there was no significant relationship between environmental perceptions and behaviour. The results therefore suggested that being environmentally aware and actively concerned about environmental issues does not necessarily lead to a change in one's behaviour. The key indicators in the development of Grade 9 learners' environmental views appear to be media platforms (33.4%), learners' observations of the state of their environments (18.6%), and input by significant people outside of the school environment (16.1%). The broader implication is that learners with positive environmental perceptions and attitudes may still require further motivation or incentive to change their behaviour. This could be achieved through effectual environmental education (EE), and in particular, education for sustainable development.

Schools in South Africa have the potential to use their resources, facilities and infrastructure, as well as the expertise of their teachers to implement and sustain successful EE. Learning outcomes should focus on including sustainability content in all contexts. Teachers, and our curriculum content, can play a crucial role in educating our learners about sustainable development. Because environment and education coexist with sustainable development, they can influence the way institutions define and put into practice EE (Boca and Saraçli, 2019). EE must transform to embrace a multidisciplinary nature that includes the political, economic, social and biophysical aspects (Reddy, 2011). Very few learners in

the study considered that the environment should be viewed in this broader sense. However, when highlighted in the focus group interview, learners agreed that this would be a useful strategy to gain a holistic understanding of the environment.

Boca and Saraçli (2019) further suggest maintaining a balance between providing information, using outdoor education, and giving learners opportunities to engage with real-life national and global environmental problems they can understand, to encourage inquiry, problem-solving and practical environmental action. These concepts relate to the theoretical framework of education about, in, and for the environment. Education for the environment is closely related to the foundational principles of education for sustainable development – the current golden standard for environmental education.

When most of us think back to our education, the profound moments we remember involve teachers, not content, techniques or methodology. Philosophers have supported this notion over the ages – when learners only hear information they will forget it, when they experience something tangible, they will remember, but it is only when they are empowered through an inclusive, learner-centred learning process that allows for application and reflexivity that they truly understand and are inspired to change their values and behaviour.

Current praxis seems to be only moderately successful in educating our learners about the environment and sustainable development and encouraging pro-active environmental behaviour. Learners are not encouraged to take ownership of their choices concerning the environment or the consequences thereof. The learners' levels of attitudes and behaviour concerning the environment highlighted key features that need to be addressed. A key finding was that learners' environmental behaviour, in particular, was of a poor standard. Their behaviour concerning the environment was shown to be supported by attitudes but not so much by perceptions concerning it (environment).

Musiya (2019) reminds us that a healthy environment is both a prerequisite and a foundation for economic prosperity, human health and wellbeing. The principles of ESD depict that no one should be left behind and that all should live healthy, fulfilling lives for the full benefit of all, for both present and future generations. Unsustainable consumption of resources, population growth, and the deterioration in planetary health at unprecedented rates, have increasingly serious consequences, especially for poorer people and regions.

Investing in quality EE can no longer be delayed and has the long-lasting reward of having a knock-on effect on future generations. We need to educate our communities because everyone deserves equal economic, political and social rights and opportunities

without putting our biophysical environment at peril. ESD will open the doors of access and opportunity for everyone, particularly those in greatest need.

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List of Appendices

Appendix A: Combined information sheet, permission letter and questionnaire

Science & Technology Cluster, School of Education, College of Humanities, UKZN, Edgewood Campus

Dear Participant

My name is Talita Kassier. I am a Master of Education student at the University of KwaZulu-Natal. I am conducting research entitled **'A study of Grade 9 learners' views about the environment in terms of perceptions, attitudes and behaviour'.**

I am interested in learning about:

- Your perceptions about the environment
- Your attitude regarding learning about the environment
- Your behaviour towards the environment
- The factors that shaped your environmental views

What will be expected of you:

1. Complete a questionnaire of 25-30 minute duration.
2. At a later stage some learners might be selected to take part in a group discussion (optional)

This study was ethically reviewed by the UKZN Humanities and Social Sciences Research Ethics Committee (HSSREC/00003153/2021), the KZN Department of Education has given permission for this study to be conducted (Ref:2/4/8/1803), and your school principal has given permission for you to take part in this study. I ensure no harm will come to any of the participants through this study.

Please contact me on 0765674677 or talitakassier@outlook.com should you have any questions.

Thank you

[redacted]

Talita Kassier

What you need to know:

You can ask any questions to help you understand the study

Your participation is entirely voluntary

Your identity is not tracked and will never be disclosed

Pseudonyms will be used to protect your identity

You may withdraw from the study at any time without any negative consequences

You can contact the researcher at any stage if you have questions or concerns about the study

PARTICIPANT CONSENT ☐

Please tick the box if you understand the purpose and procedures of the study and consent to participating in the research project.

1. For each statement, **tick** (✓) the option that best describes your views about the environment.

NOTE: 1 – Strongly agree; 2 – Agree; 3 – Neutral; 4 – Disagree; 5 – Strongly disagree; U – Uncertain

Item	Statement	*Tick (✓)					
		1	2	3	4	5	U
A1	I believe environmental issues like global warming are very serious						
A2	I believe human behaviour is causing environmental problems						
A3	I think that environmental pollution will make the world an uninhabitable place						
A4	I believe that the extinction of animals and plants will destroy the world						
B1	I am concerned about the effects of air pollution on others						
B2	I am concerned about the effects of air pollution on me						
B3	I am concerned about factory wastes causing environmental pollution						
B4	I am concerned about issues like rhino poaching or overfishing in our oceans						
B5	I have serious concerns about issues like access to clean water						
B6	I am concerned about issues like plastic pollution of our oceans						
B7	I am concerned about habitat loss to make way for urban growth (cities)						
C1	It is important not to use as much water, electricity and petrol as you want/can afford to						
C2	I enjoy nature activities like hiking, picnics or camping						
C3	I am concerned about the rate of global population growth						
C4	I have concerns about the disposal of waste or litter in my area						
C5	Protecting the environment for future generations is important						
C6	I will not buy products that have been tested on animals or use products that destroy habitats						
C7	I like buying 'Proudly South African' products produced in our country						
C8	It is important to learn about the environment						
C9	It is important to be seen caring for the environment						
C10	My family will not use manmade fertilizers, pesticides and herbicides in our garden						

D1	I will not show destructive behaviour towards the environment						
D2	I will strive to not directly and indirectly harm the environment with my lifestyle choices						
D3	I talk to my friends and/or family about environmental issues						
D4	I will not waste products produced from non-renewable resources like natural oil, coal and gas						
D5	I will consider my transport habits to cut down on carbon emissions						
D6	I buy sustainably even if it means I can't have the latest fashion clothes, shoes or technology device						
D7	I will consider only replacing personal technology devices (i.e. cell phones, tablets, laptops) when they have reached the end of their life, not just because a newer version is available						
E1	I will warn those around me who litter						
E2	It is my responsibility to warn those harming plants in natural areas						
E3	I will warn those in my immediate vicinity to refrain from any unnecessary consumption/waste of natural resources						
E4	It is my responsibility to warn those around me who do not dispose of household sewerage appropriately						
F1	I will be an actively involved member of nature and environmental organizations						
F2	I think community tree-planting activities are a good thing						
F3	I will take part in environmental cleaning campaigns of local green space and waterways						
F4	I think it is important to take part in workdays to clear alien species in my area						
G1	I buy products with recyclable packaging						
G2	I set aside product packaging for recycling						
G3	I prefer using products produced from renewable raw materials (biodegradable)						
G4	I do not buy items packaged in single-use plastic						
G5	My family reuses any bottles and containers that are sturdy enough for multiple use						
G6	There is a recycling station near my home or school						

2a. What do you think of the environment regarding its importance?

2b. What do you think of learners' attitudes towards the environment, and learning about the environment?

2c. What do you think of learners' behaviour towards the environment?

3. What are the influential factors that shaped your views about the environment?

Thank you for taking part in this study!

Appendix B: Comparison Gratiela and Saraçli (2019) instrument

Item	Statement	From Gratiela, B., & Saraçli, S. (2019).
	PERCEPTION	
	IE: Importance of the Environment	
A1	I believe environmental issues like global warming are being exaggerated	I believe environmental issues are being exaggerated
A2	I have serious concerns about issues like access to clean water	I never have serious concerns about issues like water
A3	I am very concerned about issues like plastic pollution of our oceans	I never have serious concerns about issues like marine pollution
A4	I believe that the extinction of plants and animals will destroy the world	I don't believe that the extinction of animals and plants will destroy the World
	CE: Concern about the Environment	
B1	I am concerned about the effects of air pollution on my family	I am concerned about the effects of air pollution on my family
B2	I am concerned about the effects of air pollution on me	I am concerned about effects of air pollution on me
B3	It annoys me to see that factory wastes cause environmental pollution	It's annoys me to see that factory wastes cause environment pollution
B4	I am very concerned about rhino poaching	
B5	I am concerned about overfishing in our oceans	
B6	I think that environmental pollution will make the world an uninhabitable place	I am afraid that environmental pollution will make the world an uninhabitable place
B7	I am concerned about habitat loss to make way for urban growth (cities)	
		Environmental pollution worries me
	ENVIRONMENTAL ATTITUDE	
	CUE: Culture Environment	
C1	I will check and switch off unnecessarily used lights	I will check and switch off unnecessarily used lights
C2	I use both sides of papers when I am writing or studying	I will use the back of papers when I am studying
C3	I am concerned about the rate of global population growth	
C4	I have concerns about disposal of waste in my area	
C5	I am buying ecologically friendly products even if they are more expensive	
C6	I will not buy products that have been tested on animals or use products that destroy habitats	
C7	I like buying 'Proudly South African' products produced in our country	
C8	I do consider whether items are produced locally before I buy them	
C9	It is important to be seen caring for the environment	
C10	My family will not use manmade fertilizers, pesticides and herbicides in our garden	
		I will warn those polluting the nature
	P: Participation	

D1	I will not show destructive behaviour towards the environment	
D2	I will strive to not directly and indirectly harm the environment with my lifestyle choices	I will not directly and indirectly harm environment with economic concerns in my business and private life
D3	I will do my best to make the environment I live in more liveable	I will do my best to make the environment I live in more livable
D4	I will not waste products produced from non-renewable resources like underground oil, coal and natural gas	
D5	I will consider my transport habits to cut down on carbon emissions	
D6	I do consider buying sustainably when I can wear the latest fashion clothes, shoes or device	
D7	I will consider only replacing personal technology devices (i.e. cell phones, tablets, laptops) when they have reached the end of their life, not just because a newer version is available	
		I will show no violence and aggression towards the environment I live in and what is inside it
	W: Warning	
E1	I will warn those around me who litter	
E2	I think it is my place to warn those harming plants in natural areas	I will warn those harming trees and flowers in parks and gardens
E3	I will warn those in my immediate vicinity to refrain from any unnecessary consumption of natural resources	I will warn those in my immediate vicinity to refrain from any unnecessary consumption
E4	It is my responsibility to warn those around me who do not dispose of household sewerage appropriately	
		I will fight those endangering the nature
	V Volunteer	
F1	I will be an actively involved member of nature and environmental organizations	I will be an actively involved member of nature and environmental organizations like mention it
F2	I think community tree-planting activities are a good thing	
F3	I will take part in environmental cleaning campaigns of local green space and waterways	I will take part in environmental cleaning campaigns
F4	I think it is important to take part in workdays to clear alien species in my area	
		I will work on a voluntary basis for nature and human beings
		I will take action on nature polluters with the local authorities
		I will set aside the wastes of products consumed for recycling
		I will use products produced from non-renewable resources like underground oil, coal, natural gas, and mines in an economical manner because we will be unable to replace them with new resources
		I will make noun necessary consumption to make sure pollution is eliminated at its source

	BEHAVIOUR	
	R: Reuse	
G1	I am buying products with recyclable packaging	
G2	I set aside product packaging for recycling	I am buying products with recyclable packaging
G3	I prefer using products produced from renewable raw materials	I prefer using products produced from renewable raw materials
G4	I do not buy items packaged in single-use plastic	
G5	My family reuses any bottles and containers that are sturdy enough for multiple use	
G6	There is no recycling station near my home or school	

Appendix C: Qualitative interview schedule

Interview Schedule – Qualitative Stage

A basic structure for questions, that will be adapted after analysis of Stage 1 data:

Primary focus	Key question
1. The concept environment	What do you think the environment is?
2. The importance of the environment	What does the natural environment mean to you?
3. Perceptions towards the environment	What concerns you about the environment?
4. Attitude towards environmental education	Do you think it is important to learn about the environment at school?
5. Behaviour towards the environment	Can you tell me about some things you are doing to protect the environment?
6. Factors that shaped environmental views	Has anything from your personal experiences made you decide that it is important to care for the environment?

Appendix D: Application to KZN DOE for permission to conduct research

education
Department:
Education
PROVINCE OF KWAZULU-NATAL

Application for Permission to Conduct Research in KwaZulu Natal Department of Education Institutions

1. Applicants Details

Title: Mrs | Surname: Kassier

Name of Applicant: Talita | Email: talitakassier@outlook.com

Cell: 076 567 4677

Postal Address: 35 Bergview Road, Hilton, 3201

2. Is the proposed research part of a tertiary qualification? | **Yes×** | **No**

Name of tertiary institution: University of KwaZulu-Natal

Faculty and or School: College of Humanities

Qualification: M.Ed (Science Education)

Name of Supervisor: Dr Leonard Molefe **Supervisors Signature** [redacted]

3. Have you applied for permission to conduct this research or any other research within the KZNDoE institutions? | **Yes** | **No×**

If "yes", please state reference Number: n/a

4. Proposed Research Title:

A study of Grade 9 learners' views about the environment in terms of perceptions, attitudes and behaviour.

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5. **Briefly state the Research Background**

One of the principles that underpins the National Curriculum Statement (NCS) Grades R-12 is environmental justice (DBE, 2011). Active and critical learning is also emphasized in the NCS. The curriculum further elaborates on the kind of learner it envisages: Such a learner should understand the use of "*scientific knowledge responsibly* in the interest of *ourselves*, of *society* and the *environment*" (p. 9; emphases added). Environmental awareness is enshrined in the learning of Natural Sciences. This is evident in all the specific aims of the subject (DBE, 2011).

Reddy (2011) pointed to the importance of affective objectives in his arguments about the development of environmental education (EE) in South Africa. He highlighted the role of teachers' capacity to implement EE that entails such objectives, the skills learners are required to acquire and the knowledge content specified in the NCS. The development of educational outcomes in science education (e.g., scientific skills, knowledge, attitudes, values, behaviour, etc.) can no longer be taught without creating learner awareness of the importance of the environment in our everyday life.

Boca and Saraçli (2019) argued:

> According to the Tiblisi Declaration (1997), environmental education is a process aimed at developing a world population that is *aware of* and *concerned about the whole environment* and *its associated problems* and which has the *knowledge*, *attitudes*, *motivations*, *commitment*, and *skills* to work individually and collectively toward *solutions* of current problems and the *prevention* of new ones. (p. 2; emphases added)

In the light of these arguments, the present study seeks to investigate Grade 9 learners' perceptions on the environment. Affective domain has an impact on behaviour (van Aalderen-Smeets & van der Molen, 2013) and the two (affective and behaviour) are key in EE (Boca & Saraçli, 2019). This study will further investigate learners' learning experiences and attitudes in relation to EE. Context plays an important role in learners' learning about the environment or EE (Reddy, 2011), thus the study will also draw from focus groups involving the researcher and learners to elicit factors that shape their views about the environment.

- What is the main research question(s) :

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- What views concerning the environment exist among Grade 9 learners?
- What factors shaped the learners' views about the environment?
- What statistical correlations might exist between the learners' perceptions of the environment, their attitudes regarding the environment, and their perceived behaviour towards the environment?

6. Methodology including sampling procedures and the people to be included in the sample:

The research will be conducted among 56 schools in the uMgungundlovu district municipality (concentrating on Msunduzi and Midlands) in the KwaZulu-Natal province (see map attached). A mixed-method sequential explanatory design will be followed. Stage 1 will collect quantitative data using an attitudinal Likert scale questionnaire (n=375) through multistage cluster sampling (schools – entire Grade 9 NS classes). Stage 2 will collect qualitative data through focus group interviews using judgmental/purposive sampling of small groups of learners (n=30). The 56 schools will be ordered alphabetically, and every 6th school will be included in the sample (11 schools).

Should I not be able to access schools to conduct research due to the Covid_19 epidemic and state of emergency social distancing measures in place, I will use the accessible population and revert to convenience sampling (captive sampling of whole classes) of schools and learners that have access to an electronic version of the instrument. To collect the data for Stage 2 an open-ended question for qualitative analysis has been included in the questionnaire.

KZN Department of Education Schools or Institutions from which sample will be drawn – If the list is long please attach at the end of the form

Please see appendix A

What contribution will the proposed study make to the education, health, safety, welfare of the learners and to the education system as a whole?:

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The purpose of this study is to explore Grade 9 learners' views about the environment, in tandem with their attitudes and behaviour towards the environment.

The study will investigate the learners' attitudes towards learning about their environment in a broader sense. This will be a guide for science educators to be sensitized to the needs of their students and assist in identifying ways in which they can offer more support (McLaren, 2012).

EE has long presented a challenge to teachers in South Africa, hence the need for praxis that might emotionally and intellectually engage learners into the development of deep approach to learning about the environment (Reddy, 2011), and affect change in behaviour.

Results from this study might help educators to better inform their teaching methodology and outcomes by integrating EE more efficiently in their lessons. Although my findings cannot be generalised beyond the population of my study, it may open the doors for similar studies in other areas, with other age groups or other learning areas. This study seeks to make a small but significant contribution to EE in South Africa by lobbying relevant stakeholders to the rethinking of the teaching and learning of EE in our current curriculum.

Research data collection instruments:

Stage 1 (quantitative data collection): A questionnaire adapted from a Boca and Saraçlı (2019, p. 9-11) Likert scale to investigate the learners' views about the environment, in tandem with their attitudes and behaviour towards the environment. The views, attitudes and behaviour section (Section 1) will entail items based on *importance of environment* (A1-4); *concerns about environment* (B1-7); *culture environment* (C1-10); *participation in different activities regarding the environment* (D1-7); *warning attitude regarding environment* (E1-4); *volunteer activities, non-harmful actions,* and *reuse 3R's* (G1-6). Items in the questionnaire will be based on the background content of the topic *Interactions and interdependence within the environment* (DBE, 2011), which entails an introduction to ecology, ecosystems, feeding relationships, energy flow in food chains and food webs, balance in ecosystems, species adaptations and conservation of ecosystems. Learners encountered this topic in Grade 8, so it should provide them with a context and content framework they are familiar with.

Section 2 on shaping factors will be an open-ended question where learners can state the major shaping

factors on their environmental awareness, .

Schools who have access to a computer lab will be supplied with an online version of the questionnaire (i.e., Google Form). If a school does not have this facility a paper copy (see appendix) will be made available.

Stage 2 (qualitative data collection): For the qualitative instrument an interview guide (Gibbs, 2012) of five to seven open-ended questions (Mertens, 2015) will be designed to lead the discussions. This will largely be done after data from Stage 1 of the research has been analysed and themes and topics for clarification have been identified, and will be guided by a heuristic framework to consider practical and ethical issues in using focus groups with young people (Sherriff et al, 2014). Questions will be included to elaborate on learners' responses to the questionnaire, and especially to address research question 2:

7. **Procedure for obtaining consent of participants and where appropriate parents or guardians:**

The researcher will contact the schools selected in the sample to inform them of the intended research, as well as inform all participants selected for the quantitative stage and give them the opportunity to decline being part of the study, by supplying them with an information sheet, consent form and letter of invitation (Gibbs, 2012). As the population for this study will be minors, gatekeeper consent will be obtained. For the qualitative stage the researcher will make explicit what a focus group involves through an informed consent form.

Procedure to maintain confidentiality (if applicable):

Data will be kept in a secure password-protected location, and only the researcher and supervisor will have access to the documents. Independent, blind parallel coding checks will be done with raw data with no reference to the schools or individuals involved. Content will be destroyed after 5 years.

Questions or issues with the potential to be intrusive, upsetting or incriminating to participants (if applicable):

n/a

Additional support available to participants in the event of disturbance resulting from intrusive questions or issues (if applicable):

Before commencement of the study ethical clearance will be obtained from the Board of Ethics at the University of KwaZulu-Natal and the Department of Education, to ensure that no physical, psychological or social harm will come to the participants as a result of taking part in the study (principle of *primum non nocere*).

All participants will be given the opportunity to decline being part of the study or refrain from answering questions they are not comfortable with. Participants will be reassured that all responses will be anonymous.

For the qualitative stage the researcher will make explicit what a focus group involves through an informed consent form and again verbally at the start of the interview, ask for permission to audio record responses, follow the appropriate consent procedures for minors taking part in research, select a setting participants are familiar and comfortable with and facilitate the discussion in a democratic way to guard against group conflict (Sherriff et al, 2014). All participants will be offered the chance to debrief (Gibbs, 2012), should this be desired or necessary.

8. Research Timelines :

STEPS	DATES
Proposal defense	13 April 2021
Application for ethical clearance	11 August 2021
Pilot study (QUAN)	September 2021
QUAN data collection	Sep - Oct 2021
QUAN data analysis	October 2021
Focus group interviews	Nov - Dec 2021
Qual data analysis	December 2021
Thesis write-up	Jan - Feb 2021
Submit thesis for examination	March 2021

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9. Agreement to provide and to grant the KwaZulu Natal Department of Education the right to publish a summary of the report.

I/We agree to provide the KwaZulu Natal Department of Education with a copy of any report or dissertation written on the basis of information gained through the research activities described in this application.

I/We grant the KwaZulu Natal Department of Education the right to publish an edited summary of this report or dissertation using the print or electronic media.

[redacted]

23 April 2021

Signature of Applicant(s) **Date**

10. Declaration

I hereby agree to comply with the relevant ethical conduct to ensure that participants' privacy and the confidentiality of records and other critical information.

I Talita Kassier declare that the above information is true and correct

[redacted]

23 April 2021

Signature of Applicant **Date**

Return a completed form to:
Phindile Duma – Tel: 033 392 1063
Office of the HOD; KwaZulu Natal Department of Education

Hand Delivered:
Office 318; 247 Burger Street; Anton Lembede House; Pietermaritzburg; 3201
Or
Ordinary Mail
Private Bag X9137; Pietermaritzburg; 3200
Or
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Fax
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Appendix E: KZN DOE permission letter - Kassier 1803

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 1063
Email: Phindile.duma@kzndoe.gov.za

Enquiries: Phindile Duma **Ref.:** 2/4/8/1803

Mrs T Kassier
35 Bergview Road
HILTON
3201

Dear Mrs Kassier

PERMISSION TO CONDUCT RESEARCH IN THE KZN DoE INSTITUTIONS

Your application to conduct research entitled: **"A STUDY OF GRADE 9 LEARNERS' VIEWS ABOUT THE ENVIRONMENT IN TERMS OF PERCEPTIONS, ATTITUDES AND BEHAVIOUR"**, 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 13 September 2021 to 13 September 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.

UMGUNGUNDLOVU DISTRICT

[redacted]

Dr. EV Nzama
Head of Department: Education
Date: 13 September 2021

GROWING KWAZULU-NATAL TOGETHER

Appendix F: HSSREC ethics approval letter

UNIVERSITY OF KWAZULU-NATAL
INYUVESI YAKWAZULU-NATALI

18 September 2021

Mrs Talita Kassier (220112334)
School Of Education
Edgewood Campus

Dear Mrs Kassier,

Protocol reference number: HSSREC/00003153/2021
Project title: A study of Grade 9 learners views about the environment in terms of perceptions, attitudes and behaviour.
Degree: Masters

Approval Notification – Expedited Application

This letter serves to notify you that your application received on 11 August 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 18 September 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

Appendix G: Combined information and permission letter – Gatekeeper

Science and Technology Cluster,
School of Education, College of Humanities,
University of KwaZulu-Natal, Edgewood Campus

4 May 2021

Dear Headmaster/Principal/School Manager

PERMISSION LETTER for research with Grade 9 Learners

My name is Talita Kassier. I am a Master of Education (M.Ed) student from the Science and Technology Cluster, School of Education, College of Humanities, University of KwaZulu-Natal. I am conducting research entitled **'A study of Grade 9 learners' views about the environment in terms of perceptions, attitudes and behaviour'.**

This study seeks to investigate Grade 9 learners' views concerning the environment. These views will be explored in relation to indicators of their deep perceptions about the environment, their attitudes regarding learning about the environment, and their behaviour towards the environment. As context is equally important, this study will further investigate the influential factors that shaped the environmental views of these learners.

In the light of the above, I intend to explore the views concerning the environment of Grade 9 learners through items in a questionnaire and follow up with selecting a small group of learners at some of the schools taking part in the study, to take part in a focus group interview to discuss these views.

The objectives of the research are as follows:

- To explore Grade 9 learners' views (i.e., perceptions, attitudes and behaviour) concerning the environment

- To investigate influential factors that shaped the learners' views about the environment.

Your school has been randomly selected as part of my sample, and you are invited to please participate in the study. To gather the information I am interested in, I am kindly requesting you to allow one of your Grade 9 classes to participate in this project by reflecting critically on their views, attitude, and behaviour towards the environment, as well as the influential factors that shaped their environmental views. I will ask learners to complete some questions in a questionnaire, of 25-30 minute duration. At a later stage, I will select a small group of learners to further participate in a focus group interview of 25-30 minute duration in which I will ask them to elaborate on their answers from the questionnaire (not all schools, and not learners will be selected for this part of the study). An electronic version of the questionnaire is available, should you prefer for the learners to complete it in this manner.

This study is being ethically reviewed by the UKZN Humanities and Social Sciences Research Ethics Committee to ensure no harm will come to any of the participants through this study.

Please note the following for the learners taking part in the study:

- Your participation is voluntary. If you do not participate you **will not be penalized** in any way.
- Your confidentiality is guaranteed as your answers will not be attributed to you in person but reported only as a population member opinion. **Your answers will always remain anonymous.**
- The completion of the questionnaire will last about 25-30 minutes.
- The focus group interviews will last for about 25-30 minutes.
- Any information given by you cannot be used against you, and the collected data will be used for purposes of this research only.
- Data will be in the form of completed questionnaires and interview transcripts, and will be stored in secure storage and destroyed by shredding after 5 years. Digitally recorded data will be deleted after five years.
- You have a choice to participate, not participate or stop participating in the research. You will not be penalized for taking any such action. You are free to withdraw from the research at any stage and for any reason.

- Your involvement is purely for academic purposes only, and there are **no financial** benefits involved. However, it is expected that you will gain insight about Grade 9 learners' views about the environment, and attitudes towards environmental education.

Thank you
Yours faithfully

Talita Kassier

My contact details are as follows:
Email: talitakassier@outlook.com
Cell phone: 076 567 4677

My supervisor is Prof Leonard Molefe. He is a lecturer at the School of. Education, College of Humanities, Edgewood Campus, University of KwaZulu-Natal

My supervisor's contact details are:
Email: molefe@ukzn.ac.za
Phone number: (031) 260 3447

You may also contact the Research Office at:

University of KwaZulu-Natal

Humanities and Social Sciences Research Ethics

Govan Mbeki Centre

Tel (031) 260 4557

Email: HSSREC@ukzn.ac.za

Thank you for reading this document about this research.

DECLARATION OF CONSENT

I ..... (Full names of Principal) of ..... (Name of School) hereby confirm that I have been informed about the study entitled '**A study of Grade 9 learners' views about the environment in terms of perceptions, attitudes and behaviour**' by Talita Kassier. I understand the contents of this document and the nature of the research project, and I consent to participating in the research project.

I understand the purpose and procedures of the study.

I have been given an opportunity to ask questions about the study and have had answers to my satisfaction.

I declare that my participation in this study is entirely voluntary and that I may withdraw at any time without negative consequences.

I give permission for the interviews to be audio-recorded (please indicate preference below).

My identity will not be disclosed, and pseudonyms will be used to protect my identity

If I have any further questions/concerns or queries related to the study I understand that I may contact the researcher at talitakassier@outlook.com or 076 567 4677.

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 researcher, then I may contact:

HUMANITIES & SOCIAL SCIENCES RESEARCH ETHICS ADMINISTRATION

Research Office, Westville Campus
Govan Mbeki Building
Private Bag X 54001
Durban
4000

Email: HSSREC@ukzn.ac.za

A copy of this consent form can be emailed to talitakassier@outlook.com

A photo can be Whattsapped to 0765674677

Or the researcher can collect it from your school

Additional consent, where applicable:

- Please indicate your preference for the completion of the questionnaire:

	Digital	Hard copy
Questionnaire format		

- I am willing to allow a small group of learners to take part in a focus group interview with the researcher at a later stage, to gain deeper insight into their environmental views:

	Willing	Not willing
Learners to take part in focus group interviews with the researcher		

- I am also willing to allow recording of the focus group interviews by the following equipment to allow for transcription of the data at a later stage by the researcher, and the use of other data:

	Willing	Not willing
Digital audio recording of interviews		

.....

Name of Principal

....

Signature of Principal **Date**

.....

School stamp

Appendix H: Combined information and permission letter – Parent or Guardian

Science and Technology Cluster,
School of Education, College of Humanities,
University of KwaZulu-Natal, Edgewood Campus

_____ 2021

Dear Parent/Guardian

PERMISSION LETTER for research with Grade 9 Learners

My name is Talita Kassler. I am a Master of Education (M.Ed) student at the University of KwaZulu-Natal. I am conducting research entitled **'A study of Grade 9 learners' views about the environment in terms of perceptions, attitudes and behaviour'.**

This study seeks to investigate Grade 9 learners' views concerning the environment. These views will be explored in relation to indicators of their deep perceptions about the environment, their attitudes regarding learning about the environment, and their behaviour towards the environment. As context is equally important, this study will further investigate the influential factors that shaped the environmental views of these learners.

The objectives of the research are as follows:

- To explore Grade 9 learners' views (i.e., perceptions, attitudes and behaviour) concerning the environment
- To investigate influential factors that shaped the learners' views about the environment.

The school your child attends has been randomly selected as part of my sample, and you are invited to please allow them to participate in the study. To gather the information I am interested in, I am kindly requesting you to allow your Grade 9 child to participate in this project. **This is in no way intended to impact on lesson time.** Learners will be asked to complete a questionnaire of 25-30 minute duration. At a later stage, I will select a small group of learners to further participate

in a focus group interview of 25-30 minute duration in which I will ask them to elaborate on their answers from the questionnaire (not all schools, and not learners will be selected for this part of the study). An electronic version of the questionnaire is available, should you prefer your child to complete it in this manner. The research will be done during Term 3.

This study is being ethically reviewed by the UKZN Humanities and Social Sciences Research Ethics Committee to ensure no harm will come to any of the participants through this study.

Please contact me on 0765674677 or talitakassier@outlook.com should you have any questions.

Thank you
Yours faithfully

[redacted]

Talita Kassier

The attached consent form can be returned to:

Scan and email to talitakassier@outlook.com

Whattsapp a photo to 076 567 4677

Or return it to your child's teacher at school.

My supervisor is Prof Leonard Molefe. He is a lecturer at the School of. Education, College of Humanities, Edgewood Campus, University of KwaZulu-Natal. His contact details are as follows:
Email: molefe@ukzn.ac.za **Phone number: (031) 260 3447**

You may also contact the Research Office at:
University of KwaZulu-Natal - Humanities and Social Sciences Research Ethics
Govan Mbeki Centre **Tel (031) 260 4557** **Email: HSSREC@ukzn.ac.za**

DECLARATION OF CONSENT

I ..... (Full names of Parent/Guardian)
parent or guardian of ..... (Name child)
hereby confirm that I have been informed about the study entitled '**A study of Grade 9 learners' views about the environment in terms of perceptions, attitudes and behaviour**' by Talita Kassler. I understand the contents of this document and the nature of the research project, and I consent to my child participating in the research project.

I understand the purpose and procedures of the study.

I have been given an opportunity to ask questions about the study and have had answers to my satisfaction.

I declare that my child's participation in this study is entirely voluntary and that I may withdraw them at any time without negative consequences.

I give permission for the interviews to be audio-recorded (please indicate preference below).

My child's identity will not be disclosed, and pseudonyms will be used to protect their identity

If I have any further questions/concerns or queries related to the study I understand that I may contact the researcher at talitakassler@outlook.com or 076 567 4677.

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 researcher, then I may contact:

HUMANITIES & SOCIAL SCIENCES RESEARCH ETHICS ADMINISTRATION

Research Office, Westville Campus
Govan Mbeki Building
Private Bag X 54001
Durban
4000

Email: HSSREC@ukzn.ac.za

A copy of this consent form can be emailed to talitakassler@outlook.com

A photo can be Whattsapped to 0765674677

Or the form can be sent to your child's teacher at school

Additional consent, where applicable:

- I am willing to allow my child to take part in a focus group interview with the researcher at a later stage, to gain deeper insight into their environmental views:

	Willing	Not willing
Learners to take part in focus group interviews with the researcher		

- I am also willing to allow recording of the focus group interviews by the following equipment to allow for transcription of the data at a later stage by the researcher, and the use of other data:

	Willing	Not willing
Digital audio recording of interviews		

.....

Name of Parent/Guardian

....

Signature of Parent/Guardian **Date**

Appendix I: Combined information and permission letter – Participant

Science and Technology Cluster,
School of Education, College of Humanities,
University of KwaZulu-Natal, Edgewood Campus

_____ 2021

Dear Participant

PERMISSION LETTER for research with Grade 9 Learners

My name is Talita Kassier. I am a Master of Education (M.Ed) student at the University of KwaZulu-Natal. I am conducting research entitled **'A study of Grade 9 learners' views about the environment in terms of perceptions, attitudes and behaviour'.**

I am interested in learning about:

- Your perceptions about the environment
- Your attitude regarding learning about the environment
- Your behaviour towards the environment
- The factors that shaped your environmental views

The school you attend has been selected as part of my sample, and you are invited to please participate in the study.

What will be expected of you:

1. Complete a questionnaire of 25-30 minute duration.
2. At a later stage some learners might be selected to take part in a group discussion (optional)

This is in no way intended to impact on your lesson time

This study is being ethically reviewed by the UKZN Humanities and Social Sciences Research Ethics Committee, the KZN Department has given permission for this study to be conducted, and

your school principal and parents/guardians have given permission for you to take part in this study. I ensure no harm will come to any of the participants through this study.

Please contact me on 0765674677 or talitakassier@outlook.com should you have any questions.

Thank you

Yours faithfully

Talita Kassier

My supervisor is Prof Leonard Molefe. He is a lecturer at the School of Education, College of Humanities, Edgewood Campus, University of KwaZulu-Natal. His contact details are as follows:

Email: molefe@ukzn.ac.za **Phone number: (031) 260 3447**

You may also contact the Research Office at:

University of KwaZulu-Natal - Humanities and Social Sciences Research Ethics

Govan Mbeki Centre **Tel (031) 260 4557** **Email: HSSREC@ukzn.ac.za**

PARTICIPANT CONSENT

I ..... (Full names of Participant) hereby confirm that I have been informed about the study entitled '**A study of Grade 9 learners' views about the environment in terms of perceptions, attitudes and behaviour**' by Talita Kassier.

What you need to know:

You can ask any questions to help you understand the study

Your participation is entirely voluntary

Your identity will never be disclosed

Pseudonyms will be used to protect your identity

You may withdraw from the study at any time without any negative consequences

You can contact the researcher at any stage if you have questions or concerns about the study

I understand the purpose and procedures of the study and consent to participating in the research project.

I give permission for my responses in the interviews to be audio recorded (not all learners will take part in this)

.....

Name of Participant

....

Signature of Participant **Date**

Appendix J: SPSS summary report – Environmental perceptions

21/11/2021 11:18

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
				22	T	28/10/2021 11:39

I think that more people should focus on keeping their environment clean. Some, most people aren't even realizing what they doing to the environment by leaving, or throwing their waste wherever they want
I think the environment is important and we as humans are responsible for looking after it as much as possible. I think other animals and plants deserve as much help as we can give them. It is also our own environment so our species needs it to stay healthy

				23	T	28/10/2021 11:40

it's important to conserve their environment precious resources for future use
it is important because a lot of people don't see the damage that they're causing because it affects other people's health
many people these days do whatever they want to their environment (like litter) and don't care about the consequences because they think it won't affect them. Our environment is important because it is what gives us life and the things we use right now. Plants and trees give us oxygen but people cut them down or not take care of them

				24	T	28/10/2021 11:41

That many people are trying to destroy our environment by littering and polluting and they don't understand what they're doing is wrong
the environment is a very important thing in every human and plants and animals life. It has to be taken good care off to help the new arising generations
I think that our environment is very special and protecting it should be our number one priority, as it provides us with many stuff that we need in order to survive

				25	T	28/10/2021 11:41

we should take care of it for future generations and so that animals and us as humans don't get sick
I think it's good to take care of our environment. Because our land gives us life without trees, fresh water we wouldn't survive
the environment should be kept clean at all times to preserve its lifespan for a longer period of time
I think it's important to keep it clean and not litter
the environment is in bad shape and it's needed us as Human change to make sure our environment gets better and not worse

				26	T	28/10/2021 11:42

the environment is very important because it helps us live and without it we would probably die
the environment is very important and it is something we should take care of because it's where we live

				27	T	28/10/2021 11:42

it is an important part of our ecosystem

				28	T	28/10/2021 11:43

it must be kept clean and we must respect it
we need to take care of the environment for example trees we need to stop chopping down trees because we need trees to breathe
the environment is really important to human beings but people don't understand it, by dropping litter won't save us

				29	T	28/10/2021 11:44

I think it's very important to keep clean and safe
the environment is a special importance regarding recycling and caring which I mean by it is indeed important
I think it's important and we should take all necessary precautions to preserve it and take it back to its good and healthy state
I think it is very important to take care of our environment if we want our future generations to carry on living in a safe place where they won't be hospitalised for breathing and bad air and more
I think it's important to have a clean environment, or else the next generation will not experience the wonders of the world

				30	T	28/10/2021 11:44

the environment is very important because the environment is part of life and living. So it's very important because we can't really live without it to preserve their environment for future generations both human and animals the environment is the first thing that should be taken care of

				31	T	28/10/2021 11:45

it's really important for us to live in a healthy environment and make sure we do not litter out areas
the environment I live in is very important to me that's why I could go out to any extinct to help build a clean, safe and healthy environment

				32	T	28/10/2021 11:45

I think the environment is very important and should be taken care of. I say this because it's where we live and for our future generations

21/11/2021 11:18

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
				14	T	28/10/2021 11:33

I think the environment is very important and that it could affect our lives if we do not keep it clean
if we don't protect our earth there will be no such thing as humans in some years time. unless we don't want to go extinct we better act fast about the environment
I think we should look after the environment so that future generations can use it
I think we should look after the environment so that future generations can use it too
I think without a clean environment we won't live longer due to air pollution, water pollution etc. We have to be healthy eat fruits veggies but without us caring for our environment we won't have healthy lives
it's not going to keep us sustainable to life much longer if we continue to treat our world the way we do
the environment is important to life. Without the environment and everything in the environment we would be able to live and reproduce
I think it is important because we live in thirst environments therefore we need to take good care of it
I think without a clean environment we won't live longer due to air pollution, water pollution. We have to be healthy eat veggies but without us caring for our environment we won't live a healthy life
it is a serious issue and I can, as an individual, do my part to help the environment regarding pollution. I think it is a topic that people hear, and agree change is needed to positively impact the environment, but because it is often inconvenient change that is needed. The message of helping the environment is ignored practically
Without the environment life will not be stable. There will not be enough oxygen to sustain us
it's very important for our future generation to survive and see animals undiscovered and to live in a healthy habitat
I think the environment is very precious yet fragile and we need to take care of it and preserve it as much as we can to maintain our habitat so that future generations won't have a problem when it comes to nature and we should start recycling and doing other things to protect it and end global warming otherwise we won't survive
It is important to preserve the environment for our living because it does not only affect us it affects everybody, and wildlife

				15	T	28/10/2021 11:33

I think it is very important because we live on this earth so we must take care of it
a clean environment means a better place to live
we must protect the environment with all our best and make sure that it stays clean at all times
it is very important because if we do not take of it, it will be bad for the future generation
the environment is the main source for life. It gives us everything we need to survive if well taken care of

				16	T	28/10/2021 11:33

It is very important. We will not live or survive without it

				17	T	28/10/2021 11:36

that it should be kept and not seriously harmed, so future generations have an environment to grow up in
the environment is important because it helps people live on earth and provides homes for animals
I think the environment is a very beautiful thing, the environment is what keeps us alive and makes us the sense of hope and brightness. Without it I feel many of us would be dull
it is very important to keep the environment clean and safe as there is nature, animals, and humans around the environment
the environment is very important for us as we live in it and grow in it. If the environment isn't clean it isn't a positive place to grow up in

				18	T	28/10/2021 11:37

I think litter is important
the environment gives us our air to breathe so if we are harming the environment then we are harming ourselves
I think it is very important to live in a clean and safe environment
to keep it clean and fresh

				19	T	28/10/2021 11:37

the conservation of the environment because it's what keeps us going by providing food and other resources used to survive

				20	T	28/10/2021 11:38

I think the environment is very important because we need the environment to survive. without an environment we can't do certain stuff
it is really important that we take care of the planet so that future generations have the chance to see the beautiful plants and animals that we see today
The environment is something that needs to be taken care of as much as possible but to be honest it's importance looks like it is non-existent as no one is doing their part

				21	T	28/10/2021 11:38

environment is like an egg that we should look after in order to be clean and safe
the environment is very important to us humans because it is the land we stay in and the air we breathe

21/11/2021 11:18

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
				6	T	28/10/2021 11:25

It's a home for both humans and animals and can often provide us with a few resources or help with recycling
I think we have to clean it more often so plants and animals would survive in order to keep our planet healthy
the environment is vital for our survival and it's our responsibility to take care of it and protect the animals in it. Humanity will not survive without a stable environment and animal life
it's important because there is life for animals. It has to be protected because it has many benefits
it is very important because in the end we are inhaling all sort of chemical waste. We will also not be able to live in a world full of waste we need to clean the environment and keep it clean, because in the end we inhale all this stuff and it is not good
it is important to help clean our environment, and to keep our places clean. We inhale dirty air that damages our lungs, which makes us sick

				7	T	28/10/2021 11:25

the environment is very important because if there's too much litter we could get sick and animals can die our environment is not only our home but the home of animals and nature and should be (preserved/preloved?)
The environment is really important because if the litter doesn't stop the global warming will never stop. Our ground will be unsafe for planting plants, so it will be harmful to us
without the environment humans will not survive
it is very important, because without it humans, plants and animals would not be able to exist

				8	T	28/10/2021 11:26

it is really important (press our lives on parth?) so persons should look after it
I think that if humans don't start taking global warming and its effects on everything before it is too late if it isn't already too late
I think it's very important as it is a place we live in
the environment we live in needs to be clean because that means good lifestyle for us without dirt and diseases
the environment plays an important role on earth
I think it is important to look after and protect the environment since it is our only habitat

				9	T	28/10/2021 11:27

I think it plays a major role in our lives and in the earth as a whole. Without the environment we are in trouble as it provides water, air
the environment potent but isn't because it plays a role in our health and if it's not taken care of it's going to affect our health
I think our environment is very important as it helps us breathe and live. Without it we wouldn't be able to live. The environment offers food, air and water to us
it is important to take care of their environment and avoid pollution
I think that people can clean and look after our environment but they choose not to because they're lazy and we should care and do more to help

				10	T	28/10/2021 11:28

I think it is important to keep our environment clean and safe for everyone
it's really important because we actually can't live without it
it is very important we need it to survive in our daily lives, without an environment we would not be alive
it is very important to me and the future I want to grow up to see
I think that it is very unfortunate that so many people litter and have no care for the environment

				11	T	28/10/2021 11:29

it's important to keep it clean and safe as it has many use, homes, food and survival kit

				12	T	28/10/2021 11:29

we need it to survive and everything else

				13	T	28/10/2021 11:30

I think the environment is very important because most of the thing in nature are things that we need to survive and without it we are nothing
it's in danger because of people's ignorance towards sustaining it for future generations. Regarding it's important I think it is vital that we know trees give off oxygen so stop deforestation for example
I think that it is important because it must be clean and a lot of people and animals feed on it

21/11/2021 11:18

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On

Nodes\\Important\With Example

Document

Files\\Audio transcription Grace interview

No		0.0123	1

1	T	17/11/2021 08:56

Like, in terms of global warming, like people don't necessarily take it seriously, but I know because I've been taught about it.

Files\\Qual Q2a

No		0.7422	68

1	T	28/10/2021 11:09

I think that the environment is the most important because it is a source of life to humans and animals

2	T	28/10/2021 11:10

the environment is very important because we all are living things dependent on it so if we don't take care of it we may not have a new environment

3	T	28/10/2021 11:10

that if we don't sustain our environment they will be (beise?) consequences

4	T	28/10/2021 11:14

it is importance to keep it hygienic and presentable
The environment is important because if we harm the environment we harm ourselves. Environmental issues like global warming will affect our future and using non renewable resources anyhow will end up with us having no coal or gas and things like this could potentially lead to the end of the world
I think it is very important to keep the environment healthy to sustain life on earth
the environment plays a huge role in human life in general. The environment needs to be clean in order for humans to be healthy. It is compulsory that we live in a clean environment
the environment is important because without it the world would be nothing
the environment is important because it helps our ecosystems to be intact, for us to live a clean life we need a healthy environment
environment is important because it's our source of life, if we destroy their environment where will we get fish to eat and trees for air
I think it is important to take of it because when it dirty you wouldn't live on it
I think it should be taken care of because it's something we live and rely on for us to have a better environment

5	T	28/10/2021 11:23

I think we need to take care of the environment as it helps many people and it could help many people to feel better. By that people will not get sick and some people could have access to clean water for cooking etc
the environment has a vital importance as most/all of our resources are obtained from it. It provides habitats for both men and animals, provides food and sometimes clean water
I think it is important to take care of their environment, do not pollute because it can cause harm to humans and animals, also to plants
environment is important because it also effects our health
it must always be clean which means that people should stop polluting the air, water and land
it environment must be a safety and clean environment
to prevent occasions such as climate change. Appreciating the beauty of our environment for the next generations to experience
it is a really good thing actually. The environment that we are at also needs to be taken care of

21/11/2021 11:18

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
				43	T	09/11/2021 11:24

That it's a good thing that the environment is taken care of
We need it

				44	T	09/11/2021 11:24

That we need a healthy environment for a better future

				45	T	09/11/2021 11:25

I think it's very important

				46	T	09/11/2021 11:26

That it needs to be taken care of
The environment is getting worse overtime and needs to be protected

Nodes\\Important\Holistic

Document

Files\\Qual Q2a

No		0.0411	5

				1	T	28/10/2021 11:31

I think caring for the environment means we are making a better future for ourselves. We depend on the environment for natural resources and life. Therefore the handling of the environment is absolutely important to me

				2	T	28/10/2021 11:38

I think it's important to take care of our environment, since we live in our environment and whatever happens it affects all of us

				3	T	28/10/2021 11:48

without the environment we are nothing because we needed to grow our own humankind and we need it to make a better future

				4	T	28/10/2021 11:53

Making a genuine effort to protect our environment on a daily basis will make all the difference to our future. Protecting the environment also has benefits for the economy. A healthy environment helps to boost nature based-tourism and encourage responsible travel practices.
I think that it is important for us to look after our environment and to do our part to protect it. I think it is the key to everything on earth. We cannot destroy all of nature as that is how we breath, relax, eat, drink, and live.

				5	T	09/11/2021 11:16

The environment is important because it is the only place you can build. It is a place where you can enjoy and be happy. It has natural habitats. Most animals live there
I think the environment plays a big role in the community and that leads to the community's behavior

21/11/2021 11:18

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
				28	T	09/11/2021 11:04
The environment we live in need to be taken good care						
				29	T	09/11/2021 11:15
it is very important to take care of nature I think the environment is very important but some people take it for granted						
				30	T	09/11/2021 11:15
It is a good and beautiful environment						
				31	T	09/11/2021 11:16
For me I think that us as young kids we need to know the environment importance and learn more						
				32	T	09/11/2021 11:17
I think that we must respect our environment and also love it						
				33	T	09/11/2021 11:18
The environment is important						
				34	T	09/11/2021 11:19
I think that the environment should be an important place and be taken care of I think that the environment should be an important place and be taken care of I think that the environment should be an important place and be taken care of						
				35	T	09/11/2021 11:19
Environment is something we must take care of						
				36	T	09/11/2021 11:20
I think it should be protected and people should change their behaviors I think they should be no littering of destroying should be done						
				37	T	09/11/2021 11:21
Yes it's important I think it's important to take care of the environment because we are destroying our environment						
				38	T	09/11/2021 11:21
I think that we must protect our environment That people need to start looking after environment and stop neglecting their environment						
				39	T	09/11/2021 11:22
Environment is important in every way we need to take it and understand that a clean environment is important I think that it is very important that we look after our environment I think the environment is extremely important						
				40	T	09/11/2021 11:22
I think it is important and people have to take care of it						
				41	T	09/11/2021 11:23
I think that people should take care of their environment and habitat I think people should take care of their environment						
				42	T	09/11/2021 11:23
I think it is very important						

21/11/2021 11:18

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
				13	T	28/10/2021 11:44
it's important for us to take good care of it						
				14	T	28/10/2021 11:45
The environment is something we should all learn to take part in keeping it safe						
				15	T	28/10/2021 11:45
I think people should look after it because I care about the environment I think it is very important						
				16	T	28/10/2021 11:45
I think it is really important to know about the environment and to take care of the environment						
				17	T	28/10/2021 11:46
it is very important but kids nowadays don't see the value in environmental importance						
				18	T	28/10/2021 11:49
the environment is very important						
				19	T	28/10/2021 11:50
I think it is very important						
				20	T	28/10/2021 11:50
it is essential for the planet						
				21	T	28/10/2021 11:51
i think it is very important to preserve the enviorment						
				22	T	28/10/2021 11:52
Yes						
				23	T	28/10/2021 11:53
I believe the environment and environmental issues concern all of us as human beings and are of utmost importance to us.						
				24	T	28/10/2021 11:53
It is very important!!! :)						
				25	T	28/10/2021 11:54
It is EXTREMELY important!!!!!!!!!!! I think that the environment needs to to be looked after. Extremely important						
				26	T	09/11/2021 11:03
I think the environment is really important and they should be more organisations to save the environment						
				27	T	09/11/2021 11:03
It's important so that others will know the rights or wrongs and it's helpful						

21/11/2021 11:18

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
				3	T	17/11/2021 08:56

It's very important

Files\\Qual Q2a

No		0.1239	46

1	T	28/10/2021 11:28

Yes

2	T	28/10/2021 11:29

The environment is important
it's important

3	T	28/10/2021 11:30

very important
I think we need the environment much more than we know

4	T	28/10/2021 11:33

I think environment is something that has to treat right and really should be care for

5	T	28/10/2021 11:36

it is important

6	T	28/10/2021 11:37

I think it's a very important thing to care about

7	T	28/10/2021 11:39

it is important because it should be put out in public and people should know about its importance
yes it is because it will teach people what they doing to their environment and how they can help

8	T	28/10/2021 11:39

I think it shouldn't be taken lightly

9	T	28/10/2021 11:42

the environment around us plays a crucial role in our well being as human beings
people need to look after their environment before it's too late
I think the environment is very important it's important she is underrated and 100 years the earth would on its needs on the way we are damaging it

10	T	28/10/2021 11:42

it should be taken seriously and should be worked on starting now

11	T	28/10/2021 11:42

it is important to look after it

12	T	28/10/2021 11:43

it's very important to keep our environment safe

21/11/2021 11:18

Coding Summary By Code

RQ2a

21/11/2021 11:18

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On

Node

Nodes\\Do not care

Document

Files\\Qual Q2a

No		0.0070	4			
				1	T	09/11/2021 11:22

No, it is not our job to clean that or care about the environment

2	T	09/11/2021 11:23

Nope

3	T	09/11/2021 11:25

The cleaner the better but I don't care because my parents pay tax

4	T	09/11/2021 11:26

Nothing much we're just a kid
Nothing much I'm just a kid living my life

Nodes\\Important

Document

Files\\Audio transcription Grace interview

No		0.0023	3			
				1	T	17/11/2021 08:56

Yes

2	T	17/11/2021 08:56

Yes

21/11/2021 11:18

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
Nodes\\Uncertain						
Document						
Files\\Qual Q2a						
No		0.0053	6			
				1	T	28/10/2021 11:29
I think people are not aware of the importance of cleanliness in our environment						
				2	T	28/10/2021 11:38
Uncertain						
				3	T	28/10/2021 11:41
I don't know what to say						
				4	T	28/10/2021 11:51
I am (not) to sure						
				5	T	28/10/2021 11:52
uncertain						
				6	T	09/11/2021 11:24
I do not know						

21/11/2021 11:18

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On

Nodes\\Somewhat Important

Document

Files\\Qual Q2a

No		0.0083	3			
				1	T	28/10/2021 11:13

I think that it's important in a certain way because some environmental issues like pollution effects us

				2	T	28/10/2021 11:15

I think the environment must be kept clean and healthy. If it is not then no one will want to live in that environment

				3	T	28/10/2021 11:49

I think it must just be clean

Nodes\\Too late

Document

Files\\Qual Q2a

No		0.0061	2			
				1	T	28/10/2021 11:34

I think it is very well broken because of the human race but we can fix it

				2	T	28/10/2021 11:37

our environment is pretty awful and in my opinion I see no possible way we could save it its value is dropping

21/11/2021 11:18

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
				11	T	09/11/2021 11:23
We live in it so it has to be clean That we should not be polluting It's not clean, people are destroying the environment						
				12	T	09/11/2021 11:23
Change the way they do things						
				13	T	09/11/2021 11:24
We need to protect each other Environment is destroyed because of some people, they do not care about it. That's why it is destroyed						
				14	T	09/11/2021 11:24
It is a clean safe attracting place						
				15	T	09/11/2021 11:25
It's good						
				16	T	09/11/2021 11:25
I think the cleaner the environment the better it looks Because environment has many important things such as pollution's						
				17	T	09/11/2021 11:26
The environment is dirty						

Nodes\\Not Important

Document

Files\\Qual Q2a

No		0.0068	3

	1	T	28/10/2021 12:43
I think that the people are taking advantage of it, and they're not worried for the future generations			
	2	T	28/10/2021 11:27
I think that many people don't even care about our community they just do what they want			
	3	T	28/10/2021 11:49
nothing at all			

21/11/2021 11:18

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
				68	T	09/11/2021 11:26

I think it should be taken care of because of the upcoming generation

Nodes\\Irrelevant answer

Document

Files\\Qual Q2a

No	0.0532	17	

1	T	09/11/2021 11:04

I think the latest fashion clothes, shoes or technology device that are strong enough for multiple use

2	T	09/11/2021 11:05

We as people who live in it must choose some duties and do community service
It is very polluted and making a negative impact towards the people
It to make the country clean and the place where we live

3	T	09/11/2021 11:15

Because if we do not look after our environment we will be very filthy of us

4	T	09/11/2021 11:15

The importance of the environment is that it

5	T	09/11/2021 11:16

I think the environment is pollution and people don't care. Nobody takes care of the environment
I think the environment pollution and people don't care. Nobody takes care of their environment

6	T	09/11/2021 11:17

The importance of giving back. The best way to find it to yourself in the service of others
Not to litter on the farm

7	T	09/11/2021 11:20

I think that environment is where people live and taking care of our environment example bottles
it should be a peaceful place and less harmless
About littering and dirtying toilets

8	T	09/11/2021 11:20

Non renewable resources like coal and gas might cause problems to the environment

9	T	09/11/2021 11:20

I think environment oh green plant

10	T	09/11/2021 11:21

Because it shows you where you come from how you show people how to respect them

21/11/2021 11:18

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
				57	T	09/11/2021 11:21
I think we should not destroy the environment because many things depend on it The environment is very important because we learn from the environment and we gain things like trees. So it's important to look after it The environment is very important because we live in it and we should take good care of it for the future I think the environment should be taken care of because it helps us with the circle of life It has to be clean all the time and we need to take care of our environment						
				58	T	09/11/2021 11:22
I think the environment is very important and that no one should litter or do any bad things to their environment that they live in I think that it is very important because plants and animals live the and us too. If we harm it we will not have a place to stay It is important to protect the environment and to recycle We must keep the environment, all our place is neat without making a dirty						
				59	T	09/11/2021 11:22
I think it is very important thing to keep our places clean at all the time It must be clean The environment is very important because people animals and plants live in it and we all need a clean and healthy environment to survive It must be neat at all times						
				60	T	09/11/2021 11:23
The environment is very important and needs to be taken care of as it is a place that we live in						
				61	T	09/11/2021 11:23
It is what was originally here therefore it is important Regarding to the environment I think people must stop littering because they turning the earth into trash						
				62	T	09/11/2021 11:23
It is very important because it's our home. We need its resources to survive						
				63	T	09/11/2021 11:24
It must be always clean safe and must have activities It is very important to keep it clean						
				64	T	09/11/2021 11:24
The environment is home to many species. As humans we are not the only ones who inhabit the earth. It's also our job to keep it clean If the environment is clean then there will be no sickness is, so it is important that we look after our environment						
				65	T	09/11/2021 11:25
I think it is important to take care of our environment that we live in for our health and others						
				66	T	09/11/2021 11:25
I think it's important that we try our hardest to save and keep our environment clean and safe I think we need to take care of the environment we live in for health matters It is important to take the environment easy and clean up I think the environment is very important because it helps us stay healthy and gives us better lifestyles I think it's very important to make our environment livable for everyone						
				67	T	09/11/2021 11:26
I think it have to be cleaned and no polluting I think that people are going to be the main cause of earth's extinction. It is important. People should stop cutting down trees. They are killing habitats and causing deforestation						

21/11/2021 11:18

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
				44	T	28/10/2021 11:52

I believe that the environment is extremely important. It's where we receive our raw materials such as water coal and other goods, so we must protect it

				45	T	28/10/2021 11:53

The environment is important as it is home to many plants and animals

				46	T	09/11/2021 11:03

an environment is important because it's where people and animals live and interact to each other so it must be clean at all times

				47	T	09/11/2021 11:04

I think we should keep the environment clean every time so even when the next generation is here they could keep it clean as well because the environment is important
I think we should appreciate it by keeping it clean. And I think it plays a big role in our lives
That we need to keep it clean because it only takes one person to do the right thing, for example by throwing your litter in the bin because the world as we know it is change
the environment is very important because things that are happening in the country are not good so we must respect what we have

				48	T	09/11/2021 11:04

The environment must be kept clean as always, so the plants can grow

				49	T	09/11/2021 11:05

I think it's very important to learn and protect the environment. Keep it healthy and clean
It is important because we need the oxygen to live and plant and animals need it so the environment is important

				50	T	09/11/2021 11:16

It is very important as to our health it's very very important
It is important because we need it to survive and it has natural habitats
It has natural habitats for many different species
It has natural habitats for many different species. It has food for different animals as well

				51	T	09/11/2021 11:19

Is that we must take care of it. Because at the end of the day it's our home

				52	T	09/11/2021 11:19

I think it's very important because the environment is where we live so we have to look after it

				53	T	09/11/2021 11:19

It needs to be taken off and people need to change the attitude towards the environment by putting their plastics and rubbish in the bin

				54	T	09/11/2021 11:20

It is important to live in a clean environment and to clean our environment
We must take care of it because it is our home
I think the environment deserves to be clean and treated in an ordinary way makes line I think it is very very important to take care of the environment because if you don't the world will be dirty and we won't be able to walk or drive the street if it is dirty

				55	T	09/11/2021 11:20

The environment is very important because people could catch serious illness just because of the pollution in our area is dirty. The environment must be clean because if it is polluted it could be a long lasting thing

				56	T	09/11/2021 11:21

People should stop destroying environments because we will end up homeless and not having any resources

21/11/2021 11:18

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
				33	T	28/10/2021 11:46

that people should not harm the environment because they would be harming the future and all the natural resources
I think it's important to live in a clean environment because we humans need to breathe clean and fresh air
I think environment is important because we live in the environment it is what's around us, without it we're nothing
it is important to keep our environment clean because we are the one who live in our environment. I care for my environment
we breathe the air that is around the environment

				34	T	28/10/2021 11:48

I think the environment is very important as it affects our lives and the lives of the future generations and our health
it is very important to keep our environment clean because what if our environment is dirty and people around the world want to visit our country but they would not come because of the environment. So it is important
to me it is important because it is healthy to live in a healthy environment and healthy air pollution
That we must take good care of it so our children or grandchildren can live in this society it is a place that is not supposed to be harmed in other ways for example littering and pollution
I think that we should take care of our environment because it is very important, we need more plant and trees around the world instead of metal and concrete

				35	T	28/10/2021 11:49

It is important to all living organisms
the environment is very important and not to us as humans and also animals to. It would be very important to look after it. It is important because it has tree, plants etc that we use as eating helps us to breathe
the environment is important to all life on earth
my environment has to be clean and I really care about it and it is really important for it to be clean because even if people come to visit they will be amazed

				36	T	28/10/2021 11:49

it is important because we need the environment to live in it

				37	T	28/10/2021 11:49

the environment is very important place it's a beautiful place filled with amazing plants and animals so if we want to keep it alive for the next generations we need to save it now

				38	T	28/10/2021 11:49

the importance of the environment is that it needs to be clean and we can't live in an unhealthy environment

				39	T	28/10/2021 11:49

The environment is extremely important because it provides us with a lot of things we need to survive such as oxygen and plants that grow the food we eat every day

				40	T	28/10/2021 11:50

It is very important on the world and everyone living on it
It is an essential form of living in the world.
I think the environment is very important in terms of my own safety and health

				41	T	28/10/2021 11:51

I think that the environment is very important, regarding the future generations aswell as animals and plants that inhabit the earth.
helps the fish and animals grow
I think it is important for humans and other species.
Fresh air

				42	T	28/10/2021 11:51

It is very important in order for us to have a healthy lifestyle and be able to enjoy life

				43	T	28/10/2021 11:52

i like the enviroment and think it is really important for us to keep safe.
to keep it alive and not damage the resources found in the environment
If we keep the environment clean we will stay healthy
We need to protect and take care of the environment so that we can carry on living on it.

Appendix K: SPSS summary report – Environmental attitudes

21/11/2021 11:24

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
				25	T	09/11/2021 11:56
I do not know much about the other learners opinions on the subject						
				26	T	09/11/2021 11:57
I think it's important to think about the future. I think learners should practice the act of taking care of our planet and not litter						
				27	T	09/11/2021 11:58
They will be OK with it						
				28	T	09/11/2021 11:59
I think it's very important to learn about the environment and development						

Nodes\\Positive

Document

Files\\Qual Q2b – nvivo

No		0.0801	25

		1	T	28/10/2021 12:53
They would really care about the environment and pick up litter				
		2	T	28/10/2021 12:54
they are supposed to learn more about our environment because it does a lot for us besides just being a place				
		3	T	28/10/2021 12:56
learners are quite keen on learning about the environment and taking steps that will benefit the environment and help make this world a better place				
		4	T	28/10/2021 12:59
I think most learners agree about saving the earth and environment				
		5	T	28/10/2021 13:01
They care about it and have knowledge of (??) To do something but I'm not committed during field work, they lazy when it comes to actually doing it				
		6	T	28/10/2021 13:06
learners are very keen and available to learn about the environment the try to understand everything in the best way possible				
		7	T	28/10/2021 13:06
it is good 'cause learners are going to help some people there				

21/11/2021 11:24

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
				10	T	28/10/2021 13:09
It could or might just change the world, because it would be passed on from generations to generations						
				11	T	29/10/2021 07:29
important, we must take the environment serious because it produces us food like vegetation						
				12	T	29/10/2021 07:31
they don't think about their health in breathing the same air						
				13	T	29/10/2021 07:32
I think they should learn more about how we can keep it safe and clean and just to also know more about global warming and what exactly destroys the environment we live in						
				14	T	29/10/2021 07:33
They must think of the future and have a attitude against pollution It is very simple and is not fully portrayed as what the disaster actually is.						
				15	T	29/10/2021 07:33
they dont have a valid understanding of the environment						
				16	T	29/10/2021 07:33
It should be good						
				17	T	29/10/2021 07:34
I believe we should learn about our environment, because the more we know the more we can help. I believe learners should be undergoing a study of the environment and its issues so as to help the next generation combat said issues.						
				18	T	09/11/2021 11:47
Lettering must stop that's all they must know I think it is the responsibility to warn those harming plants in natural areas						
				19	T	09/11/2021 11:47
Learner should learn more about the environment because they are the future						
				20	T	09/11/2021 11:50
I think learners must learn about our environment because it's important to know what is happening around our globe						
				21	T	09/11/2021 11:51
They must stop throwing paper on the floor Yes, we do learn about the environment						
				22	T	09/11/2021 11:54
It is important because as the future people of this world we need to learn better ways of looking after our environment, so we need to learn about the importance of the environment						
				23	T	09/11/2021 11:55
They must keep their environment clean and it is a good thing about learning of the environment						
				24	T	09/11/2021 11:56
They become angry because they don't know that things like this happen						

21/11/2021 11:24

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
				9	T	29/10/2021 07:34

learners should be concerned about their environment

				10	T	29/10/2021 07:35

I think that people are too laisy.

Nodes\\Other

Document

Files\\Qual Q2b – nvivo

No		0.1033	28	18-19		
				1	T	28/10/2021 12:54

I think it's a choice to learn about the environment and it mustn't be compulsory

				2	T	28/10/2021 12:58

that depends on the type of person you are, as well as the external factors of influence such as your family, community, even there environment, your background has a chance of influencing your attitude towards the environment
It is based they know about their environment and also how to look after it

				3	T	28/10/2021 12:59

I think they need to learn about the environment because if they learn about it they'll know that it's important

				4	T	28/10/2021 13:00

I think learners are not aware about the importance of their environment and are just increasing the pollution right. But I'm sure they would be willing to learn

				5	T	28/10/2021 13:01

I think it is important for learners to learn about their environment so they won't destroy our future generations habitats and other species

				6	T	28/10/2021 13:01

I think more people should learn about the environment as it is important to know what is happening to our world

				7	T	28/10/2021 13:06

the more they learn the more interested they become

				8	T	28/10/2021 13:08

I don't know what to say
learning about the environment would have a great impact on learners because they will then know how things work in their environment

				9	T	28/10/2021 13:08

they should be committed to try and help the environment and they should at least know about the environment before doing anything harmful to it

21/11/2021 11:24

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
				74	T	09/11/2021 11:59

They don't take it really seriously
They don't give a damn about nothing
Majority of the learners do not care about the environment

				75	T	09/11/2021 12:00

They are disrespectful and annoying to their teachers
They are disrespectful and their way. let them be
they don't care about the environment
they do not care, they destroy and take for granted
They don't care
They don't care about it
They don't seem to care
I think it's very bad because we don't seem to care about it

Nodes\\Neutral

Document

Files\\Qual Q2b - nvivo

No		0.0247	10			
				1	T	28/10/2021 12:54

I think it's a choice to learn about the environment and it mustn't be compulsory

				2	T	28/10/2021 13:05

Some learners such as myself have a neutral response to looking after our environment but others have a negative attitude

				3	T	28/10/2021 13:07

it's neutral, I am unaware which learners do take care of the environment it is not my place to pass judgment

				4	T	28/10/2021 13:10

some learners have a passion for the environment while others don't care. Some learners find learning about the environment boring

				5	T	29/10/2021 07:28

The learners attitude towards the environment is not harmful but they litter certain areas

				6	T	29/10/2021 07:29

the learners attitude is not bad but they don't wanna learn

				7	T	29/10/2021 07:33

i think it could be better

				8	T	29/10/2021 07:34

Just pick up any litter you saw and put it in a bin

21/11/2021 11:24

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
				64	T	09/11/2021 11:54

Learners aren't very interested in looking after the environment. They litter around and cause pollution
I think learners are just destroying their environment
The learners don't care about the environment they just littering
Learners do not take much responsibility when it comes to their environment. We do activities that makes us comfortable and destroying it as one of them
Everyones attitudes to the environment is not a very proud attitude therefore they do not care about the environment which should change

				65	T	09/11/2021 11:55

Some learners really do not care about the environment they do not look after it. So I think they just do not care
Many kids are not bothered about the environment because they don't care about the effect they cause in the environment
The attitude is not good because they litter around their Township a lot. They don't look after their environment and they don't care how they're environment looks like
I think most people don't care about it that much

				66	T	09/11/2021 11:55

They don't care about the environment

				67	T	09/11/2021 11:56

The learners are irresponsible because some of the learners are not that good
It is not that great, they just don't care
They don't usually care about learning about the environment because they think it is boring but they don't know about the usefulness of learning about our environment
They do not look after the environment because they know that there are cleaners
Learners are not involved the municipality doesn't wanna work

				68	T	09/11/2021 11:56

They do not care about the environment
Learners do not care about the environment
It is so bad
It's very wrong 'cause they are disrespecting around them
I think that it is very disturbing because children are ruining the environment
I think that it is very disturbing

				69	T	09/11/2021 11:56

The attitudes are bad because their attitude and the problems they make include us

				70	T	09/11/2021 11:57

Don't respect it
Learners attitude is very bad towards environment because literally they don't care about an environment they don't even do recycle

				71	T	09/11/2021 11:58

They are not really worried and their behavior has gotten worse
They don't care like me
They do not learn or like learning about the environment some do but most of the trash is from them
Most learners don't care and it's infuriating to know that
We don't show any interest because as teenagers we are interested in other things

				72	T	09/11/2021 11:58

They don't take environment health seriously

				73	T	09/11/2021 11:59

It's bad they don't understand
Because they don't think and don't know about environment importance
Learners are very arrogant and they are not willing to learn about the safety and attitude on their environment
We don't give a damn about it, maybe our parents not us

21/11/2021 11:24

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
				53	T	09/11/2021 11:48
They don't bother about it no more						
				54	T	09/11/2021 11:48
I think they not worried about the environment and not learning at all Some learners don't care						
				55	T	09/11/2021 11:49
They do not care about the environment they just litter. They don't care about learning about the environment						
				56	T	09/11/2021 11:49
They all have that "I don't care attitude" towards the environment even learning about the environment it does not show kindness to the environment they do not take care of their environment Not many learners seem to care and understand the importance of environmental issues we are facing They littering wasting things harming plants not responsible No learners are interested in learning about the environment. We know how to take care of it but we just don't						
				57	T	09/11/2021 11:50
bad because many learners are afraid of their environment ashamed of their background but if the learners got educated more about their environment						
				58	T	09/11/2021 11:50
The learners attitude towards the environment is looking very low because they don't know the damage caused by them						
				59	T	09/11/2021 11:51
Many learners don't care about the environment they only care about what's best for them Learners don't take care of their environment because they usually litter Learners don't take care of the environment because they usually litter						
				60	T	09/11/2021 11:51
Learners don't take care of their environment because they usually litter I think some learners don't really think it's serious Learners are not taking care of the environment they are littering and throwing papers on the floor I think learners do not care about the environment Disrespecting their environment People don't really pay attention when it comes to a clean environment Learners are not serious about their environment						
				61	T	09/11/2021 11:52
Learners don't care about the environment they just throw all the papers on the floor even if the business near them They aren't as concerned as they should be						
				62	T	09/11/2021 11:53
The learners don't care about nature all they do is they litter the environment every day the way I'm seeing it I think that the learners some of the learners don't care how the environment is like in the area They do not care about the environment and they don't pick up the litter and put it in the bin They don't care about the environment they live in. They destroy, they pollute the area						
				63	T	09/11/2021 11:53
I think that learners are not really worried about the environment and that it is not good because we as a community need to work together to keep our environment together I think they don't care for what they say or doing they just do whatever they want to do and grow with a bad attitude They don't care						

21/11/2021 11:24

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
				39	T	29/10/2021 07:31
I think learners don't care about the environment I think many learners don't care about the environment seeing that they pollute and litter which might cause global warming and unhealthy lives in our communities and theirs learners in this generation don't care or are uninterested about environmental issues. They more concerned about technical problems and improved technology						
				40	T	29/10/2021 07:31
I think learners 95% of them don't care much about environment						
				41	T	29/10/2021 07:31
I think most learners do not care about their environment because most of them do not show interest in subjects like NS and SS which are the subjects that teach us about the environment						
				42	T	29/10/2021 07:31
the learners do not like taking care of the environment. They just do not really want to know about the environment. They actually don't care learners just don't care about the environment they are not even interested about taking care of it						
				43	T	29/10/2021 07:32
learners don't really listen when they are told not to litter. Honestly they need to have a talk with parents about living in a clean environment. They should know more about it I think learners are not being educated enough about the environment. They don't see the importance of keeping it clean						
				44	T	29/10/2021 07:32
most learners don't show interest towards learning about their environment and I think they don't really care about the environment						
				45	T	29/10/2021 07:33
Learners dont really hold a great attitude to the environment and overall dont think its their problem						
				46	T	29/10/2021 07:33
i think people have the wrong attitude towards littering and preserving the environment and how it effects the future						
				47	T	29/10/2021 07:34
they dont care						
				48	T	29/10/2021 07:34
The response is often negative as people don't like the "working" part of the job.						
				49	T	29/10/2021 07:34
Their attitude is bad!!! :)						
				50	T	29/10/2021 07:35
Bad attitude						
				51	T	09/11/2021 11:47
learners attitude is very poor they do not care nor want to learn about saving the environment as they feel it has no effect on them						
				52	T	09/11/2021 11:47
Most learners do not care about our environment. Most learners refuse to participate in environmental processes Most learners do not show any interest in learning about the environment, they actually destroy it To be real I think that most kids including myself don't really appreciate their environment though we say we will but we don't really love or know what is really gonna happen if we don't stop						

21/11/2021 11:24

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
				29	T	28/10/2021 13:08

They act as if they understand but they are the ones that end up littering when they get out of school
I would say 80% of learners don't really care about the environment that much and the learning part is a huge no no to them since they think a dirty environment is made by other people not them so they don't care
not many learners are keen to learn about the environment and most don't know it's important and's. Learners litter continuously on a daily basis

				30	T	28/10/2021 13:08

the learners from my school don't show interest and care to our environment
I think some don't care about the environment and they only care about themselves

				31	T	28/10/2021 13:09

Learners attitudes could be improved in terms of caring for the environment. I think that learning about the environment will help us realize its importance
towards the environment they seem to not care about nature. Learning about doesn't bother them they couldn't care they actually have an impact to it
they don't really care about the environment they'll just throw litter or destroy the environment they don't take it as seriously
environmental topics are talked about and solutions are provided, but no action is taken. Society becomes lazy when they see a piece of paper on the floor they don't pick it up
learners sometimes all the time are very ignorant towards things going on around them, so I think it is very important for them to learn about their environment so next time they will be considerate

				32	T	28/10/2021 13:09

I think that they don't really care or bother to clean or care for their environment, and have no interest of learning about it
the attitude needs to change because we need to preserve the environment for further generations
it can be negative and learners throw plastics bottles and food on the ground instead of bins
Majority of the learners are not concerned about the effects of pollution
learners about the environment always care but they will still treat their environment badly, they say they won't litter but they do, we should learn more about the environment and have more bins

				33	T	28/10/2021 13:10

I think that it is very bad, kids do not understand how damaging the environment has an impact on us
the learners in this school aren't really quite dedicated enough to respond to this environmental issues including myself but I'm sure we can make a comeback
they don't care but they should because it is their earth

				34	T	28/10/2021 13:10

learners tend to not notice that by throwing paper wrappings from sweets or chips, they are harming our environment and even after being taught about the damage they are doing a couple of learners listen and rest of them ignore the teachers

				35	T	29/10/2021 07:28

they do not care because they don't understand the importance of the environment

				36	T	29/10/2021 07:28

Most learners don't see the importance of learning about the environment and that's a fact
many learners actually don't care much about the environment around us

				37	T	29/10/2021 07:29

they don't care
they don't really care
they don't care about the environment or it's importance
the attitude towards the learners is not very good at all because they do not really care about their environment it will really mean well for them to learn more about the environment

				38	T	29/10/2021 07:29

not many learners care about the environment because they throw wherever and whenever they once. But they wouldn't want to learn about their environments because they feel like they are wasting their time trying to learn how to pick up a paper
I think that they are not interested in learning about the environment and they do not care

21/11/2021 11:24

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
				18	T	28/10/2021 13:04

Some learners do not care about the environment. Teaching them about the environment might raise aware about it
they don't seem to care about it because they litter and I think they should start caring for our future generation.
Most of them don't really care

				19	T	28/10/2021 13:04

Most people don't really care about the environment that much as it isn't a main aspect in their lives

				20	T	28/10/2021 13:04

I think that most of learners attitudes is not that good because most learners don't really know about the environment and haven't been really taught about the environment and what effects it has on us.

				21	T	28/10/2021 13:05

I think that learners don't really care and are not (aware) of the dangers they put the environment in
Some learners don't care about the environment as they litter all the time and never clean the areas, this behavior is not acceptable. Learners don't listen and should be punished for littering
It is bad 'cause they don't listen
They don't care as they do not see what bad effect will it be in the future
Most learners have no interested in learning about the environment and do not take care of the environment
Bad attitudes. Not many of them care

				22	T	28/10/2021 13:05

They don't care about it
I think we as learners need a wake up call since we are the future. I'm sure we don't want to live in a world where it seems lifeless. I feel like our attitudes towards it are not great either as we have the mentality that all of this will be a quick fix

				23	T	28/10/2021 13:06

Some learners don't really care they just pollute or destroy plants and not to know the consequences of the actions. Kids nowadays don't really show interest in the environment
bad

				24	T	28/10/2021 13:06

I feel like they don't care they just litter and making everything dirty
learners don't realize how much harm they do with littering. They don't care about how we treat this earth. They listen to someone talking about it but they aren't really listening if they're still continuously doing it

				25	T	28/10/2021 13:06

most of us don't care. we all just give up.

				26	T	28/10/2021 13:07

I feel as if they just don't care about the world

				27	T	28/10/2021 13:07

people or learners don't like learning about their environment just like me, but I also love taking care of it. Learners, well most, didn't take care of the environment
Learners in my opinion don't care about our environment because if they did there would be no litter, or should I say less litter on the floor, roads etc
Most learners don't really care about the environment which is why we need more education when it comes to the planet
Learners aren't worried about the environment, the environment is something they are taking advantage of

				28	T	28/10/2021 13:07

I think they're very few learners that care about the environment because they feel that there's nothing they can do about it

21/11/2021 11:24

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
				8	T	28/10/2021 12:59

They seemed to not care. They throw their papers and plastics wherever they wish to and it makes me sad. I find no point in doing such an act without purpose
In my opinion most learners don't care. They litter knowing there will be someone else to clean it, but you do get a handful of learners who care about the environment

				9	T	28/10/2021 12:59

I don't think they understood the consequences of the actions and how much harm they are causing the whole planet
Most learners don't really care to be honest, they not wise enough to see it effects them

				10	T	28/10/2021 13:00

I feel like a lot of them don't care 'cause the sun is still shining on their side
I think learners are not aware about the importance of their environment and are just increasing the pollution right. But I'm sure they would be willing to learn

				11	T	28/10/2021 13:00

Learners are abusive when it comes to environment they don't take it seriously
I think it is disgusting as the school we are in is dirty
Learners attitudes towards their environment differ and most of them don't see it as important since they not taught about the importance of the environment
I don't think many learners really do care about our environment that much, but they do know it's important to us

				12	T	28/10/2021 13:01

Some learners just think they know everything and they do what they want and they lose respect for the teachers
Learners don't even bother to care about learning their environment
Honestly I don't think they know how important it is and they don't know how to look after it
They are not that interested they are mainly focused on technology controlling the world
Poor without influence

				13	T	28/10/2021 13:02

They couldn't care
I think learners don't care about the environment they just do as they please. Most of them are really not interested in learning about their environment.

				14	T	28/10/2021 13:02

They like littering
The attitude towards the environment has a major contribution to the types of pollution that we have
Not very good

				15	T	28/10/2021 13:02

I think that the attitude could be better
I do not think that learners understand the consequences that the next generation will suffer because of their lack of interest in environmental issues
Most of the learners tend to forget that nature also has life that it also feels. They think that they are the superior ones who can do whatever they want, without thinking nature is the real reason that they are still alive
I don't know I guess they don't care, they comfortable they don't have to worry about any of it
They are deaf to looking after the environment. They don't really care about littering and how it impacts the environment.

				16	T	28/10/2021 13:03

People act different around environmental areas, they lack carefulness and strive in ignorance. The attitude is absolutely non-tolerentable and it shows no respect for the environment.
I think that learners do not take the environment seriously and only destroy it. They do not think about the future when they are doing these things
Most people don't care about the environment and constantly do things that harm it. I personally don't think they understand how important it is

				17	T	28/10/2021 13:03

They take nature for granted and treat it unessentially. They don't think learning about it is important that is until they realized that plants give us life and oxygen
Our youth is not giving any interest attitude towards the environment, which is a bad thing. They not taking any interest on any environmental programs
not nearly enough people care or are willing to change their lifestyles in order to save the environment

21/11/2021 11:24

Coding Summary By Code

RQ2b

21/11/2021 11:24

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On

Node

Nodes\\Negative

Document

Files\\Qual Q2b - nvivo

No		0.6146	75			
				1	T	28/10/2021 12:53

they don't really care so much

2	T	28/10/2021 12:55

most learners do not care about the environment even though they'll say otherwise. Learning about their environment is essential
I think that we are not taking environmental issues seriously enough
most of the learners do not care

3	T	28/10/2021 12:56

learners attitude towards the environment is not good because we are not taught at school how to take care of the environment which is quite bad
learners attitudes towards their environment is not good because I don't care about the litter they won't even pick it up
I think they don't care 'cause in public we just throw whatever disposable rubbish anywhere
some don't really care about the environment so they don't pay attention. Other learners think it is not their problem if the environment is clean or dirty

4	T	28/10/2021 12:57

most learners are oblivious to the fact that the environment is being destroyed and so they turn a blind eye towards that. Learning about the environment would change the views of many people towards their environment and could help in the amount of recycled products and their mission of greenhouse gases and carbon

5	T	28/10/2021 12:57

I think learners don't understand the concept of environment hence why they don't take it seriously. I think it must be a must to learn about the environment
most learners don't care about the environment and they had to learn about it then maybe they may change the attitudes towards the environment
the learners attitudes towards their environment is bad because mostly learners like to throw things at the ground

6	T	28/10/2021 12:58

Children choose to disregard the environment because it not affect them

7	T	28/10/2021 12:59

I get sad when I see people litter because it ends up in the ocean they have no regards towards the earth
I think most learners don't really care about the environment
I think that learners of today does not care about the environment

21/11/2021 11:24

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
				37	T	09/11/2021 11:58

I think some learners need to be more responsible and look after the environment

21/11/2021 11:24

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
				23	T	29/10/2021 07:28
it is not that bad because some of us care about the environment						
				24	T	29/10/2021 07:29
I don't think that learners like to be told not to litter, they do enjoy learning about the environment they do not care about the environment until they actually get to learn about it						
				25	T	29/10/2021 07:29
some learners don't litter, some eat and leave they litter everywhere						
				26	T	29/10/2021 07:32
most of them are happy but the others don't listen						
				27	T	29/10/2021 07:32
Everyone is aware of environmental issues and some I even be concerned about the environment but not enough of us are willing to take the initiative to actually get up and try to save their environment. It's always someone else's problem until it directly affects you						
				28	T	29/10/2021 07:33
I think some learners care and some don't.						
				29	T	29/10/2021 07:34
Most learners are well aware about the troubles of the environment but some dont even have an idea Some not good and some good. It should be good there are defently some passionate boys about the enviroment in our school and there are also others which do not care.most are aware of what will happen if we destroy the earth.						
				30	T	29/10/2021 07:34
Some learners find it very boring to learn about the environment and feel like it is not their job to look after it						
				31	T	29/10/2021 07:35
I enjoy learning about nature but I think a lot of other people think it is a waste of time. I will stop someone from littering but I normally would not go out of my way to protect the environemnt						
				32	T	09/11/2021 11:49
The learners come in a different way of attitudes so it is difficult even for the motivators to speak to us						
				33	T	09/11/2021 11:49
The learners attitude is bad because they are destroying their environment. Learning about their environment it is a great thing because it can help your school						
				34	T	09/11/2021 11:51
Some look after the environment but some do not						
				35	T	09/11/2021 11:54
Some learners do not care for their environment and others do. They are destroying and not taking care of their environment						
				36	T	09/11/2021 11:55
Some learners do not understand the importance of their environment						

21/11/2021 11:24

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
				9	T	28/10/2021 12:59
They are too much learners who don't know the damages they can cause to environment and who just don't care however there are people who do. It is vital that we make more people aware						
				10	T	28/10/2021 13:02
Some learners are open minded and are safe the earth being involved in saving the earth activities, and some couldn't care less and aren't aware Some learners like to learn about their environment and have a good attitude towards it, but other learners attitude is neutral towards it						
				11	T	28/10/2021 13:03
I think the learners don't really care about the environment only a few learners actually care.						
				12	T	28/10/2021 13:04
some learners are interested in learning about the environment and they care about keeping it clean. Some learners don't care and don't want to learn about the environment it's important although a lot of learners try to ignore the fact that if we don't stop littering, polluting the ocean and air many living things will die because of it						
				13	T	28/10/2021 13:04
I think that many learners say they would like to keep the environment clean but do not put it into practice and many do not care or don't listen when we are being taught about the environment. The topic also becomes repetitive and dull after awhile as it is usually repeated content every two years taught in our life orientation classes.						
				14	T	28/10/2021 13:04
Some learners are interested in their environment (??) to keep it safe but some aren't and you can see by their action things like littering wasting natural or non renewable resources like water						
				15	T	28/10/2021 13:04
I think some learners want to learn about environment but some don't and some don't care						
				16	T	28/10/2021 13:05
some don't care but there are some that are interested Some learners such as myself have a neutral response to looking after our environment but others have a negative attitude						
				17	T	28/10/2021 13:06
Only a few learners care about the environment						
				18	T	28/10/2021 13:07
The learners attitude towards the environment is sometimes good because the always learn something from helping the environment						
				19	T	28/10/2021 13:09
some learners don't worry about the environment but some do						
				20	T	28/10/2021 13:10
I think there are some attentive learners who are keen to help clean the environment but of failing to put it into practice						
				21	T	28/10/2021 13:11
they do not care about their environment or learning about it most learners have a positive attitude and they like learning about their environment. Some don't have a really positive attitude and don't care to learn about the environment some don't care, some do Some are not even interested in their environment and some are interested						
				22	T	29/10/2021 07:28
most learners finding learning about the environment boring because they feel as if it is not their place to be taking care of it. I personally think their environment is amazing to learn about how plants live and animals survive in nature itself						

21/11/2021 11:24

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
				23	T	09/11/2021 11:56

I think some learners are interested in their environment

				24	T	09/11/2021 11:57

for some learners it's good because they focusing on growing up in a good environment
Some of them are willing to learn about the environment

				25	T	09/11/2021 11:59

I think that they are trying their best

Nodes\\Split

Document

Files\\Qual Q2b - nvivo

No		0.1950	37

		1	T	28/10/2021 12:53 43-20

We as soon as we don't care about the environment it's approximately 90% of us who do not cause with just dispose of our litter anywhere, e.g school ground

		2	T	28/10/2021 12:53

they don't care that much about the environment. Some learners are interested about looking after the environment

		3	T	28/10/2021 12:56

some learners are concerned about their environment and want to help the community

		4	T	28/10/2021 12:56

I think some learners still don't see the importance of a clean environment

		5	T	28/10/2021 12:57

I feel like it's important for learners to get educated about their environment because some learners don't see the importance of the environment

		6	T	28/10/2021 12:57

that depends on the type of person you are, as well as the external factors of influence such as your family, community, even there environment, your background has a chance of influencing your attitude towards the environment

		7	T	28/10/2021 12:58

When we are taught about what happens in the environment some learners choose to take action and try to help while other learners feel indifferent and choose to ignore the issue
Some learners take action and others just ignore
The learners that don't care are just rude. I really think it is important because if the environment is treated bad the world will end badly

		8	T	28/10/2021 12:58

Most learners care about the environment and others don't but they should actually care
There are some learners that care for the environment and some that really don't care and pollute the earth
When I see what they do it looks like they don't care and just waste. We are the ones always cleaning up after them and it is not right

21/11/2021 11:24

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
				8	T	28/10/2021 13:06
It's OK						
				9	T	29/10/2021 07:31
they don't like to see our environment being destroyed or being polluted						
				10	T	29/10/2021 07:31
They start to learn at a very young age and be much responsible and care about the environment						
				11	T	29/10/2021 07:32
most of the learners enjoy learning about their environment, they have a positive attitude towards the environment						
				12	T	29/10/2021 07:33
Learners are often enthusiastic towards learning about the environment.						
				13	T	29/10/2021 07:34
I think most learners are pro active						
				14	T	29/10/2021 07:35
so far so good.						
				15	T	09/11/2021 11:46
Generally, young people nowadays want to help conserve the environment, but are slightly less enthusiastic to learn about it The learners attitudes towards the environment is good because they get educated more about keeping the environment clean at school						
				16	T	09/11/2021 11:47
Some learners like learning about the environment because as you grow you could learn many things about the environment The learners are happy to learn about the environment and looking forward to clean their environment						
				17	T	09/11/2021 11:48
Some of the learners are willing to help clean and improve making the environment clean						
				18	T	09/11/2021 11:48
The learners enjoy being taught about their environment but the problem comes in practicing how to protect their environment						
				19	T	09/11/2021 11:50
Some learners take care of their environment. They clean it and some do gardens. By doing that there are no air pollution issues. And everyone will be safe and happy						
				20	T	09/11/2021 11:52
I think they will take the environment seriously and keep it clean						
				21	T	09/11/2021 11:52
They do not do bad things and they try their best to protect their environment						
				22	T	09/11/2021 11:53
Learners attitudes towards the environment is that they look after it because they have knowledge						

Appendix L: SPSS summary report – Environmental behaviour

21/11/2021 11:25

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
				14	T	29/10/2021 08:09
20% of learners take good care of the environment because they know the right and wrong stuff Some love their environment and are always taking care of it whereas some don't care at all if whether what they doing is good for their environment or not						
				15	T	29/10/2021 08:11
They are a couple of learners who listened to the warnings they are given and the rest of the learners aren't bothered to even Care Some care to pick up litter, others throw trash on the ground wherever they go						
				16	T	29/10/2021 08:12
Some learners behave in a good way toward the environment some treat the environment badly by just throwing everything on the floor and not putting it in the bin or recycling it Some just throw away rubbish on the floor and others pick it up and place it where it belongs this line I think that they should take care of the environments						
				17	T	29/10/2021 08:12
their behavior is neutral. Sometimes they care, sometimes they don't for example they sometimes recycle sometimes they don't						
				18	T	29/10/2021 08:13
most of my peers litter the environment but some tried to clean it by picking up papers and throwing them away						
				19	T	29/10/2021 08:14
Most learners are concerned about the things like climate change and pollution but are also the people who leave their litter lying around because it's not their problem						
				20	T	29/10/2021 08:15
It is good for some school but need to be done more						
				21	T	29/10/2021 08:15
a few do litter and this is not good						
				22	T	29/10/2021 08:16
Some not good						
				23	T	29/10/2021 08:16
they are interested but damage plants						
				24	T	29/10/2021 08:16
Sometimes motivated towards the environment						
				25	T	29/10/2021 08:16
Decent, some love it and others don't. It is balanced.						
				26	T	29/10/2021 08:17
I believe most learners I have come across 2 that it is our problem to deal with these issues and make sure the next generations do not have to deal with them, however I am concerned that many people 2 but are not actually actively taking part in the struggle against environmental issues.						
				27	T	29/10/2021 08:17
some dont care and you can get those who will fight you if you contribute badly to the enviroment						

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Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
Nodes\\Split						
Document						
Files\\Qual Q2c - nvivo						
No		0.1766	34			
				1	T	29/10/2021 07:52

Some do care about it and some just don't care about the environment

2	T	29/10/2021 07:52

Some are interested but some are not. They just do not care about the environment or whether it is in a good condition or not

3	T	29/10/2021 07:56

66% don't care about the environment and they end up polluting the air in many ways next time the learners behavior toward the environment is bad and it not healthy for the environment

4	T	29/10/2021 07:56

Many of the learners are most concerned about their environment but others do not seem too concerned

5	T	29/10/2021 07:57

Their behaviors are terrible most of the time and they don't care whether it's clean or not. Some learners do care about their environment or say they do but still do things to hurt the environment

6	T	29/10/2021 07:57

In my school there are people who litter, vandalize infrastructure and disrespect animals. I find it selfish, disgusting and that more action should be taken towards this issue

7	T	29/10/2021 08:01

Some learners litter and don't care about the environment and there's little who care

8	T	29/10/2021 08:04

I'd say some learners do care and some don't. Learners from (my school) volunteer and help cleaning the environment which shows that they care about the environment, some learners try not to litter and some just don't care

9	T	29/10/2021 08:04

Some simply don't care about the environment and they making things harder for those that actually do care because now we have to clean after them. They making it hard to reduce the pace of global warming 'cause if we all work together things would be much easier

10	T	29/10/2021 08:06

Some care, some do not care

11	T	29/10/2021 08:06

Some have a good behavior and others have a bad behavior that could lead to loss of our environment

12	T	29/10/2021 08:09

Litter is common, although some of us pick up litter by ourselves. the taps in the change rooms are left on often
some are quite remarkable while others aren't as great

13	T	29/10/2021 08:09

Some learners don't care about their environment. They litter and don't care who they are harming. Some learners do, but not many. They throw things on the ground and expect others to pick it up for them, and then nothing will happen. That needs to change. We all need to change.

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Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
				8	T	29/10/2021 08:14
they do respect the environment						
				9	T	29/10/2021 08:15
It's good here peoples behavior is good and the environment is preserved						
				10	T	29/10/2021 08:16
I think they have got a good behavior to they environment and always pick up after themselves						
				11	T	29/10/2021 08:16
I think it is decent, we all care about our environment, and want it to remain healthy						
				12	T	09/11/2021 12:08
They're also trying to make their environment a better place						
				13	T	09/11/2021 12:12
They do not destroy it that bad						
				14	T	09/11/2021 12:12
They take care of the environment						
				15	T	09/11/2021 12:14
It's their choice if they do like it, you see by them making sure that they keep their environment clean						
				16	T	09/11/2021 12:15
Some learners enjoys the talk about the environment. They just keep quiet						
				17	T	09/11/2021 12:16
Maybe I can say it's good						
				18	T	09/11/2021 12:16
Not much people litter, at least from what I see						
				19	T	09/11/2021 12:17
I think learners will be more cautious to their environment						
				20	T	09/11/2021 12:17
OK I guess						
				21	T	09/11/2021 12:18
It's good because they treat it good that is OK						

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Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
				14	T	09/11/2021 12:17
I think they will take it to their own hands						
				15	T	09/11/2021 12:17
Happy because the learning about the environment						
				16	T	09/11/2021 12:18
I don't know much						
				17	T	09/11/2021 12:19
Outrageous						

Nodes\\Positive

Document

Files\\Qual Q2c - nvivo

No		0.0609	21

1	T	29/10/2021 07:52
Here at my school we take care of our environment because the teachers show us the importance of their environment so we always have litter duty		
2	T	29/10/2021 07:53
Their behavior is good because they assist and take care of the environment they are really helpful as to that even at school we have litter duty today where we pick up litter and make us school cleaner and healthier. We also have recycling bins so they have a positive behavior towards the environment. We even have an environmental club		
3	T	29/10/2021 08:00
We learn from our parents and school to look after the environment so good		
4	T	29/10/2021 08:01
They care about it but don't want to participate		
5	T	29/10/2021 08:06
They behave very well		
6	T	29/10/2021 08:08
Most of the time the learners at my school recycle but more can be done		
7	T	29/10/2021 08:12
some grow and have a lot of interest and take part in saving the natural resources		

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Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
Nodes\\Other						
Document						
Files\\Qual Q2c - nvivo						
No		0.0355	17			
				1	T	29/10/2021 08:00
You report them to the teacher on duties						
				2	T	29/10/2021 08:02
They should adapt new ways of trying to protect their environment						
				3	T	29/10/2021 08:07
To save and save for others						
				4	T	29/10/2021 08:08
I can't judge them						
				5	T	29/10/2021 08:11
Some are uneducated						
				6	T	29/10/2021 08:16
I think behviour is a very important thing that has to be good in order to save the environment						
				7	T	29/10/2021 08:16
We must our environment keep so then we will stay healthy						
				8	T	29/10/2021 08:16
depends on how that learner is acting on the environment						
				9	T	09/11/2021 12:06
It's going to change because they discovered something new I think will be active to warn those around me who do not care						
				10	T	09/11/2021 12:07
Behavior is very important to everything you do and everywhere you go behaviors is a very important thing to the environment						
				11	T	09/11/2021 12:08
Learner should learn to recycle at home every day						
				12	T	09/11/2021 12:10
It has to stop						
				13	T	09/11/2021 12:10
Learners should respect their environment because it's where they live and it's the only place						

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Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
				64	T	09/11/2021 12:19

They don't care about what they are doing
They have a bad behavior
They litter everywhere and that just not right

Nodes\\Neutral

Document

Files\\Qual Q2c - nvivo

No		0.0128	7

	1	T	29/10/2021 07:55

Learners behavior is neutral because they don't know much about it

	2	T	29/10/2021 08:02

They have pretty much neutral feelings they do not stress on the topic too much

	3	T	29/10/2021 08:02

Some people like it and some people don't

	4	T	29/10/2021 08:03

It's neutral
it could be better

	5	T	29/10/2021 08:14

they are not harmful

	6	T	29/10/2021 08:17

People could think more about the environment.

	7	T	09/11/2021 12:19

It is not the worst but we can work on it

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Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
				52	T	09/11/2021 12:14
It is very crucial. They do not take care of it						
				53	T	09/11/2021 12:15
They litter and destroy their environment and it's very bad for the environment They are destroying their environment with smoking Learners don't treat their environment with care and respect because it usually doesn't affect them Some are lazy to keep it clean and that causes it to be ugly We learners we are lazy to take care about the environment						
				54	T	09/11/2021 12:15
It is very disappointing They don't care						
				55	T	09/11/2021 12:16
It's very wrong I think that learners don't put the trash in the trash I think that it's very peevish I think it is disrespectful Learners are so peevish						
				56	T	09/11/2021 12:16
Bad, because they end up smoking, drinking and disrespecting adults at home						
				57	T	09/11/2021 12:17
Learners behavior or bad towards the environment because they litter everywhere						
				58	T	09/11/2021 12:17
Learners don't behave good towards the environment It's not good because most of the time children are littering in their environment and destroying it Most of the learners pollute the environment Disrespectful Bad they litter They think that there is someone who's gonna pick after them, yes they are but we should respect them and clean our own dirt They think they can do whatever to the environment like it's not their job to clean it They don't look after the environment like it should be looked after						
				59	T	09/11/2021 12:18
That they don't care about the environment						
				60	T	09/11/2021 12:18
It's very bad They take advantage of our environment. Too much littering						
				61	T	09/11/2021 12:18
They litter around and don't care at all about the environment It's lekker, we all litter we all eat we all drop our bread on the floor						
				62	T	09/11/2021 12:18
They are rude selfish and we not worried about the environment Some learners don't care a damn I think we need to change our behavior towards the environment						
				63	T	09/11/2021 12:19
It is bad Some of them abuse the environment						

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Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
				45	T	09/11/2021 12:09

Their behavior is bad they litter all the time, even if they see a recycling bin
They abuse their environment
They are very disrespectful to the environment, they throw papers to shoot and every other bad thing

				46	T	09/11/2021 12:10

they do whatever they feel like doing anytime they want
The learners behavior is very bad towards their environment
Most of them are not really worried about our environment because they don't really think well
It is bad it does not show kindness
They throw papers tissues and all other bad things
They do not care about it as they litter and other factors that are destroying our environment
I learn that don't just abuse the environment littering around the learners don't normally take care of the environment
They just litter. Nobody warns each other about littering
They just litter. Nobody warns each other littering
Some learners just don't care. They throw litter on the floor like it's nobody's business. By doing that they don't know that they're polluting their environment
Bad, rude and wild
Learners do not respect our environment they do everything they want to do without thinking. So what I can advise our learners is to respect our environment, love our environment

				47	T	09/11/2021 12:10

Their behavior it's extremely bad because they just litter all over the place

				48	T	09/11/2021 12:11

Learners disrespect their environment they always litter they don't care whether there's a bin or not

				49	T	09/11/2021 12:12

Learners disrespect their environment they always litter they don't care whether there's are bin or not
Bad
Learners disrespect the government they always littering they don't care whether there's a bin or not
They are not taking care of it
They do not care about its importance
Littering, smoking
They just litter everywhere without thinking as to who is going to suffer because of it
It's because we must respect the environment
to be honest the behavior of the learners towards the environment is bad 'cause they litter etc
They don't behavior because they don't care
They throw paper on the floor meaning they are not concerned

				50	T	09/11/2021 12:12

They are very bad behaved towards the environment
They are not serious of putting the environment back together
It is a bad behavior that they have and have no respect for the environment
They don't care about keeping their environment neat and healthy

				51	T	09/11/2021 12:14

I think it is embarrassing to see people not worried about their environment and can still live without looking after it
I think it is embarrassing to see people not worried about an environment and can still live without looking after it
they do not take care of it
Most learners don't care or look after the environment because we were never teach to look after the environment but after ourselves
Their behavior towards the environment is very bad. They don't follow there rules in order for the environment to be clean
Learners are not taking care of the environment and they are destroying it
they don't care about our environment and it's bad
They don't take care of it they do ask they also thinking they are correct or they taking care of it
They think their behavior towards their environment is unhealthy
Sometimes I do not know what to think of their behaviors because sometimes I do destroy the environment
I just think that some learners don't care about the environment and they just want to do anything
They don't care because they are kids and can litter all they want
Their behavior is very bad, they behave like animals like they're filthy

21/11/2021 11:25

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
				33	T	29/10/2021 08:14

I think that most learners don't care about the environment
I think that they are harming the environment and they litter
they actually don't care and it's really bad because they think wherever they throw their rubbish there's a bin. But they still don't care because that's the kind of environment they grew up in
it is really bad
it is not good for them and for us and for the world and population
they unruly behaved learners to the environment
they don't care
they don't care

				34	T	29/10/2021 08:14

Many behave weirdly in a way that they feel that it is not their responsibility to take care of the environment
they love a neat and clean environment but didn't want to take responsibility in taking care of the environment
most learners do not care about the environment they know that someone else is going to pick up the mess so they do everything in their power to destroy the environment
they don't pay attention to the environment so that why they don't pay attention to the litter, and they like air pollution

				35	T	29/10/2021 08:14

I think it is immature

				36	T	29/10/2021 08:15

They dont care about the environment. It is a given for them.
I think we could do better to look after the environment

				37	T	29/10/2021 08:15

I think learners could improve their behaviour in regards to stop littering, stop incorrectly disposing waste and using a car when it is wise to walk.
poor

				38	T	29/10/2021 08:15

I don't like seeing fellow learners littering and 2 with those who try to help the environment.

				39	T	29/10/2021 08:17

I think it could be better in terms of littering
Their behavior is bad!!! :)
Many learners would prefer to do other things and so would not come out and actively protect their environment

				40	T	29/10/2021 08:17

Learners' behaviour is not so good

				41	T	09/11/2021 12:06

They have poor behavior as they light fires break trees litter everywhere dirty all around them it is very poor

				42	T	09/11/2021 12:07

They behaved badly towards the environment they abused everything around them knowing that they won't be laid charges
I think they show no interest because they don't know the importance of it. And they don't know that destroying their environment will also affect them
They don't care about the environment even if you tell them they will still do it in front of you as if they are saying who are you to tell me what to do

				43	T	09/11/2021 12:08

it is not too good because they have not learned how to clean it

				44	T	09/11/2021 12:08

They don't follow the rules no more
They don't care about the environment

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Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
				25	T	29/10/2021 08:09

They think it's other person's responsibility to take care of the environment

				26	T	29/10/2021 08:11

It is bad I say this because us as learners do not think about the future. We litter and we also don't warn people not to litter
It is bad and should be focused on so it can be changed
Some of them don't really care about it
They think about themselves and not about others or the environment. They don't see how bad pollution and other things are doing to earth
It's bad then they think it boring stuff and they probably know about litter
I think it needs to change because at the end of the day we will be the ones left in this world so we need to take care of it the best way we can
They are very ignorant towards the environment, how to treat it and stuff
It is bad, youth this days don't care about the environment and like I said in question 2a, this needs to be taken seriously
I think they are reluctant to pick up litter or stop the environment crisis
Very poor
It's very bad and it needs to be stopped as soon as possible
They don't care about the environment they always littering
Learners don't take part in what they should do, if they want to have a good environment for their children to live in, they should take care of the environment

				27	T	29/10/2021 08:11

It is horrible, there is no respect whatsoever
Poor

				28	T	29/10/2021 08:11

Terrible, they litter
They can sometimes be reckless and inconsiderate

				29	T	29/10/2021 08:11

They don't care or protect it

				30	T	29/10/2021 08:12

I don't think learners pay any attention in the environment
They don't really care about being in a dirty environment
most of my peers behavior is bad because whenever they eating chips, sweets etc they throw it on the floor like literally litters

				31	T	29/10/2021 08:12

they don't take care of the environment
I think their behavior is unacceptable and they don't understand that they need to take care of the environment
they are not responsible. They don't give careful attention towards the environment

				32	T	29/10/2021 08:13

most learners do not take part in environmental issues, and they litter and most animals die from litter
they litter and they harm plants they kill insects because they tiny they pretty much don't care
they don't want to see our environment clean they only care about doing wrong things
they don't care as much as they don't care about school
they don't look after it including myself. I do litter sometimes and the learners don't see learning about the environment fun
they throw papers all around the place which results in our health being at risk and may cause us many sicknesses and diseases
it's bad because they always litter and sometimes pee on the ground instead of toilets
Some care about the environment and some don't care about it because they know that people working in schools, communities, or in homes will actually clean it for them
unconcerned, they litter near the bin and they don't take the environment serious

21/11/2021 11:25

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
				15	T	29/10/2021 08:04

They do not care about it and will litter thinking it makes no difference. Only if you think it has significance importance to the environment because it is inconvenient for lazy teenagers to walk to the bin they will litter and disregard the environment
It is disgraceful most of them just throw the dirt anyway and this actually kills the environment
They litter and don't pick up the litter or even try to help the environment so they don't Care
I think it's a bad behavior because of the litter everywhere

				16	T	29/10/2021 08:05

Most people know the basics to not litter but many people don't really care. So I think it is not good
I think most learners don't really care about the environment showing by how they treat it on school grounds and other places. Also how you tried to teach them about their environment and they don't seem interested
I think they don't care because they throw litter on the floor and the next person must come and pick it up
I think they don't realize how much danger they put our environment in
I think it's not good because it's that they don't care about their lives and futures
Bad

				17	T	29/10/2021 08:06

They do not care for their environment hence schools are filled with litter everywhere. They do not understand the importance of the environment

				18	T	29/10/2021 08:06

Horrible. They litter
Shameful

				19	T	29/10/2021 08:06

they don't (??) about the environment
It's not good learners are also influenced by their friends choose which causes more learners killing the environment

				20	T	29/10/2021 08:07

They don't care about it. They think that if it doesn't have a negative effect right now it will never have negative effects in the future
Learners usually throw their things on the floor not realizing that it's important to keep the country clean
It's bad behavior
It is disgusting. There is a bin three feet away yet you still throw your rubbish on the floor. Rather keep it in a pocket until you have the chance to throw away your rubbish
I think it's wrong because some learners litter and harm the environment
Learners in my school litter or not, I always see papers everywhere on the fields. I don't understand why they do so because we do have bins

				21	T	29/10/2021 08:07

They don't know how to look after it
I think it's sad that they are treating the environment bad
Most don't care which is quite off putting and a change in behavior will in future give off good results
They don't take care of it. They litter and all those kinds of stuff. Because they believe they are cleaners to clean after them, especially in schools
They don't care. As long as they're getting what they need they fine by it. Whether they are polluting our air or polluting our oceans etc

				22	T	29/10/2021 08:08

Their behavior is the same as their parents as they do not lead by example so learners don't see a problem with littering

				23	T	29/10/2021 08:09

The learners mostly don't respect their environment because they like to make noise which causes air pollution and makes our eardrums to not work properly
They don't do anything because it's not up to them to change the world
They ill treat it for sure and they think that the little things that they do, do not affect it
It's bad because they don't care much and do all sorts of things that endanger the environment
Like I said most learners don't pay attention at what they do that harms our environment, and some just don't have the time although they are interested they can't make it to environmental organisations

				24	T	29/10/2021 08:09

learners lack the knowledge to understand the harm they inflict on the environment and the consequences that conflicts
Some learners behavior is very unnecessary because they don't really care about the environment state whether it's dirty or clean

21/11/2021 11:25

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
				6	T	29/10/2021 07:59

I think it can be improved but learners pollute a lot around us
We don't really care about it in this stage of our lives
Their behavior is bad because they litter. When teachers asked to pick up litter all they do is moan and groan
They do not care about the environment, making a dirty makes them happy, when they need to clean it they don't want to
For example children or learners pollute and throw rubbish around even if they are told to pick it up. They don't care for the environment but have a problem if they are getting sick
They don't care, they think it's lame
Learners don't respect the environment the immediate environment
They don't care about it
They don't respect the environment because they litter and waste water
They are disrespectful towards the environment because they litter and waste water for no reason. It's unacceptable

				7	T	29/10/2021 08:00

They don't care. Period.
I hope they cared more.
I think some learners don't take the environment seriously, they litter and still don't care, and their behavior is really bad
The litter a lot and say we opening more job opportunities, people get paid for doing this
Majority of learners do not care about the environment
Is disgusting because people litter

				8	T	29/10/2021 08:01

They don't care they do what they feel is right at the time
learners behavior towards the environment doesn't help the environment in any way because they're not taught about its importance
Most learners don't really care about the environment
I think some need to be teached how to take care of our environment because they don't care about littering and pollution

				9	T	29/10/2021 08:01

Some of the learners don't even respect the community

				10	T	29/10/2021 08:02

they don't really care about it

				11	T	29/10/2021 08:02

poor without influence
I think the future generation should take better care of their environment or we will all die
Most learners just don't care
Learners behavior with the "I don't care" attitude and only think of the present and not the future

				12	T	29/10/2021 08:02

they like littering

				13	T	29/10/2021 08:03

learners do not care about the environment

				14	T	29/10/2021 08:04

They tend to think that just throwing a piece of plastic on the ground will do no harm to their environment and that plastic will decompose quickly. But they are wrong, that single piece of plastic can go a long way into harming the animals in the ocean or on ground
They litter and they don't really clean their environment after all
I think that they treat their environment badly and do not care about the future
There is a large number of litter in our school so I don't think they are taking the effect it has on the earth seriously
They do not take care of it and they use its resources without thinking about the consequences of their actions
They don't behave good they are
It's pure stupidity because in a few years time when we have to wear masks 24/7 because they are harmful toxins in the air and we can't breathe
Most learners need to focus more on cleaning their environment of litter because they don't use bins often and they leave their environment looking messy and they are damaging the plants and living organisms

21/11/2021 11:25

Coding Summary By Code

RQ2c

21/11/2021 11:25

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On

Node

Nodes\\Negative

Document

Files\\Qual Q2c - nvivo

No		0.7130	64			
				1	T	29/10/2021 07:52

Our behavior as learners is bad and needs to change

2	T	29/10/2021 07:52

It's bad because they don't properly dispose of their waste and it harms the environment
I think some learners behave badly towards the environment
It's bad because most of the times you find them littering everywhere
Learners do not care about the environment
We are not thinking about how our littering will negatively impact the environment around us

3	T	29/10/2021 07:56

I think it is negative, most of learners here in school don't care
It is bad
Many learners think it is not their responsibility to keep the environment. Some learners don't think that the environment is very important
I think many learners do not care about taking care of the environment because some students are still young to know about the well being of the environment
It is bad. They pollute endlessly as they think that they will be someone who will clean up. It is behavior like this that increases the risk of having an unsafe, uninhabitable and dirty environment
I feel like they don't take it as seriously as they should be, because most of the time they don't talk about it
Learners do not understand the importance of taking care of the environment hence they do nothing and don't take care of their environment

4	T	29/10/2021 07:56

It is not something that I can usually bet on, but judging by our age as a learner I don't think a major of us take full responsibility or taking care of the environment. We may not even consider that

5	T	29/10/2021 07:57

we don't learn about the environment enough to save it. The planet is dying and children don't seem to care

21/11/2021 11:25

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
				28	T	29/10/2021 08:17
About half couldn't care less, the other half generally understand and care about how the environment is being harmed and would like to help prevent/stop it						
				29	T	09/11/2021 12:06
The attitude is good and some attitudes of learners are bad because some don't care and some care						
				30	T	09/11/2021 12:09
They are learners who like to look after the environment but sometimes you get others who just like to litter around the whole place						
				31	T	09/11/2021 12:10
Learners think that the environment is just nothing to them but it's something to me						
				32	T	09/11/2021 12:14
they litter constantly and are irresponsible. Not all of them of course Some are rude towards the environment and some respect the environment						
				33	T	09/11/2021 12:18
Some are trying to save the environment while others are still polluting Some care and others don't						
				34	T	09/11/2021 12:19
Some kids are bad behavior some are good						

Appendix M: SPSS summary report – Influential factors

21/11/2021 11:26

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
				5	T	28/10/2021 08:44
mother father brother grandma uncle and grandpa school friends						
				6	T	28/10/2021 08:45
I have a family that taught me the importance of the environment and what I can do to help. Other people like my teachers and mentors taught me how to preserve the environment. Documentaries, news and articles drive me to be active and preserving our environment						
				7	T	28/10/2021 08:46
School parent social media and news						
				8	T	28/10/2021 08:47
Seeing how my grandfathers struggling to breathe because of the smoke and having to fight for his life using ventilators was a true life changing event						
				9	T	28/10/2021 08:51
My friends parents documentaries and myself						
				10	T	28/10/2021 08:53
Animals dying, when I watched a bio channel, all the things I've learned, and parents						
				11	T	28/10/2021 09:19
Television and my parents drilled these morals, like don't waste water or don't litter into me from a young age teaching me it is wrong and irresponsible to harm their environment. I also think when I'm freely able to discuss these problems and listen to another person's opinions on a topic that I'm able to get a better understanding on my end other peoples views on the environment. School played a small role in my views so my parents were probably the most influential						
				12	T	28/10/2021 09:20
seeing how my family operates and how they treat the environment by not wasting and recycling. Thinking about my future and the next generation, how things will be for them if we don't come together and make the world a better place. We will suffer and we might not even survive because we are destroying our own habitat and the only place that has life. It's most likely that a lot of animals will soon be extinct if we carry on overfishing and rhino poaching then next generation want to experience all these animals						
				13	T	28/10/2021 09:21
My parents						
				14	T	28/10/2021 09:24
Global warming and my parents always taught me that the more we litter the more we lose animals and the homelands						
				15	T	28/10/2021 09:27
The school and my parents they taught me what and what not to do						
				16	T	28/10/2021 09:27
My parents are vegetarians and care a lot about the natural world and its inhabitants. They teach me not to waste, use animal tested products, or litter						
				17	T	28/10/2021 09:30
My parents always told me to look after the environment and everything that is part of nature. My teachers taught me more about it and why it is important that we keep it safe						
				18	T	28/10/2021 09:31
Family, television, social media. All these factors have contributed to the way I view the environment. As I mature and grow up I realized the importance of the environment in our lives						

21/11/2021 11:26

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
				10	T	09/11/2021 12:46

When your community takes part in helping out

Nodes\\Significant People other than school\Elders

Document

Files\\Qual Q3

No		0.0112	3

1	T	28/10/2021 08:41

Just the environment itself. Mostly our surroundings, influences such as the community but our elders if they do not recycle then we may slightly take it from the indulge in such behavior as well

2	T	28/10/2021 09:36

I think we must listen to the elders

3	T	28/10/2021 09:37

I think listen to the elders when they talk about helping the environment

Nodes\\Significant People other than school\Family

Document

Files\\Qual Q3

No		0.1622	28

1	T	28/10/2021 08:39

To try and encourage others, family members and friends to keep the environment clean by recycling plastics, bottles and many more other things

2	T	28/10/2021 08:42

Learning about it and it can be looked after. Looking at other people who actually care for it. Being taught about it at school and also at home

3	T	28/10/2021 08:43

Mom dad and school. And the land service club I participate in

4	T	28/10/2021 08:43

Mom dad sister uncle aunt granny grandpa school friends

21/11/2021 11:26

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
				4	T	28/10/2021 09:28

I see how everything is. Some famous people also care about their environment as much as I do and that makes me happy. I saw how people treated the earth and how it affected animals. I felt bad that at a young age I also did it, litter and stuff. So I promised to change that and help save the planet instead of destroy it. I love our planet and hope future generations can live in a healthy and clean place

Nodes\\Significant People other than school\Community

Document

Files\\Qual Q3

No		0.0384	10

1	T	28/10/2021 08:34

I saw that in my community they just throw their waste into the rivers or they just throw it away it doesn't bother them. It's when I started realizing that they don't really care

2	T	28/10/2021 08:36

Community, schools and social media

3	T	28/10/2021 08:41

Just the environment itself. Mostly our surroundings, influences such as the community but our elders if they do not recycle then we may slightly take it from the indulge in such behavior as well

4	T	28/10/2021 08:47

Pollution Pandemic Society and friends

5	T	28/10/2021 08:50

It seems like most people do what they want in the community while some people are trying their best to keep it clean

6	T	28/10/2021 09:41

I see some parents doing a great job on their yards, taking bottles and put it in plastic. Most people have bins outside their houses for people might think of littering put anything in that bin recycling bin

7	T	09/11/2021 12:37

We must clean the comunity

8	T	09/11/2021 12:38

My environment or people don't care about environment they not responsible people. I don't know maybe because it's squatter camp where we stay

9	T	09/11/2021 12:45

I feel we should work together to save the environment

21/11/2021 11:26

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On

Nodes\\Significant People other than school

Document

Files\\Qual Q3

No		0.0133	5			
				1	T	28/10/2021 09:28

The animals as well as some other people

2	T	28/10/2021 09:35

Listen to adults and other people about the environment

3	T	28/10/2021 09:37

when people try to make the environment a lot better

4	T	28/10/2021 09:40

when the government hired the EPWP team I think they did a very good job by doing that because they are trying by all means to clean their environment

5	T	09/11/2021 12:41

I get my views from social media, campaigns, news and adults

Nodes\\Significant People other than school\Activists

Document

Files\\Qual Q3

No		0.0469	4			
				1	T	28/10/2021 08:42

Learning about it and it can be looked after. Looking at other people who actually care for it. Being taught about it at school and also at home

2	T	28/10/2021 08:54

Rich performative activists warning people of overconsumption by telling them not to support fast fashion or partake in the train cycle but going back on their word and supporting companies like apple, Nike etc, buying the latest version IOS and Nike is, acting like that isn't over consumption too. The superiority complex and holier than thou attitude from rich people is really what got me into activism, especially regarding the environment

3	T	28/10/2021 09:20

Seeing many organisations spreading awareness on the issues we will have if we do not stop littering and damaging the environment. Also just seeing my surroundings filled by piles of dirt in the streets just makes me more aware and changed my perspective on the environment and it's uses

21/11/2021 11:26

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
				2	T	28/10/2021 09:39
my influential factors were my primary teachers in primary and social media that made my views differ from others						
				3	T	28/10/2021 09:45
i used to be in an environmental club in primary school just to skip class but then i realised how important the environment really is.						

Nodes\\School\Teacher

Document

Files\\Qual Q3

No		0.0297	8

1	T	28/10/2021 08:45
I have a family that taught me the importance of the environment and what I can do to help. Other people like my teachers and mentors taught me how to preserve the environment. Documentaries, news and articles drive me to be active and preserving our environment		
2	T	28/10/2021 09:22
My teachers and my general knowledge of what is happening in our environment		
3	T	28/10/2021 09:30
My parents always told me to look after the environment and everything that is part of nature. My teachers taught me more about it and why it is important that we keep it safe		
4	T	28/10/2021 09:36
my teachers taught me about the environment		
5	T	28/10/2021 09:38
My teachers. My parents		
6	T	28/10/2021 09:41
my geography teacher		
7	T	09/11/2021 12:35
The people at home and teachers because they are no great students without great teachers and National Geographic helped me channel 182 on DSTV		
8	T	09/11/2021 12:49
I think it's my teachers and people are look up to and me		

21/11/2021 11:26

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
Nodes\\School\Current						
Document						
Files\\Qual Q3						
No		0.0098	1			
				1	T	28/10/2021 08:34

the people who taught me about the environment ever since I started school or at my primary school I was involved in the environmental club so every two weeks or one week we would go around and outside of the school and pick up the litter and put it in the suitable bins

Nodes\\School\Curriculum Content						
Document						
Files\\Qual Q3						
No		0.0054	3			
				1	T	09/11/2021 12:33

To keep it clean at all times for our health and the things that we interact with in the environment

				2	T	09/11/2021 12:41

from the school in geography

				3	T	09/11/2021 12:49

Geography lessons

Nodes\\School\Primary						
Document						
Files\\Qual Q3						
No		0.0190	3			
				1	T	28/10/2021 08:34

the people who taught me about the environment ever since I started school or at my primary school I was involved in the environmental club so every two weeks or one week we would go around and outside of the school and pick up the litter and put it in the suitable bins

21/11/2021 11:26

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
				3	T	28/10/2021 08:43
Mom dad and school. And the land service club I participate in						
				4	T	28/10/2021 08:43
Mom dad sister uncle aunt granny grandpa school friends						
				5	T	28/10/2021 08:44
mother father brother grandma uncle and grandpa school friends						
				6	T	28/10/2021 08:46
School parent social media and news						
				7	T	28/10/2021 09:19
Television and my parents drilled these morals, like don't waste water or don't litter into me from a young age teaching me it is wrong and irresponsible to harm their environment. I also think when I'm freely able to discuss these problems and listen to another person's opinions on a topic that I'm able to get a better understanding on my end other peoples views on the environment. School played a small role in my views so my parents were probably the most influential						
				8	T	28/10/2021 09:27
The school and my parents they taught me what and what not to do						
				9	T	28/10/2021 09:36
the school teaches us and my grandparents teaches us about recycling						
				10	T	28/10/2021 09:38
learning about it at school changed my views about the environment and witnessing people destroy our beautiful land						
				11	T	28/10/2021 09:42
Tv, school, social media						
				12	T	28/10/2021 09:44
My parents and schools have always taught us to care for the enviroment. school						
				13	T	28/10/2021 09:45
I believe school has had an impact and also educational documentaries or docu-series have had a very large impact on the ways I have viewed the environment.						
				14	T	09/11/2021 12:50
The grounds, my school and many other places						

21/11/2021 11:26

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
				13	T	28/10/2021 09:30
It must be taken with full responsibility by every citizen, must be enjoyable, always clean						
				14	T	28/10/2021 09:33
It is so pretty and people are destroying it						
				15	T	28/10/2021 09:36
my view on the environment is that it is an amazing place filled with amazing animals and plants. My family has taught me to care about the environment as if it is your child. The environment is an amazing place so save it						
				16	T	28/10/2021 09:43
how well the environment is doing when there is no pollution and how wonderful a thriving environment is						
				17	T	09/11/2021 12:35
There is a recycling station near my home or school						
				18	T	09/11/2021 12:35
Hygiene. Being hygienic has influenced the way I see everything. It made me realize how dirty and polluted the environment is and that we should keep it clean						
				19	T	09/11/2021 12:39
The influential factors of the environment so that it can always be clean. Having a clean environment means that they are going to be less people that are sick and they are going to be no kids that are hurt						
				20	T	09/11/2021 12:44
People littering the floor always picking up the papers, cleaning the roads						
				21	T	09/11/2021 12:51
The recycling bin						

Nodes\\School

Document

Files\\Qual Q3

No		0.0522	14

	1	T	28/10/2021 08:36
Community, schools and social media			
	2	T	28/10/2021 08:42
Learning about it and it can be looked after. Looking at other people who actually care for it. Being taught about it at school and also at home			

21/11/2021 11:26

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
Nodes\\Observations\Positive Observations						
Document						
Files\\Qual Q3						
No		0.1140	21			
				1	T	28/10/2021 08:36

I realized that the environment is important and we need to take care of it

2	T	28/10/2021 08:36

I've seen or I've had a glimpse of how life would be if we took care of our environment. Everything would be green, streams are clean, oceans are clean, people live longer, animals live longer. I compared how we are living now to how life would be if we took care of our environment and I saw that we have to work and improve

3	T	28/10/2021 08:38

The environment is very important. I think learners and many people must keep the environment clean and healthy because no one would want to live there. the environment must be beautiful, clean, enjoyable and healthy. No one want to live in a very dirty and unhealthy place. Environment must feel like home

4	T	28/10/2021 08:41

Is that the environment was always clean and safe so that the environment can be healthy

5	T	28/10/2021 08:41

Just the environment itself. Mostly our surroundings, influences such as the community but our elders if they do not recycle then we may slightly take it from the indulge in such behavior as well

6	T	28/10/2021 08:44

The sight of it or the beauty of it. They are animals that lives in the environment and must be protected

7	T	28/10/2021 08:45

The earth is a beautiful place in my opinion and it upsets me to see the amount of litter on the ground and the plastics in the trees. I'd like to make a group so we can clean the grounds and change at least one thing at a time

8	T	28/10/2021 08:45

I like the greenery and the flowers but it's hard to look at them and look at the mess in the Bush and on the pavement. Factory waste is also something that shaped my views. Some people who live along inside the river use that as drinking water and bath water

9	T	28/10/2021 08:48

Because it preserves other resources and pollution and clean environment, tree cutting for environment future for use children

10	T	28/10/2021 08:50

It seems like most people do what they want in the community while some people are trying their best to keep it clean

11	T	28/10/2021 09:18

Started helping more with community days and cleanups because I care about keeping the environment clean and healthy. I also care about their reputation our schools and homes get by how clean or dirty our environment is

12	T	28/10/2021 09:27

Not sure, it's just really nice to see a full green area without dirt or waste materials

21/11/2021 11:26

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
				35	T	28/10/2021 09:45
Seeing how us as humans have hurt this planet and how some people don't care and don't try to make things better for others						
				36	T	28/10/2021 09:47
Taking hikes and going out into nature and seeing the pollution and litter in an area that should have been clean						
				37	T	28/10/2021 09:47
When I see that the environment is not looking good I think that we need to do something about it. Knowing the vast forests and plains and wild areas, filled with animals and life are now probably parking lots						
				38	T	09/11/2021 12:35
The environment we live in is different from others we live in a dirty environment because people don't respect our environment						
				39	T	09/11/2021 12:37
The influential factors is that the people do not take responsibility to the environment						
				40	T	09/11/2021 12:38
My environment or people don't care about environment they not responsible people. I don't know maybe because it's squatter camp where we stay						
				41	T	09/11/2021 12:44
Seeing pollution and litter everywhere in my neighborhood People littering the floor always picking up the papers, cleaning the roads The learner are irresponsible						
				42	T	09/11/2021 12:44
they litter around the road they throw things in the water						
				43	T	09/11/2021 12:46
The fact that people use harmful chemicals towards the earth shaped my view 'cause I thought about my needs that the earth provides for us That we need to stop throwing papers down People don't do recycling anymore, they throw trash everywhere, no longer care about how the environment is						
				44	T	09/11/2021 12:46
Pollution You wouldn't like people to throw trash or rubbish in your home so why do it to the world						
				45	T	09/11/2021 12:48
We should not litter, keep the space clean, be careful of germs People don't notice the importance of the environment						

21/11/2021 11:26

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
				21	T	28/10/2021 09:21
Seeing the litter around the City made me realize that it is important to recycle and help clean my area and my surroundings. Spreading awareness about this is important but also useless because people don't listen						
				22	T	28/10/2021 09:26
People around me and just maritzburg on it's own this is not a clean town or city and municipality isn't doing its job						
				23	T	28/10/2021 09:28
I see how everything is. Some famous people also care about their environment as much as I do and that makes me happy. I saw how people treated the earth and how it affected animals. I felt bad that at a young age I also did it, litter and stuff. So I promised to change that and help save the planet instead of destroy it. I love our planet and hope future generations can live in a healthy and clean place						
				24	T	28/10/2021 09:30
It's disgusting 'cause all you see is litter As a learner I now see that littering is wrong because it is not nice walking early in the morning to school and I see litter all over the place. It puts a bad image on my school						
				25	T	28/10/2021 09:32
Litter around my community, water and electricity wastage, YouTube videos warning me about the consequences about pollution						
				26	T	28/10/2021 09:32
Littering around the community, wasting of non renewable resources, and water pollution						
				27	T	28/10/2021 09:33
The school's attitude including the amount of learners who buys stuff from the tuckshop without realizing once they're done with the food or snack they should throw it away						
				28	T	28/10/2021 09:34
They are less bins than wanted I see that tons of people see others throwing their trash on the ground and everyone follows them						
				29	T	28/10/2021 09:35
Seeing how the environment is treated badly made me see that what people do to the environment is wrong said that's why I try my best to treat the environment well. The way I was also raised has had influence on my position on the environment, because I was raised to treat the environment right from seeing environmental adverts and campaigns broadcasting a message to the world telling them how to preserve the land to make it						
				30	T	28/10/2021 09:38
bad they litter unconcernedly, they don't care and love the environment						
				31	T	28/10/2021 09:38
learning about it at school changed my views about the environment and witnessing people destroy our beautiful land						
				32	T	28/10/2021 09:40
they litter alot. They don't clean that area they were in						
				33	T	28/10/2021 09:42
Seeing the way people are ruining the environment and the world						
				34	T	28/10/2021 09:44
I have been to many game reserves and seen many of te animals and plantts that get killed and i realise that there i no reason for the killing of animals and trees						

21/11/2021 11:26

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
				6	T	28/10/2021 08:40
People getting sick, dirty environment, unhealthy situations						
				7	T	28/10/2021 08:45
The earth is a beautiful place in my opinion and it upsets me to see the amount of litter on the ground and the plastics in the trees. I'd like to make a group so we can clean the grounds and change at least one thing at a time						
				8	T	28/10/2021 08:45
I like the greenery and the flowers but it's hard to look at them and look at the mess in the Bush and on the pavement. Factory waste is also something that shaped my views. Some people who live along inside the river use that as drinking water and bath water						
				9	T	28/10/2021 08:46
Seeing other communities suffer because of pollution						
				10	T	28/10/2021 08:46
I see children dying because of the diseases so I think we should clean our environment to stop this						
				11	T	28/10/2021 08:48
It is pollution because it causes so much damage to the environment. We must get used to the renewable resources not the non renewable						
				12	T	28/10/2021 08:48
Because it preserves other resources and pollution and clean environment, tree cutting for environment future for use children						
				13	T	28/10/2021 08:50
It seems like most people do what they want in the community while some people are trying their best to keep it clean						
				14	T	28/10/2021 08:50
It is pollution, the disposal of waste products, people's attitude towards the environment						
				15	T	28/10/2021 08:55
That people do not have clean water to drink and a clean environment to live in. they are always litter on the roads and in the rivers						
				16	T	28/10/2021 09:18
Started helping more with community days and cleanups because I care about keeping the environment clean and healthy. I also care about their reputation our schools and homes get by how clean or dirty our environment is						
				17	T	28/10/2021 09:18
I saw how bad of an impact littering and pollution brings regards to animals dying and people getting infected because of pollution						
				18	T	28/10/2021 09:19
seeing litter lying around makes me want to do better for the environment						
				19	T	28/10/2021 09:20
Seeing many organisations spreading awareness on the issues we will have if we do not stop littering and damaging the environment. Also just seeing my surroundings filled by piles of dirt in the streets just makes me more aware and changed my perspective on the environment and it's uses						
				20	T	28/10/2021 09:21
Some influential factors are the litter in their environment, pollution, poaching of rhinos						

21/11/2021 11:26

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
				5	T	09/11/2021 12:50

I don't have any answers
I don't have any bye

Nodes\\Observations

Document

Files\\Qual Q3

No		0.0057	2

		1	T	28/10/2021 08:35

Sustainable resources, renewable thing, and mostly importantly their attitude towards the environment

		2	T	28/10/2021 09:46

The news, debating society and what i see in our area

Nodes\\Observations\Negative Observations

Document

Files\\Qual Q3

No		0.2453	45

		1	T	28/10/2021 08:34

I saw that in my community they just throw their waste into the rivers or they just throw it away it doesn't bother them. It's when I started realizing that they don't really care

		2	T	28/10/2021 08:36

The factors that shaped my views about the environment or that people do not care about environmental pollution and till it effects one of them

		3	T	28/10/2021 08:37

The pollution around it, then negative an environment

		4	T	28/10/2021 08:37

It is not a good environment but there's nothing I can do about it 'cause it's already drained

		5	T	28/10/2021 08:40

pollution, emission of harmful gases, that obliviousbehavior of people toward the destruction of the environment, global warming

21/11/2021 11:26

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
				2	T	28/10/2021 08:47
Health, responsibility, costs and nature activities						
				3	T	28/10/2021 08:51
I live near a nature reserve and it just pains me to see that so many animals have to be kept in a certain place and be fenced off from the world because humans don't know how to look after the environment						
				4	T	28/10/2021 09:18
Started helping more with community days and cleanups because I care about keeping the environment clean and healthy. I also care about their reputation our schools and homes get by how clean or dirty our environment is						
				5	T	28/10/2021 09:42
I live in the Drakensburg and enjoy the mountains						
				6	T	28/10/2021 09:43
Yes, I love the ocean and knowing that pollution has a huge effect on ocean wildlife affects my views.						
				7	T	28/10/2021 09:44
I have been to many game reserves and seen many of te animals and plantts that get killed and i realise that there i no reason for the killing of animals and trees						
				8	T	28/10/2021 09:47
Taking hikes and going out into nature and seeing the pollution and litter in an area that should have been clean						

Nodes\\None

Document

Files\\Qual Q3

No		0.0032	5			
				1	T	28/10/2021 08:34
They are none						
				2	T	28/10/2021 08:40
None						
				3	T	28/10/2021 09:23
None						
				4	T	09/11/2021 12:47
I don't have any						

21/11/2021 11:26

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
				10	T	28/10/2021 09:35

Seeing how the environment is treated badly made me see that what people do to the environment is wrong said that's why I try my best to treat the environment well. The way I was also raised has had influence on my position on the environment, because I was raised to treat the environment right next line from seeing environmental adverts and campaigns broadcasting a message to the world telling them how to preserve the land to make it habitable for humans and animals alike

11	T	28/10/2021 09:36

it is the inspirational television show that speaks about the environment and the animals

12	T	28/10/2021 09:40

television, magazine and radio

13	T	28/10/2021 09:40

the thing that influenced me about the environment is mostly television, it's a good influence

14	T	28/10/2021 09:42

Tv, school, social media

15	T	28/10/2021 09:46

The news, debating society and what i see in our area

16	T	28/10/2021 09:47

Television, social media

17	T	09/11/2021 12:35

The people at home and teachers because they are no great students without great teachers and National Geographic helped me channel 182 on DSTV

18	T	09/11/2021 12:42

I get my views from social media, campaigns, news and adults

19	T	09/11/2021 12:45

I seen stuff that is seen on TV

Nodes\\Nature Experiences

Document

Files\\Qual Q3

No		0.0342	8

1	T	28/10/2021 08:47

Hiking and camping is fun

21/11/2021 11:26

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
				13	T	09/11/2021 12:42

I get my views from social media, campaigns, news and adults

Nodes\\Media\TV and News

Document

Files\\Qual Q3

No		0.0862	19

1	T	28/10/2021 08:42

Shows on TV that show exactly how our actions as humans affect the environment in a negative light. Global warming is a main factor that brought my attention upon environmental problems

2	T	28/10/2021 08:46

School parent social media and news

3	T	28/10/2021 08:53

Animals dying, when I watched a bio channel, all the things I've learned, and parents

4	T	28/10/2021 09:19

Television and my parents drilled these morals, like don't waste water or don't litter into me from a young age teaching me it is wrong and irresponsible to harm their environment. I also think when I'm freely able to discuss these problems and listen to another person's opinions on a topic that I'm able to get a better understanding on my end other peoples views on the environment. School played a small role in my views so my parents were probably the most influential

5	T	28/10/2021 09:26

For me the influential factors include what I see on TV and on line. They are quite a few ads that promote recycling which has an impact on me

6	T	28/10/2021 09:27

TV, magazines and social media

7	T	28/10/2021 09:31

Family, television, social media. All these factors have contributed to the way I view the environment. As I mature and grow up I realized the importance of the environment in our lives

8	T	28/10/2021 09:32

Social media, and watching shows on the impact we have on the environment

9	T	28/10/2021 09:33

I have seen images and studies on social media and TV regarding the environment and how to help

21/11/2021 11:26

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
Nodes\\Media\Social Media						
Document						
Files\\Qual Q3						
No		0.0419	13			
				1	T	28/10/2021 08:33
I have seen documentaries of fishes who have died from plastic pollution, and social media						
				2	T	28/10/2021 08:36
Community, schools and social media						
				3	T	28/10/2021 08:46
School parent social media and news						
				4	T	28/10/2021 09:26
For me the influential factors include what I see on TV and on line. They are quite a few ads that promote recycling which has an impact on me						
				5	T	28/10/2021 09:27
TV, magazines and social media						
				6	T	28/10/2021 09:31
The Internet, seeing how bad it can get if people carry on with global warming, deforestation etc						
				7	T	28/10/2021 09:31
Family, television, social media. All these factors have contributed to the way I view the environment. As I mature and grow up I realized the importance of the environment in our lives						
				8	T	28/10/2021 09:32
Litter around my community, water and electricity wastage, YouTube videos warning me about the consequences about pollution Social media, and watching shows on the impact we have on the environment						
				9	T	28/10/2021 09:33
I have seen images and studies on social media and TV regarding the environment and how to help						
				10	T	28/10/2021 09:39
my influential factors were my primary teachers in primary and social media that made my views differ from others						
				11	T	28/10/2021 09:42
Tv, school, social media						
				12	T	28/10/2021 09:47
Television, social media						

21/11/2021 11:26

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
				3	T	28/10/2021 08:46

I stay up at night worrying about the future due to climate change. I've seen a lot of documentaries on global warming and since then am very alert about my eco footprint.

				4	T	28/10/2021 08:51

My friends parents documentaries and myself

				5	T	28/10/2021 09:45

I believe school has had an impact and also educational documentaries or docu-series have had a very large impact on the ways I have viewed the environment.

				6	T	28/10/2021 09:46

Movies

Nodes\\Media\Print Media

Document

Files\\Qual Q3

No		0.0163	4

				1	T	28/10/2021 08:43

my exposure to media such as books or actual touching on the effect of the environmental issue and our behavior towards it

				2	T	28/10/2021 08:45

I have a family that taught me the importance of the environment and what I can do to help. Other people like my teachers and mentors taught me how to preserve the environment. Documentaries, news and articles drive me to be active and preserving our environment

				3	T	28/10/2021 09:27

TV, magazines and social media

				4	T	28/10/2021 09:40

television, magazine and radio

21/11/2021 11:26

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
				70	T	09/11/2021 12:40
The polluting of oceans the sky and grounds						
				71	T	09/11/2021 12:41
It can harm animals and even kill them and as to						
				72	T	09/11/2021 12:41
To take global warming very serious, do not litter etc The factors that pollution the ocean and produce natural oil, coal and gas						
				73	T	09/11/2021 12:43
My health and other people's health. Animal health too						
				74	T	09/11/2021 12:43
I saw that many animals have died in the sea and they lost their lives						
				75	T	09/11/2021 12:46
That we should recycle more to save the environment The fact that people use harmful chemicals towards the earth shaped my view 'cause I thought about my needs that the earth provides for us						
				76	T	09/11/2021 12:46
The death of animals						
				77	T	09/11/2021 12:47
The melting glaciers in Antarctica and the thoughts that my future and the next generation will not get the healthiest I got						
				78	T	09/11/2021 12:47
The trees and the animals The ocean						

Nodes\\Media\Movies and Documentaries

Document

Files\\Qual Q3

No		0.0268	6

	1	T	28/10/2021 08:33
I have seen documentaries of fishes who have died from plastic pollution, and social media			
	2	T	28/10/2021 08:45
I have a family that taught me the importance of the environment and what I can do to help. Other people like my teachers and mentors taught me how to preserve the environment. Documentaries, news and articles drive me to be active and preserving our environment			

21/11/2021 11:26

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
				56	T	28/10/2021 09:40
good influential factors shape my views about the environment. It taught me try my best to take care of it						
				57	T	28/10/2021 09:40
recycle and reuse						
				58	T	28/10/2021 09:41
The factors of pollution because it has made me see that we need the environment and if we continue this way we will lose it and also mining, it has polluted the environment and it will continue to ruin it and finish all our non renewable resources What shaped my views about the environment was seeing so many animals suffer at the hands of ignorant humans who seem to think the world belongs to them. I feel like it is my duty to try and preserve the earth for those who are unable to fight for it themselves						
				59	T	28/10/2021 09:42
Air pollution and illegal waste removal to natuaral areas across our country.						
				60	T	28/10/2021 09:43
Yes, I love the ocean and knowing that pollution has a huge effect on ocean wildlife affects my views. Global warming						
				61	T	28/10/2021 09:44
Stay clean stay safe						
				62	T	09/11/2021 12:34
The global warming and how in the future there will be no grass and our planet will be non inhabitable						
				63	T	09/11/2021 12:36
Air pollution global warning						
				64	T	09/11/2021 12:38
Trees are cut down						
				65	T	09/11/2021 12:38
Many trees are being cut down causing animals to lose their habitats and animals being used as food						
				66	T	09/11/2021 12:38
The fact that it can cause pollution or harm animals The fact that it can cause pollution or harm animals						
				67	T	09/11/2021 12:39
Being affected by the information about the environment						
				68	T	09/11/2021 12:39
The fact that it can be polluted or can harm animals The fact that it can be polluted or can harm animals The fact that it can be polluted and can harm animals						
				69	T	09/11/2021 12:40
The fact that it can be polluted or can harm animals						

21/11/2021 11:26

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
				41	T	28/10/2021 09:25
Caring for animals sympathetic person in general, caring for myself wanting a healthy lifestyle, not being a litterbug always being clean						
				42	T	28/10/2021 09:26
When I saw sea animals struggling to swim because they have plastic all around them. And some children who can't get fresh clean water to drink						
				43	T	28/10/2021 09:27
Is to look after our environment so that it won't be a unity world and so that it will be safe to smell the fresh air						
				44	T	28/10/2021 09:28
The animals as well as some other people						
				45	T	28/10/2021 09:29
By recycling and actually seeing the animals that actually get harmed due to litter. Global warming also has an impact. It is important to save the environment before it becomes unpleasant to live in this environment						
				46	T	28/10/2021 09:31
Everything humans do basically messes with their environment. We do more damage than helping it recover Pollution from factories that are causing animals to die, and waste pollution from humans						
				47	T	28/10/2021 09:31
It's littering in the oceans an even land that they die from our litter						
				48	T	28/10/2021 09:32
Reduce reuse and recycle						
				49	T	28/10/2021 09:34
Pollution, dying animals, global warming, the end of the earth Pollution, educational facts, effects of pollution, consequences of pollution, overpopulation, global warming etc						
				50	T	28/10/2021 09:34
The fact that we are causing fish to die and our plastic and papers can kill the animals						
				51	T	28/10/2021 09:35
The thing on pollution on the environments						
				52	T	28/10/2021 09:37
It that the environment is getting damaged all around the world						
				53	T	28/10/2021 09:38
it is when my parents tell me to clean and never pollute. When there was global warming						
				54	T	28/10/2021 09:38
it is important that we keep our environment clean because it causes many diseases						
				55	T	28/10/2021 09:39
good influential factor. Plants and animals give us life. Pollution of a it is a harmful thing towards the air we breathe. Instead of plastic bag, I use paper bag for grocery shopping to help reduce plastic harm						

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Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
				26	T	28/10/2021 09:19
The animals going extinct, the ice melting in the North and South pole, the animals dying because they exposed to human waste						
				27	T	28/10/2021 09:20
seeing how my family operates and how they treat the environment by not wasting and recycling. Thinking about my future and the next generation, how things will be for them if we don't come together and make the world a better place. We will suffer and we might not even survive because we are destroying our own habitat and the only place that has life. It's most likely that a lot of animals will soon be extinct if we carry on overfishing and rhino poaching then next generation want to experience all these animals						
				28	T	28/10/2021 09:21
Some influential factors are the litter in their environment, pollution, poaching of rhinos						
				29	T	28/10/2021 09:22
That we have to not litter. We have to take care of animals habitat						
				30	T	28/10/2021 09:22
The harmed animals and the plants that were not well taken care of						
				31	T	28/10/2021 09:22
My teachers and my general knowledge of what is happening in our environment						
				32	T	28/10/2021 09:23
The things that are happening around the world						
				33	T	28/10/2021 09:23
We need to conserve the environment for the future. We don't want extinct animals						
				34	T	28/10/2021 09:23
That they are living creatures plants and humans involved in it						
				35	T	28/10/2021 09:23
One of the factors that shaped my view is animals. They don't choose to live the way that they do, and are helpless as they can't talk. They also are harmless most of the time but people pollute and destroy their habitats						
				36	T	28/10/2021 09:24
Without us planting trees or flowers, we are slowly killing all the species in the world. If animals don't eat, we don't have meat to eat. It is important that we think about who or how this will effect the world one day when we throw a piece of paper on the floor						
				37	T	28/10/2021 09:24
Global warming and my parents always taught me that the more we litter the more we lose animals and the homelands						
				38	T	28/10/2021 09:24
Help you help you						
				39	T	28/10/2021 09:24
Animal deaths						
				40	T	28/10/2021 09:25
Litter and pollution The ones that pollute our air						

21/11/2021 11:26

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
				11	T	28/10/2021 08:44
Litter, water pollution, air pollution						
				12	T	28/10/2021 08:47
Pollution Pandemic Society and friends						
				13	T	28/10/2021 08:47
Health, responsibility, costs and nature activities						
				14	T	28/10/2021 08:48
Influential factors that shaped our views about the environment are mainly our health and protection of the animals and plants around us						
				15	T	28/10/2021 08:48
It is pollution because it causes so much damage to the environment. We must get used to the renewable resources not the non renewable						
				16	T	28/10/2021 08:50
Forest burning animals going extinct rivers drying up fisheries depleting						
				17	T	28/10/2021 08:50
Rain forests burning animals going extinct rivers drying up fisheries depleting						
				18	T	28/10/2021 08:51
Global warming, knowing that many animals are dying and have homes and we only have one planet to live in						
				19	T	28/10/2021 08:53
The preservation of non renewable resources pollution						
				20	T	28/10/2021 08:53
Animals dying, when I watched a bio channel, all the things I've learned, and parents						
				21	T	28/10/2021 08:53
How the earth could be in danger						
				22	T	28/10/2021 08:54
Nature is alive and feels. Nature is part of the life cycle						
				23	T	28/10/2021 08:55
Factor number one, realizing the environment is what keeps us alive and thriving. Factor #2, people don't care about future generations access to their environment like we have influenced me to take a stand and persist for respect for the environment						
				24	T	28/10/2021 08:55
Learning more about the environment, the growing careful cleaning oceans and seas, the changing of store grocery bags, conserving the earth for tomorrow						
				25	T	28/10/2021 08:56
I have seen how many animal species have died and gone extinct because of us humans so we will choose to go extinct if people don't start taking it seriously. It my already be too late looking at global warming and our ozone layer.						

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Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
				2	T	09/11/2021 12:42

I get my views from social media, campaigns, news and adults

Nodes\\Media\Knowledge of Unknown Source

Document

Files\\Qual Q3

No		0.3040	78			
				1	T	28/10/2021 08:35

Sustainable resources, renewable thing, and mostly importantly their attitude towards the environment

2	T	28/10/2021 08:35

I don't know. I guess global warming, climate change and pollution, deforestation etc

3	T	28/10/2021 08:35

How our actions impact the environment and all the creatures that live in that environment

4	T	28/10/2021 08:39

To try and encourage others, family members and friends to keep the environment clean by recycling plastics, bottles and many more other things

5	T	28/10/2021 08:40

pollution, emission of harmful gases, that obliviousbehavior of people toward the destruction of the environment, global warming

6	T	28/10/2021 08:40

Lives of people come out plants and animals. Cleanliness of the environment. Cutting down of trees. Health of living things

7	T	28/10/2021 08:42

Learning about it and it can be looked after. Looking at other people who actually care for it. Being taught about it at school and also at home

8	T	28/10/2021 08:42

Global warming, plastic in the oceans, wasting of water, illegal dumping of waste in rivers

9	T	28/10/2021 08:42

The fact that the animals will die

10	T	28/10/2021 08:43

The thought of animals suffering and dying because humans are doing stuff to harm them

21/11/2021 11:26

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
				11	T	09/11/2021 12:43
That the environment is needed to be looked after as it plays an important role in our daily lives That we should take care of the environment They use their phones and don't care about the rest It is notlike it's not being taken care of						
				12	T	09/11/2021 12:44
How we care about the environment. Why it is useful to us. What impact it has on our lives. Why should we care for it. What would happen to us if we neglect the environment around us. Waste decay and keep our environment clean and safe Litter, recycle, have a clean place to live						
				13	T	09/11/2021 12:44
Recycling, saving water and electricity						
				14	T	09/11/2021 12:46
I don't understand the question						
				15	T	09/11/2021 12:47
Keeping the environment clean at all times and looking after the place						
				16	T	09/11/2021 12:47
to keep the place clean						
				17	T	09/11/2021 12:48
to put bins in every community and have very strict rules						
				18	T	09/11/2021 12:48
Saving the environment, keeping it clean. We should care about the environment like we care about ourselves						
				19	T	09/11/2021 12:50
We should take care of the environment and don't dirty or pollute it						
				20	T	09/11/2021 12:51
Take care of it and not pollute						

Nodes\\Media\Campaigns

Document

Files\\Qual Q3

No		0.0034	2			
				1	T	09/11/2021 12:40
The campaigns to save the world						

21/11/2021 11:26

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
				13	T	09/11/2021 12:50

I think it's my teachers and people are look up to and me

Nodes\\Irrelevant answer

Document

Files\\Qual Q3

No		0.0643	20

1	T	09/11/2021 12:35

People must not litter they should also take responsibility about that too

2	T	09/11/2021 12:36

the influential factors that I influence in the environment is to look after what's right for you

3	T	09/11/2021 12:37

It is that we must keep the environment safe
I will warn those in my immediate vicinity to refrain from any unnecessary consumption. I will warn those who litter around me

4	T	09/11/2021 12:37

Having to buy products with recyclable packing. Set aside products packaging for recycling

5	T	09/11/2021 12:38

People are cutting down trees and plants they make their houses beautiful

6	T	09/11/2021 12:39

The weather is always changing from time to time

7	T	09/11/2021 12:40

It can even cause pollution

8	T	09/11/2021 12:41

Discussed it

9	T	09/11/2021 12:41

Respectful is important for environment

10	T	09/11/2021 12:41

We live in the environment no one should pollute it we must all take care of it
That people have to try and keep the environment clean

21/11/2021 11:26

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
Nodes\\Intrinsic Motivation						
Document						
Files\\Qual Q3						
No		0.0687	13			
				1	T	28/10/2021 08:51
My friends parents documentaries and myself						
				2	T	28/10/2021 09:18
Started helping more with community days and cleanups because I care about keeping the environment clean and healthy. I also care about their reputation our schools and homes get by how clean or dirty our environment is						
				3	T	28/10/2021 09:21
That it starts with me to make a difference to keep our environment clean						
				4	T	28/10/2021 09:25
Caring for animals sympathetic person in general, caring for myself wanting a healthy lifestyle, not being a litterbug always being clean						
				5	T	28/10/2021 09:28
I see how everything is. Some famous people also care about their environment as much as I do and that makes me happy. I saw how people treated the earth and how it affected animals. I felt bad that at a young age I also did it, litter and stuff. So I promised to change that and help save the planet instead of destroy it. I love our planet and hope future generations can live in a healthy and clean place						
				6	T	28/10/2021 09:31
Family, television, social media. All these factors have contributed to the way I view the environment. As I mature and grow up I realized the importance of the environment in our lives						
				7	T	28/10/2021 09:39
naturality and positivity or positiveness it hears you inside when you are not well it has nature						
				8	T	28/10/2021 09:40
that it is my responsibility to warn those around me who do not care about the environment						
				9	T	09/11/2021 12:36
The influential factors are that love the environment keep your love people healthy						
				10	T	09/11/2021 12:37
I feel we should take care of the nature and our environment						
				11	T	09/11/2021 12:42
My view is that I will do whatever it takes to help the environment even though I don't want to become it I will love to put a hand in it to see that the environment I live in is good I think me as teenager I would like to put my hand by help our environment I will do whatever I like to do about helping my environment						
				12	T	09/11/2021 12:45
I feel we should work together to save the environment Loving smart motivated focused						

21/11/2021 11:26

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
				5	T	28/10/2021 09:45

i used to be in an environmental club in primary school just to skip class but then i realised how important the environment really is.

Nodes\\Future Generations

Document

Files\\Qual Q3

No		0.0644	7

1	T	28/10/2021 08:49

Because it preserves other resources and pollution and clean environment, tree cutting for environment future for use children

2	T	28/10/2021 09:20

seeing how my family operates and how they treat the environment by not wasting and recycling. Thinking about my future and the next generation, how things will be for them if we don't come together and make the world a better place. We will suffer and we might not even survive because we are destroying our own habitat and the only place that has life. It's most likely that a lot of animals will soon be extinct if we carry on overfishing and rhino poaching then next generation want to experience all these animals

3	T	28/10/2021 09:23

We need to conserve the environment for the future. We don't want extinct animals

4	T	28/10/2021 09:24

Without us planting trees or flowers, we are slowly killing all the species in the world. If animals don't eat, we don't have meat to eat. It is important that we think about who or how this will effect the world one day when we throw a piece of paper on the floor

5	T	28/10/2021 09:28

I see how everything is. Some famous people also care about their environment as much as I do and that makes me happy. I saw how people treated the earth and how it affected animals. I felt bad that at a young age I also did it, litter and stuff. So I promised to change that and help save the planet instead of destroy it. I love our planet and hope future generations can live in a healthy and clean place

6	T	28/10/2021 09:33

If I litter my children will be brought up wrong. Littering will make our children and their children to live in a bad environment and have lease for what we have today. I strongly agreed to protect our environment for future generations

7	T	09/11/2021 12:47

The melting glaciers in Antarctica and the thoughts that my future and the next generation will not get the healthiest I got

21/11/2021 11:26

Coding Summary By Code

Test

21/11/2021 11:26

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On

Node

Nodes\\Don't care

Document

Files\\Qual Q3

No		0.0040	1			
				1	T	09/11/2021 12:49

My parents pay tax so I don't give a damn
my parents paid tax so I don't care. Go ask the learners that do

Nodes\\Enviro clubs

Document

Files\\Qual Q3

No		0.0268	5			
				1	T	28/10/2021 08:34

the people who taught me about the environment ever since I started school or at my primary school I was involved in the environmental club so every two weeks or one week we would go around and outside of the school and pick up the litter and put it in the suitable bins

2	T	28/10/2021 08:43

Mom dad and school. And the land service club I participate in

3	T	28/10/2021 09:18

Started helping more with community days and cleanups because I care about keeping the environment clean and healthy. I also care about their reputation our schools and homes get by how clean or dirty our environment is

4	T	28/10/2021 09:31

Small environmental clubs I've been a part of

21/11/2021 11:26

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
				7	T	09/11/2021 12:39
I don't know						
				8	T	09/11/2021 12:43
I am not sure how to answer this sorry						
				9	T	09/11/2021 12:44
I don't know						
				10	T	09/11/2021 12:48
There are many of them and I don't know them						

21/11/2021 11:26

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
				14	T	28/10/2021 09:42
I live in the Drakensburg and enjoy the mountains						
				15	T	28/10/2021 09:44
I have been to many game reserves and seen many of te animals and plantts that get killed and i realise that there i no reason for the killing of animals and trees						
				16	T	28/10/2021 09:45
Seeing how it affects me						
				17	T	09/11/2021 12:40
Knowing that the environment is literally the air we breathe made me think that it should always remain clean in order for us to stay healthy. It should not have litter or rubbish on the floor						
				18	T	09/11/2021 12:50
My love for nature						

Nodes\\Unknown

Document

Files\\Qual Q3

No		0.0075	10			
				1	T	28/10/2021 08:52
I don't know						
				2	T	28/10/2021 09:22
Have no clue too tired						
				3	T	28/10/2021 09:43
uncertain						
				4	T	28/10/2021 09:44
I am not to sure						
				5	T	28/10/2021 09:45
I don't know.						
				6	T	09/11/2021 12:37
not too sure						

21/11/2021 11:26

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
Nodes\\Significant Personal Experience						
Document						
Files\\Qual Q3						
No		0.0847	18			
				1	T	28/10/2021 09:48
we don't spend time thinking about it we just look at our screens all the time. And we think it's all right to drop out trash 'cause they are people cleaning up the mess						
				2	T	28/10/2021 08:36
The factors that shaped my views about the environment or that people do not care about environmental pollution and till it effects one of them						
				3	T	28/10/2021 08:40
People getting sick, dirty environment, unhealthy situations						
				4	T	28/10/2021 08:43
my exposure to media such as books or actual touching on the effect of the environmental issue and our behavior towards it						
				5	T	28/10/2021 08:47
Seeing how my grandfathers struggling to breathe because of the smoke and having to fight for his life using ventilators was a true life changing event						
				6	T	28/10/2021 08:48
Influential factors that shaped our views about the environment are mainly our health and protection of the animals and plants around us						
				7	T	28/10/2021 08:51
I live near a nature reserve and it just pains me to see that so many animals have to be kept in a certain place and be fenced off from the world because humans don't know how to look after the environment						
				8	T	28/10/2021 08:53
The way in which my city looks now, compared to how it looked 25 years. It shows that the people of this generation are less interested in saving the environment						
				9	T	28/10/2021 09:18
Started helping more with community days and cleanups because I care about keeping the environment clean and healthy. I also care about their reputation our schools and homes get by how clean or dirty our environment is						
				10	T	28/10/2021 09:25
Caring for animals sympathetic person in general, caring for myself wanting a healthy lifestyle, not being a litterbug always being clean						
				11	T	28/10/2021 09:26
When I saw sea animals struggling to swim because they have plastic all around them. And some children who can't get fresh clean water to drink						
				12	T	28/10/2021 09:37
I think we must get a break from school and take care of our world						
				13	T	28/10/2021 09:38
the influential factors that shape my view about the environment is when I saw and smelt gases in the air and animals dead in the street						

21/11/2021 11:26

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
				2	T	09/11/2021 12:45

People that got arrested come back with good behavior and influence others to stop doing wrong things

Nodes\\Significant People other than school\Peer Discussions

Document

Files\\Qual Q3

No		0.0318	7

		1	T	28/10/2021 08:39

To try and encourage others, family members and friends to keep the environment clean by recycling plastics, bottles and many more other things

		2	T	28/10/2021 08:43

Mom dad sister uncle aunt granny grandpa school friends

		3	T	28/10/2021 08:44

mother father brother grandma uncle and grandpa school friends

		4	T	28/10/2021 08:47

Pollution Pandemic Society and friends

		5	T	28/10/2021 08:51

My friends parents documentaries and myself

		6	T	28/10/2021 09:19

Television and my parents drilled these morals, like don't waste water or don't litter into me from a young age teaching me it is wrong and irresponsible to harm their environment. I also think when I'm freely able to discuss these problems and listen to another person's opinions on a topic that I'm able to get a better understanding on my end other peoples views on the environment. School played a small role in my views so my parents were probably the most influential

		7	T	28/10/2021 09:46

The news, debating society and what i see in our area

21/11/2021 11:26

Aggregate	Classification	Coverage	Number Of Coding References	Reference Number	Coded By Initials	Modified On
				19	T	28/10/2021 09:35

Seeing how the environment is treated badly made me see that what people do to the environment is wrong said that's why I try my best to treat the environment well. The way I was also raised has had influence on my position on the environment, because I was raised to treat the environment right next line from seeing environmental adverts and campaigns broadcasting a message to the world telling them how to preserve the land to make it habitable for humans and animals alike

20	T	28/10/2021 09:36

the school teaches us and my grandparents teaches us about recycling
my view on the environment is that it is an amazing place filled with amazing animals and plants. My family has taught me to care about the environment as if it is your child. The environment is an amazing place so save it

21	T	28/10/2021 09:36

my mother taught environment that it has for our own health

22	T	28/10/2021 09:37

my parents actually taught me that a messy place is an unhealthy environment to live in. You have to learn how to pick up any rubbish on trash around you to change the environment

23	T	28/10/2021 09:38

it is when my parents tell me to clean and never pollute. When there was global warming

24	T	28/10/2021 09:38

My teachers. My parents

25	T	28/10/2021 09:41

I see some parents doing a great job on their yards, taking bottles and put it in plastic. Most people have bins outside their houses for people might think of littering put anything in that bin recycling bin

26	T	28/10/2021 09:43

My parents and Grandparents instilled in me that littering is not good and tell me to make the correct decisions regarding plastic.

27	T	28/10/2021 09:44

My parents and schools have always taught us to care for the enviroment.

28	T	09/11/2021 12:35

The people at home and teachers because they are no great students without great teachers and National Geographic helped me channel 182 on DSTV

Nodes\\Significant People other than school\Mentor

Document

Files\\Qual Q3

No		0.0133	2

1	T	28/10/2021 08:45

I have a family that taught me the importance of the environment and what I can do to help. Other people like my teachers and mentors taught me how to preserve the environment. Documentaries, news and articles drive me to be active and preserving our environment

Appendix N: Gatekeeper permission letter: School 1

DECLARATION OF CONSENT

I [redacted] (Full names of Principal) of [redacted] (Name of School) hereby confirm that I have been informed about the study entitled '**A study of Grade 9 learners' views about the environment in terms of perceptions, attitudes and behaviour**' by Talita Kassier. I understand the contents of this document and the nature of the research project, and I consent to participating in the research project.

I understand the purpose and procedures of the study.

I have been given an opportunity to ask questions about the study and have had answers to my satisfaction.

I declare that my participation in this study is entirely voluntary and that I may withdraw at any time without negative consequences.

I give permission for the interviews to be audio-recorded (please indicate preference below).

My identity will not be disclosed, and pseudonyms will be used to protect my identity

If I have any further questions/concerns or queries related to the study I understand that I may contact the researcher at talitakassier@outlook.com or 076 567 4677.

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 researcher, then I may contact:

HUMANITIES & SOCIAL SCIENCES RESEARCH ETHICS ADMINISTRATION

Research Office, Westville Campus
Govan Mbeki Building
Private Bag X 54001
Durban
4000

Email: HSSREC@ukzn.ac.za

A copy of this consent form can be emailed to talitakassier@outlook.com

A photo can be Whattsapped to 0765674677

Or the researcher can collect it from your school

Page 4 of 5

Additional consent, where applicable:

- Please indicate your preference for the completion of the questionnaire:

	Digital	Hard copy
Questionnaire format		✓

- I am willing to allow a small group of learners to take part in a focus group interview with the researcher at a later stage, to gain deeper insight into their environmental views:

	Willing	Not willing
Learners to take part in focus group interviews with the researcher	✓	

- I am also willing to allow recording of the focus group interviews by the following equipment to allow for transcription of the data at a later stage by the researcher, and the use of other data:

	Willing	Not willing
Digital audio recording of interviews		✓

[redacted]

Name of Principal

[redacted] 10/11/2021

Signature of Principal Date

[redacted]

PIETERMARITZ
3200

School stamp

Appendix O: Gatekeeper permission letter: School 2

DECLARATION OF CONSENT

I [redacted] (Full names of participant) hereby confirm that I have been informed about the study entitled '**A study of Grade 9 learners' views about the environment in terms of perceptions, attitudes and behaviour**' by Talita Kassier. I understand the contents of this document and the nature of the research project, and I consent to participating in the research project.

I understand the purpose and procedures of the study.

I have been given an opportunity to ask questions about the study and have had answers to my satisfaction.

I declare that my participation in this study is entirely voluntary and that I may withdraw at any time without negative consequences.

I give permission for the interviews to be audio-recorded (please indicate preference below).

My identity will not be disclosed, and pseudonyms will be used to protect my identity

If I have any further questions/concerns or queries related to the study I understand that I may contact the researcher at talitakassier@outlook.com or 076 567 4677.

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 researcher, then I may contact:

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Research Office, Westville Campus
Govan Mbeki Building
Private Bag X 54001
Durban
4000

KwaZulu-Natal, SOUTH AFRICA

Email: HSSREC@ukzn.ac.za

A copy of this consent form can be emailed to:

talitakassier@outlook.com

Additional consent, where applicable:

- Please indicate your preference for the completion of the questionnaire:

	Digital	Hard copy
Questionnaire format		X

- I am willing to allow a small group of learners to take part in a focus group interview with the researcher at a later stage, to gain deeper insight into their environmental views:

	Willing	Not willing
Learners to take part in focus group interviews with the researcher	X	

- I am also willing to allow recording of the focus group interviews by the following equipment to allow for transcription of the data at a later stage by the researcher, and the use of other data:

	Willing	Not willing
Digital audio recording of interviews	X	

[redacted]

Name of Participant

[redacted]

Signature of Participant

18/05/2021

Date

[redacted]

School stamp

Appendix P: Gatekeeper permission letter: School 3

DECLARATION OF CONSENT

I [redacted] (Full names of Principal) of [redacted] (Name of School) hereby confirm that I have been informed about the study entitled '**A study of Grade 9 learners' views about the environment in terms of perceptions, attitudes and behaviour**' by Talita Kassier. I understand the contents of this document and the nature of the research project, and I consent to participating in the research project.

I understand the purpose and procedures of the study.

I have been given an opportunity to ask questions about the study and have had answers to my satisfaction.

I declare that my participation in this study is entirely voluntary and that I may withdraw at any time without negative consequences.

I give permission for the interviews to be audio-recorded (please indicate preference below).

My identity will not be disclosed, and pseudonyms will be used to protect my identity

If I have any further questions/concerns or queries related to the study I understand that I may contact the researcher at talitakassier@outlook.com or 076 567 4677.

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 researcher, then I may contact:

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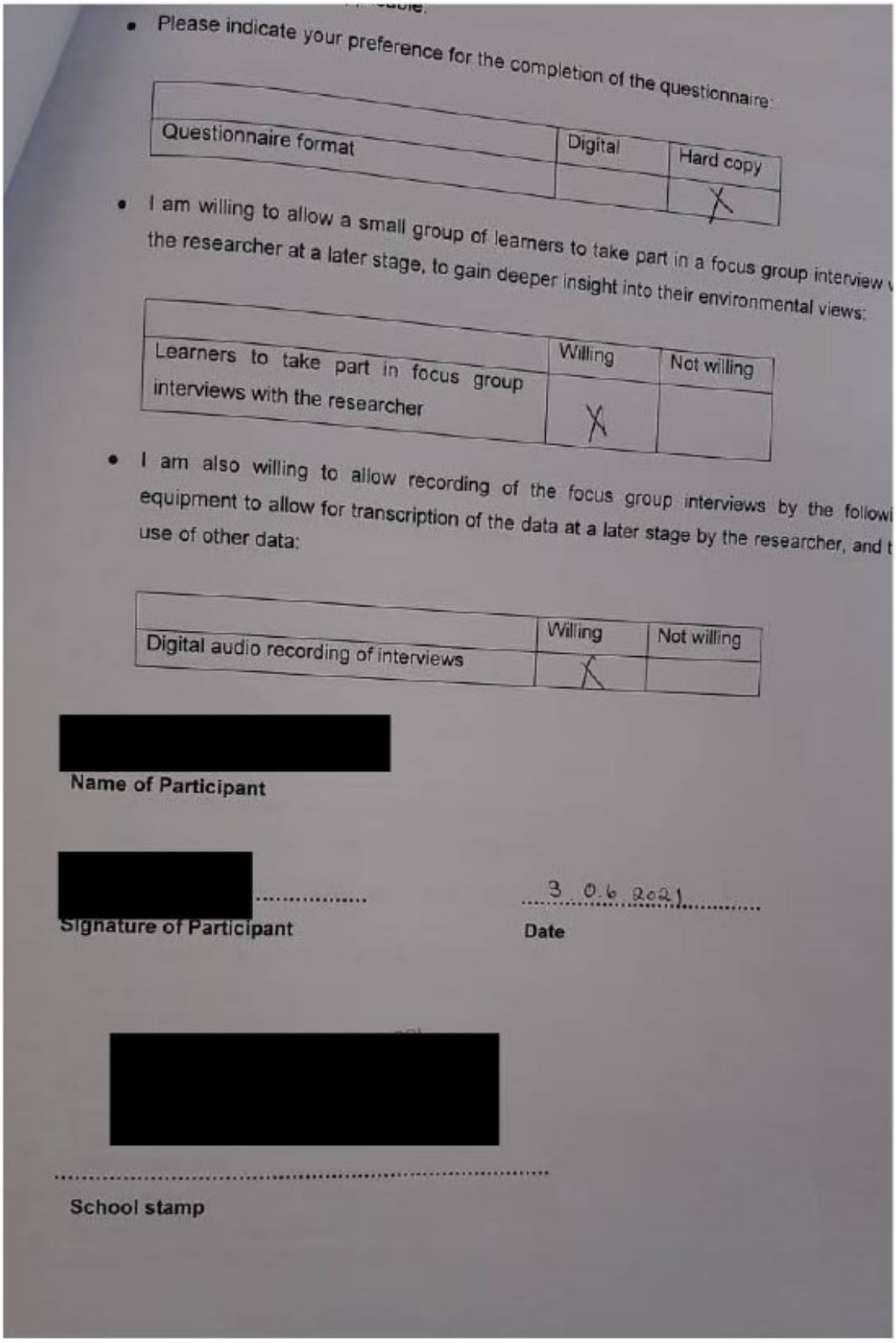
Additional consent, where applicable:



- Please indicate your preference for the completion of the questionnaire:

Questionnaire format	Digital	Hard copy
		X

- I am willing to allow a small group of learners to take part in a focus group interview
the researcher at a later stage, to gain deeper insight into their environmental views:

	Willing	Not willing
Learners to take part in focus group interviews with the researcher	X	

- I am also willing to allow recording of the focus group interviews by the followi
equipment to allow for transcription of the data at a later stage by the researcher, and t
use of other data:

	Willing	Not willing
Digital audio recording of interviews	X	

[redacted]

Name of Participant

[redacted] ..... 3 06 2021 .....

Signature of Participant Date

[redacted]

.....

School stamp

Appendix Q: Gatekeeper permission letter: School 4

DECLARATION OF CONSENT

I [redacted] (Full names of Principal) of [redacted] (Name of School) hereby confirm that I have been informed about the study entitled '**A study of Grade 9 learners' views about the environment in terms of perceptions, attitudes and behaviour**' by Talita Kassier. I understand the contents of this document and the nature of the research project, and I consent to participating in the research project.

I understand the purpose and procedures of the study.

I have been given an opportunity to ask questions about the study and have had answers to my satisfaction.

I declare that my participation in this study is entirely voluntary and that I may withdraw at any time without negative consequences.

I give permission for the interviews to be audio-recorded (please indicate preference below).

My identity will not be disclosed, and pseudonyms will be used to protect my identity

If I have any further questions/concerns or queries related to the study I understand that I may contact the researcher at talitakassier@outlook.com or 076 567 4677.

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 researcher, then I may contact:

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A photo can be Whattsapped to 0765674677

Or the researcher can collect it from your school

Additional consent, where applicable:

- Please indicate your preference for the completion of the questionnaire:

	Digital	Hard copy
Questionnaire format		✓

- I am willing to allow a small group of learners to take part in a focus group interview with the researcher at a later stage, to gain deeper insight into their environmental views:

	Willing	Not willing
Learners to take part in focus group interviews with the researcher	✓	

- I am also willing to allow recording of the focus group interviews by the following equipment to allow for transcription of the data at a later stage by the researcher, and the use of other data:

	Willing	Not willing
Digital audio recording of interviews		✓

[redacted]

Name of Principal

[redacted]

28/09/2021

Date

[redacted]

School stamp

Appendix R: Gatekeeper permission letter: School 5

DECLARATION OF CONSENT

I [redacted]..... (Full names of participant) hereby confirm that I have been informed about the study entitled '**A study of Grade 9 learners' views about the environment in terms of perceptions, attitudes and behaviour**' by Talita Kassier. I understand the contents of this document and the nature of the research project, and I consent to participating in the research project.

I understand the purpose and procedures of the study.

I have been given an opportunity to ask questions about the study and have had answers to my satisfaction.

I declare that my participation in this study is entirely voluntary and that I may withdraw at any time without negative consequences.

I give permission for the interviews to be audio-recorded (please indicate preference below).

My identity will not be disclosed, and pseudonyms will be used to protect my identity

If I have any further questions/concerns or queries related to the study I understand that I may contact the researcher at talitakassier@outlook.com or 076 567 4677.

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4000

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Email: HSSREC@ukzn.ac.za

A copy of this consent form can be emailed to:

talitakassier@outlook.com

Additional consent, where applicable:

- Please indicate your preference for the completion of the questionnaire:

	Digital	Hard copy
Questionnaire format		X

- I am willing to allow a small group of learners to take part in a focus group interview with the researcher at a later stage, to gain deeper insight into their environmental views:

	Willing	Not willing
Learners to take part in focus group interviews with the researcher	X	

- I am also willing to allow recording of the focus group interviews by the following equipment to allow for transcription of the data at a later stage by the researcher, and the use of other data:

	Willing	Not willing
Digital audio recording of interviews	X	

[redacted]

Name of Participant

[redacted]

Signature of Participant

27/5/21

Date

[redacted]

School stamp

Appendix S: Gatekeeper permission letter: School 6

DECLARATION OF CONSENT

I [redacted] (Full names of Principal) of [redacted] (Name of School) hereby confirm that I have been informed about the study entitled '**A study of Grade 9 learners' views about the environment in terms of perceptions, attitudes and behaviour**' by Talita Kassier. I understand the contents of this document and the nature of the research project, and I consent to participating in the research project.

I understand the purpose and procedures of the study.

I have been given an opportunity to ask questions about the study and have had answers to my satisfaction.

I declare that my participation in this study is entirely voluntary and that I may withdraw at any time without negative consequences.

I give permission for the interviews to be audio-recorded (please indicate preference below).

My identity will not be disclosed, and pseudonyms will be used to protect my identity

If I have any further questions/concerns or queries related to the study I understand that I may contact the researcher at talitakassier@outlook.com or 076 567 4677.

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Or the researcher can collect it from your school

Additional consent, where applicable:

- Please indicate your preference for the completion of the questionnaire:

	Digital	Hard copy
Questionnaire format		✓

- I am willing to allow a small group of learners to take part in a focus group interview with the researcher at a later stage, to gain deeper insight into their environmental views:

	Willing	Not willing
Learners to take part in focus group interviews with the researcher	✓	

- I am also willing to allow recording of the focus group interviews by the following equipment to allow for transcription of the data at a later stage by the researcher, and the use of other data:

	Willing	Not willing
Digital audio recording of interviews	✓	

[redacted]

Name of Principal

[redacted] 15/11/2021

Signature of Principal **Date**

[redacted]

School stamp

Appendix T: Turnitin Originality Report

Grade 9 Learners' Views Concerning the Environment:
A Correlation Study in Msunduzi and the Midlands,
KwaZulu-Natal

Turnitin Originality Report
Talita Kassier
220112334

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