

**A SUSTAINABILITY PRACTICES EDUCATIONAL INTERVENTION IN
RESPONSE TO ENVIRONMENTAL MATTERS OF CONCERN
AMONGST MAKHANDA YOUTH**



**THESIS SUBMITTED IN FULFILMENT OF THE REQUIREMENT OF
THE DEGREE OF**

**MASTER OF EDUCATION:
(ENVIRONMENTAL EDUCATION)**

RHODES UNIVERSITY

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2021

Abstract

This study responded to urbanisation as one of the challenges affecting youths' lifestyles in this century. Children and youth around the world are living in overpopulated, polluted and unsafe environments which fail to produce opportunities for learning, play and recreation (World Health Organisation [WHO], 2017). This study explored these issues in the context of Makhanda with an intervention to engage youth in sustainability practices, to help them to strengthen sustainable lifestyles.

The participants in this research were members of two eco-clubs from two schools in Makhanda ranging in age from 12-14 years (primary school) and 15-17 years (high school). The study explored how learning processes within a club intervention contributed to the well-being of participating youth and their capacity to live sustainable and fulfilling lives. The research explored (with participants) eight themes as matters of concern namely, 'education', 'home-life', 'energy use', 'mobility', 'leisure and communication', 'waste', 'water' and 'food'. Detailed case narratives exploring Wals' social learning stages were used to explore the themes. These themes were explored through photo narratives of the youths' lives and matters of concern in sustainability issues, risks and practices emanating from the Makhanda context.

The pedagogical framework for the intervention was guided by Wals' social learning framework for mobilizing sustainability practices. Social learning interaction took place through all the stages of the framework and the challenges and potentials of the educational intervention were explored in relation to each stage. From the six themes suggested above the youth chose food and water as themes to take forward as a response project. The project pursued was a vegetable garden in which the youth were actively engaged in order to seek and try out sustainable ways of living.

An interpretive approach was used within the interpretive paradigm. Qualitative data were generated through focus group discussions, observations, individual interviews and document analysis. Practice architectures theory was used analytically to explore the dynamics of the emergent sustainability practices initiated by the eco-club youth. I used it as a change method and a tool for initiating social learning actions for 'sustainability practices' projects.

The study indicated that the youth's key challenges affecting sustainability of their lifestyles are: lack of access to basic infrastructure, recreational facilities, electricity supply, transport, security and water. In this study, it was clear that much of the youth's involvement in these matters of

concern and sustainability issues was at the level of participating in the six themes through Wals' social learning processes. This allowed youths to develop their knowledge and skills on how to participate in the gardening project rather than simply focusing on the environmental matters of concern in question.

The Handprint Resource Books have been designed for educators who are looking for practical ideas to work with in the learning areas of the National Curriculum. The focus is on sustainability practices that can be taken up within the perspective that each learning area brings to environment and sustainability concerns.

The use of the Handprint Resource Books promoted active youth participation and interaction encouraging youth to be reflective thinkers, which led to understanding of the issues and the sustainability practices that emerged during the discussions. The Handprint Resource Books focused on sustainability practices within the learning area of environment and sustainability concerns. Due to her facilitation skills, an environmental expert's presentation on a sustainability topic enabled youths to select the intended project. The involvement of youth in the implementation of the vegetable garden as a sustainability practice empowered youth to be more confident in engaging in a collective action for change as they developed the capability to share and start their own vegetable gardens at their homes.

Acknowledgements

“For I know the plans I have for you”, declares the Lord, “plans to prosper you and not harm you, plans to give you hope and future” (Jeremiah 29:11). I would like to thank the God Almighty for the wisdom he has bestowed upon me and all the blessings.

Secondly, I would like to express my deep and sincere gratitude to my research supervisor Associate Professor Ingrid Schudel, for introducing me to CYCLES, for your continuous support, motivation, patience, enthusiasm and immense knowledge from the beginning of my academic path to this research where I will forever be valued. Kindly accept my infinite appreciation for your diligent efforts in reading through my work and giving me productive feedback. Your guidance brought out the best in me as I became a better academic writer and critical thinker. I am certainly grateful for your inspiration, encouragement and persistence throughout this program.

The ELRC family, Distinguished Professor Heila Lotz-Sisitka, Professor Eureta Rosenberg, Dr Lausanne Olivitt and the ELRC support staff who contributed to my learning and development. My ELRC brothers Armstrong Mashakeni and Azwi Ramphinwa, for the encouragement during some of the challenging times on our journey.

I would like to take this opportunity to thank the National Research Foundation (NRF) for awarding me with a bursary towards this study.

To my three family members: I would want to say thank you to this special lady, my best friend, my little sister **Abigale Musiiwa** for just being there, for your prayers and support in countless ways. Mwari ngavakuropafadze mune zvese zvaunoshuvira.

I owe this achievement to **Fisser Mupuka** for your unconditional support, motivation and for not having our special time together. Thank you for constantly praying for me and for encouraging me during moments of literal and academic darkness when I would have given up, Ndakakupiwa naMwari chido chemwoyo wangu, ndokudisa. My daughter **Lerato**, thank you for your patience in everything throughout this journey. Love you dearly....

Lastly, my sincere gratitude goes to the editor of this thesis Anton Brink, for taking the time to edit and cast a critical eye on it, God bless you!

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Lists of Acronyms

CUSP - Centre for the Understanding of Sustainable Prosperity

CYCLES - Children and Youth in Cities: A Lifestyle Evaluation Study

DoE - Department of Education

IDP - Makana Integrated Development Plan

SWOT - Strengths Weaknesses, Opportunities and Threats

SMART - Specific Measurable Achievable Realistic and Time bound

LEAP - Local Environment Action Plan

NSNP - National School Nutrition Programme

UNESCO - The United Nations Educational, Scientific and Cultural Organization

UNICEF - United Nations Children's Fund

WHO - World Health Organisation

CHAPTER ONE: INTRODUCTION TO THE STUDY

1.1 Introduction

This study seeks to explore how an educational intervention guided by Wals' social learning framework, contributes to sustainability practices enabling youth to live more sustainable urban lives. The study examines this intervention and emergent sustainability practices in relation to matters of concern organised around eight themes; namely 'education', 'home- life', 'energy use', 'mobility', 'leisure and communication', 'waste', 'water' and 'food'. This chapter provides a brief introduction to the study site. It also discusses the rationale for the study followed by the potential value of the study. Lastly, an outline of the thesis is presented.

1.2 A brief introduction to the study site

This study is conducted in Makhanda (formerly known as Grahamstown), located in the Eastern Cape Province of South Africa. Makhanda has recently acquired its new name from a Xhosa warrior Makhanda, who fought against colonialism. The Department of Arts and Culture suggested the changing of names in accordance with the current project in South Africa to remove emblems of an oppressive history of a colonial past. Makhanda city is governed by Makana Local Municipality, being the main seat of the Municipality. Ninety percent of Makana's population lives in the Makhanda area (Makana Integrated Development Plan (IDP), 2014).

Makhanda houses one of the leading educational institutions in South Africa, namely Rhodes University; and excellent high schools (Moller & Seti, 2004). According to Statistics South Africa (2011), 13.2% of the families in Makhanda did not earn an income in 2011, while 4% had yearly income between R1 and R4 800, and 5.4% had yearly income of R4 801 – R9 600. In view of this, it means 22.6% of Makhanda families were living under the poverty line.

Unemployment in Makhanda is a major challenge for the town, with only a few industries as compared to other provinces in South Africa. Rhodes University, banks, retail chain shops, government institutes and schools are the main employers (ibid). Many shops / spaza in the townships are run and owned by foreign nationals. The study involved an intervention in two schools, a primary school where I am teaching and a secondary school. The learners in the study

were members of the eco-club in both schools and were aged between 12-17 years. The participating schools were in Makhanda, Joza Location. The schools used two languages: isiXhosa as home language and English as first additional language as well as medium of instruction. In the primary school, I also co-ordinated the participating eco-club.

1.3 Rationale

My interest in working with the young people arose from my personal, professional and academic experiences. Firstly, when I got employment as a teacher in Makhanda, my ex- principal invited me to join a cluster of teachers in Makhanda who were participating in the national eco-schools' programme. I later developed an eco-club within the school. As I was studying for my Bachelor of Education (Honours), I realised that most of the environmental matters of concern in which teachers get their learners involved, were only the topics that were covered in the curriculum and nothing more outside formal learning. I also realised that, of the matters of concern that were covered, those that affect learners in their everyday lifestyles and well-being were not addressed. I felt that young people need to be given a chance to discuss what matters to them and find ways to engage in projects to address problems through sustainability practices. According to WHO (2018), it is important to have significant and effective involvement of youth as part of assisting them in realising their full potential for their health and well-being.

The study was also influenced by an international project on Children and Youth in Cities: a Lifestyles Evaluation Study (CYCLES) to which I contributed and on which this study was built. This research was conducted in Makhanda East and involved youth from the age of 12–14 and 15–17 respectively. The choice of this age range is determined by an international research programme of which this research forms a part. This international project is called CYCLES and it includes Makhanda as one of its cases. CYCLES includes Makhanda amongst seven cities in the world taking part in a comparative study researching the lifestyles of urban youth between the age of 12 and 24. The other 6 cities in the study are, Christchurch, New Zealand; Delhi in India; Dhaka in Bangladesh; London in the UK, Sao Paulo in Brazil; Yokahama in Japan. Another student generated data for the older youth covered in this study (18-24 years). CYCLES is organised by the Centre for the Understanding of Sustainable Prosperity (CUSP) in London (United Kingdom) at the University of Surrey. The international project's main objectives are to identify the key challenges faced by youth in different cities and the important circumstances and initiatives

which enable youth to live more sustainable lifestyles. This Master's research included the generation of descriptive data on sustainable lifestyles generated for CYCLES, as well as an extension of that project to include an educational intervention and educational research component.

The aim of the study was to provide an understanding of the key sustainability challenges faced by youth in Makhanda and the necessary conditions and initiatives to enable more sustainable urban lifestyles over eight themes: education, energy, home life, mobility, leisure and communication, waste, water use and food. It also aimed to answer the important question of how sustainability practices can be stimulated through a pedagogical intervention and how these practices respond to environmental matters of concern and contribute to the well-being of Makhanda youths. The study sought to explore the life experiences of urban youth in relation to good living through a learning process in working with eco-club members in the city. This study also attempted to understand factors that enable and constrain youth-guided sustainability practices emerging from the learning process.

1.4 Context and background of the study

Malone (2001) describes a global situation where the impact of urbanisation, industrial growth, an increase in population, poverty, ecological degradation, war, and the continuous dumping of deadly waste within the environment, watercourses and soil, as some of the challenges faced by people and which constrain their full and free contribution to urban life. She adds that young people are not spared from these limitations either (Malone, 2001). Urbanisation is a challenge affecting youth's lives in this century. Young people around the world are living in overpopulated, polluted and unsafe environments which fail to produce opportunities for learning, play and recreation (WHO, 2017). Malone (2001, p.5) argues that, "If cities do not develop in sustainable ways, the impact of their infrastructure will be the continuance of large-scale poverty and urban slums". This need for sustainability practices to allow youth to live a sustainable lifestyle in their urban communities was key in driving this research.

Despite development in access to education and adequate nutrition, youth in South Africa face challenges that are influenced by the social and historical context in which urbanization has occurred (South Africa National Planning Commission Plan, 2012). Climate change, water

management (storage and ensuring equal access and quality), loss of biodiversity, unemployment, poverty, food security and waste management issues are environmental concerns that are currently experienced in South Africa (Department of Environmental Affairs and Tourism, 2006). These are some of the key environmental concerns which might inhibit youth from living fulfilling lives.

Youth aged 15 to 24 account for 19% of the world's population (The Rockefeller Foundation, 2014). Youth aged below 25 constitute 60% of the population of the countries in the sub-Saharan Africa (United Nations, 2011). In South Africa, 64% of youth (aged between 15 and 34) live in cities (*ibid*). Defining youth groups varies world-wide. "The United Nations, for statistical purposes, defines 'youth' as those persons between ages 15-24 years" (United Nations General Assembly on International Youth Year, 1981, p. 1). However, the South African National Youth Policy defines youth as people who are aged between 14-35 years old (South Africa. TP [The President], 2015). In this study I worked with 12 to 14-year-old children who do not fall within the South African definition of youth. Therefore, in my study I will be referring to the participants as both children and youth.

The Eastern Cape Province of South Africa suffers from high rates of deprivation, school dropouts, poor living standards and poor nutrition, particularly amongst youth (SA Stats, 2012). According to Youth Explorer (2017), 76.5% of youth live in poor households and 59.5% of youth aged 15 to 24 years are unemployed. In Makhanda, unemployment is one of the most significant challenges facing youth (Hamann & Tuinder, 2012). The town is a leading centre for education, a university town, and the site of annual arts and science festivals. The city also has high youth unemployment and experiences poverty and inequality that are influenced by the urban racial segregation of the apartheid era (Makana Integrated Development Plan, 2014).

In 2011, 45% of Makhanda's population had no income, 10.5% falling under the poverty datum and 63% not working (Statistics South Africa, 2012). As revealed in Youth Explorer (2017), in Makhanda, 2% of youth were estimated to live in informal dwellings or shacks, and 5,4% in conditions of overcrowding, while 11,7% were described as multi dimensionally poor. In addition, severe living conditions, the absence of key infrastructure and opportunities makes the development from youth to adulthood difficult for many (Furlong & Cartmel, 1995). In Makhanda a lot of attempts have been made to remedy the knowledge inequality, in order to facilitate significant engagement of less privileged communities in service delivery processes (Weaver et al., 2019). Water scarcity challenges in Makhanda are strongly felt in the township, where the

majority of people needed the means, resources and action to deal with water supply disruptions, or to effectively communicate with the Makana Local Municipality to affirm their rights to water (*ibid*). Therefore, there is need for a combined approach to dealing with water problems and the involvement and full participation of the community and local municipality in dealing with the challenge.

Makhanda has substantial environmental concerns; amongst them shortage of water, littering, poverty and erosional degradation of wetlands on commonage areas due to subsistence grazing (Local Environmental Action Plan [LEAP], 2005). According to the South African Constitution (1996, p. 1252), “everyone has a right to an environment that is not harmful to health and well-being and to have the environment protected for the benefit of present and future generations, through sensible laws and other measures”. Youth need to develop a conscience and a consciousness of their impact on the environment, and this can be achieved through raising awareness and through education.

The LEAP (2005) urges all people in Makana Municipality to join hands in responding to the environmental issues through taking action and argues that this can only be achieved through environmental education and training. This further possibly needs different educational solutions and strategies, and also engages different learner groups to respond to their particular interests and priorities (*ibid*).

The educational intervention initiated for this study was with youth eco-club members from two schools. The intervention began by focusing on eight themes, namely; ‘education’, ‘home life’, ‘energy’, ‘mobility’, ‘leisure and communication’, ‘waste’, ‘water use’ and ‘food’, highlighting the challenges the youth encounter in their everyday lives. The intervention followed with youth choosing one theme in which they were actively engaged in order to seek and try out sustainable ways of living. The youth who participated in this research were members of two eco-clubs in Makhanda and they participated in both the clubs and the research on a voluntary basis, with parental consent. As a primary school teacher in Makhanda I have been working with eco-clubs. I planned on a research intervention with two eco-clubs, one from the primary school in which I am working as a teacher, and the other one from a neighbouring high school. The intervention included exploring matters of concern in relation to the five environmental themes mentioned above and the implementation of a vegetable garden project identified by the club members in response to the concerns arising from the initial exploration.

1.5 Research questions

The main question of this research is: How do sustainability practices emerging from an eco- club social learning intervention, respond to environmental matters of concern, and contribute to the well-being of Makhanda youth?

The sub-question guiding the study were:

1. What is the socio-economic status of Makhanda and Makhanda youth?

This question required a baseline desktop study conducted prior to meeting with youth, focusing on the eight themes identified as relevant to the study.

2. What are the matters of concern in sustainability issues, risks and practices emerging from this context?

These were explored through focus group discussions and observations of the ‘contemplating’, ‘orienting’, ‘activating’ and ‘selecting’ phases of Wals’s social learning processes. That is, the first exploratory phase of his social learning process with which the study’s intervention began.

3. What are the potentials and challenges of the pedagogical intervention at each stage in the process of social learning?

This was explored through analysing the potentials and challenges encountered during the social learning stages of Wals’s social learning framework and the observations of activities conducted at each stage of the intervention. This also explored the sustainability practices emerging from the first 4 exploratory stages of the intervention.

4. What are the dynamics of the practice architectures that enable and constrain emergent sustainability practices enacted by youth?

This question required a review of sustainability practices (sayings, doings and relatings) and architectures (cultural-discursive, material-economic discursive and social-political) that underpinned these practices as catalysed by the social learning intervention. This question is different from sub-question 3 as sub-question 3 focused on the pedagogical intervention while this question focused on the challenges of the youth in context.

1.5 Potential value of the study

The expected findings of this research are of potential value to the Department of Basic Education, Makana Municipality, teachers, principals, and other researchers who have an interest in interventionist research studies focusing on education. The sustainability practices stimulated through the pedagogical intervention have shown potential to develop the capacity of participating youth to respond to environmental matters of concern and contribute to their well-being.

1.6 Thesis outline

This thesis is structured in six chapters including this one, all oriented towards answering the main research questions and sub-questions as highlighted in this outline.

Chapter One: Introduction: This chapter Introduces the study, as well as the context of environmental matters of concern which influence the capacity of youth in Makhanda to live fulfilling and sustainable lifestyles. This is followed by a brief introduction to the study site and its rationale. It further gives the context and background of the study. It also provides the main research question and its sub-questions.

Chapter Two: Literature Review: This chapter presents a contextual analysis of how youth respond to environmental issues or challenges from an international perspective. The chapter then moves to explore matters of concern, sustainability practices and well-being of youth. It also discusses the theory of practice architectures, which serves as the theoretical framework of this research.

Chapter Three: Research Methodology: This chapter discusses social learning as an educational framework for mobilising the sustainability practices in the study intervention. This is followed by describing the research site and participants. The chapter further discusses my position as both a researcher and a participatory researcher. This is then followed by elaborating how data was generated, organised and analysed. The chapter concludes by discussing methods that were used to ensure the issues of validity and trustworthiness of the research.

Chapter Four: Data Presentation and Discussion of Wals's Social Learning Framework and Practice Architectures: This chapter presents data that were generated through Wals's social learning framework activities, theoretical framework and the research process in response to the

research questions. The chapter starts by describing the socio-economic and educational status quo as revealed by the desktop document review. The chapter further presents findings using case narratives developed through the first four stages of the social learning process. The chapter further explored findings from the chosen themes and sustainability practices. The challenges and potential of the intervention in the process of social learning is then discussed. Theory of practice architectures developed by Hemmings, Kemmis & Reupert, 2013 is used jointly as a theoretical framework and an analytical tool to create, demonstrate and contrast the results from the study, as well to gain a complete and clear picture of the sustainability practices of the Makhanda youth. The chapter presents the analysis using practice architectures enabling and constraining factors influencing the sustainability practices. The discussion furthermore reveals different contexts which prefigure, shape and inform youth sustainability practices and how these contexts can influence, enable and constrain the practices studied.

Chapter Five: Discussion and concluding statements: In this chapter I present the main findings of the study. The chapter gives a critical overview and reflects on what factors enhanced the value of the study. It further presents recommendations about some issues that need to be considered in light of my research in the same field. I also consider the study's limitations and present my conclusion.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

The majority of today's youth live in impoverished countries, where they face the greatest challenges to their growth and sustainable lifestyles (World Health Organisation [WHO], 2015). The youth matter because they are the leaders of our global future. In a world of adult concerns, the youth's concerns are often overlooked (*ibid*). It is true that the youth will be major drivers of change in the coming global future. Malone (2001) argues that the impact on family breakdown, destitution, poverty and vandalism, compounded with limited access to resources, all help to cause many urban cities to be an aggressive, threatening place for youth. The youth have inherited complex responsibilities to address environmental issues. These are environmental 'matters of concern' for youth which will impact on their capacity for living sustainable lifestyles.

This chapter begins with a contextual analysis of how children and youth respond to environmental issues or challenges from an international perspective and narrows to key matters of concern specific to Makhandia. The chapter further discusses the concept of 'matters of concern,' differentiating these from 'matters of fact' with reference to how they relate to sustainability practices. It further explores the context of young people's lives focusing on 'education', 'energy use', 'home-life', 'mobility', 'leisure and communication', 'waste', 'water' and 'food', highlighting the challenges they encounter as youth in their everyday lives.

The chapter then discusses the relationship between sustainability and well-being, showing how the notion of well-being can be used as a way of deepening understanding of sustainability. This is followed by a focus on well-being more specifically in relation to youth.

Next, highlighting the educational focus of the study, the chapter explains the concept of social learning. Finally, the chapter introduces the main theoretical framework of the study, that is to say, practice architectures (Hemmings, Kemmis & Reupert, 2013). This framework is used analytically in the study to examine the enabling and constraining factors affecting the sustainability practices emerging in the school eco-clubs. This theory provides insight into the socio-cultural formulation of learning.

2.2 International perspective on the challenges of children and youth

Worldwide, youth in cities and towns face environmental challenges which inhibit them from living sustainable and fulfilling lives (United Nations Habitat, 2012). Internationally, youth are impacted by and respond to many aspects of urbanisation and its challenges: shortage of housing, urban squatters, environmental degradation, lack of infrastructure, unemployment and poverty (*ibid*). The World Food Programme (2016) report shows that in the near future global food production will be unable to meet global demand leaving millions of people and many countries facing food insecurity. This really shows the effect and impact of climate change on food security. The development of children and youth globally has been threatened by disasters, political violence, pandemics and other hardships with life-changing consequences for individuals, families and future generations (Masten, 2014). These hardships include droughts, poor rainfall patterns and crippling lack of opportunities for children and youth.

UNICEF's Generation 2030 Africa report (2014) focused on child demographic trends with the rapid increase in Africa's population. This increase is driven by the number of women of reproductive age (15-49 years), which has increased from 54 million in 1950 to 280 million in 2015 and is expected to increase to 407 million in 2030 and 607 million by 2050 (*ibid*). Africa's child population will reach 1 billion by 2055 and will become the largest of all continents in the latter part of the 21st century (UNICEF, 2014). This rapid increase of population will definitely pose a threat to provision of delivery services for a lot of African countries.

Climate change poses a major threat to the capacity for well-being and socio-economic stability of youth, particularly in less developed countries, where 80% of today's youth live (United Nations (UN), 2010). The youth's wellbeing is being destroyed by these socio- economic factors. Hardgrove *et al.* (2014) argue that, although all humankind and generations are affected by these trends, young people experience the deepest impact of hardships.

As our cities are inhabited with more youth, they are faced with increasing pressures of infrastructure, economics, security, poor basic services, and environmental issues (United Nations Habitat, 2016). The positive aspect of cities is that youth find themselves with opportunities: they begin to be filled with a lot of energy, imagination, transformation, skills and knowledge just what our cities need to deal with the pressures and challenges they face (*ibid*). When youth get involved in their communities, they add value to the programmes they run although they do experience hardships.

Despite these hardships, youth have great potential for making a positive impact within their communities where their voices are concerned. Chalwa (2012) argues that the youth are capable of learning ways to take an active and responsible role in caring for, and taking care of, their local environment; and developing a basis of environmental involvement, concern and attention. Notwithstanding the drive in the discussion on youth engagement for positive change; little regard is given to the views, opinions, needs and perspectives of youth (United Nations Habitat, 2012). Out of 1.8 billion youths between the ages of 10 and 24, 600 million are teenage girls with various difficulties, challenges, hopes and desires for the future; and these girls have vast potential to command the future of the world (WHO, 2014). The youth represent our prospective entrepreneurs, teachers, engineers, community leaders and executives, so it is essential to work together to highlight the challenges they are facing in our attempts to make an impact upon future generations (Mesrobian, 2017). Youth, if given the opportunity, are potentially capable of solving the challenges that affect their lives.

Asker and Gero (2011) concurs that youth's involvement is generally understood to mean children and youth getting together, developing a synergy, being creative and innovative as well as planning and sharing knowledge and ideas that affect their day to day lives within their communities. However, they have been greatly deprived of being part of the decision-making process that will determine what tomorrow has in store for them. Given maximum support, wisdom, empowerment and skills, youth can influence change from within (WHO, 2018).

To incorporate youth into mainstream decision-making, the interests, concerns and viewpoints of youth in development - sustainable socio-economic development - continue to be a difficult challenge (Chawla *et al.* 2006). The United Nations (2005, p. 2) urge that we should "...remind youth policymakers of a simple but often ignored fact: youth are different from any previous generation of youth." This then calls for concerted effort to re-examine the contribution made by youth within their respective communities. The challenge is that youth's role in these communities is yet to receive the necessary attention from policymakers.

In recent times there has been a rise in youth activism across the Middle East and in some countries in Africa such as Sudan, calling for change in political social and economic spheres and their status, but this change process was less understood and not properly managed leading to violence and loss of life (Maganga, 2020). Youth protests around the world have demonstrated that youth may be a force for social change when their energy is directed through conscious activism (Diraditsile

& Mokoka, 2020). Protests are due to their exclusion from decision-making processes that have an impact on their lives. Youth are important forces for responding to environmental and sustainability concerns such as climate change, social inequity, and poverty. If these youth's experiences can be identified and addressed, to a certain degree, this can make a great difference in improving the environments in which they live. In addition, Tihagale (2004) argues that the planet needs youth who follow the values of sustainability practices in order to safeguard their well-being. These youth can indirectly support development grounded on a long-term vision.

Youth work well with effective facilitation processes and community engagement which will provide the best practices for their environments. When the youth realise their full potential in dealing with environmental concerns, they are able to raise awareness, involve, empower and educate others. The next section explores the concept of 'matters of concern' in order to gain more insight into the notion of 'environmental concern'.

2.3 Matters of concern

This section draws on Latour's analysis of sustainability issues as 'matters of concern'. The term 'matters of concern' is useful for this study as it can be applied to the environmental concerns city youth face in their day-to-day lives. Latour (2004) differentiates the idea of 'matters of concern' from 'matters of fact'. According to Latour (2004), matters of fact relate to actual facts which have the highest degree of 'realness'. He describes matters of fact as the unquestionable elements of occurrence of research. Furthermore, Latour (2004, 2005, 2010) uses the term 'matters of fact' to mean "to come near to reality in terms of facts that 'speak by themselves' and are beyond argument, "embedded in a *res extensa* devoid of any meaning, except that of being the ultimate reality" (Latour, 2010, p. 6). This insight is important in the sense that it views matters of fact as undoubtedly beyond reproach.

Latour (2004a) explains the notion of 'matters of concern' "as those highly complex, contested, uncertain, historically situated, far-reaching, risky and richly diverse states of affairs in which human and non-human entities are intimately entangled" (p. 808). This definition proposes that both humans and non-humans are considered through the lens of 'matters of concern'. Latour (2010b) explains that the notion of matters of concern shows the complexity of interdependencies between nature and society that constitute current sustainability and other challenging issues. The

idea of matters of concern, according to Van Poeck *et al.* (2016), guides the investigations into specific ways in which human beings are involved with environmental issues. In addition, O'Donoghue (2014) argues that matters of concern are caused by human interaction with the environment and that they have social, political, bio-physical and economic characteristics. Environmental matters of concern in this study will be seen and explored bearing in mind this complexity of social-ecological issues. Latour (2004) explains that matters of concern are not objective or inevitable or even undisputable.

Latour (2004, p. 226) clarifies that “while matters of fact are developed without consideration of desire (moral, ethical), matters of concern embrace and are placed in those desires”. For example, climate change can exist as a matter of fact, but people can care about the issue, and the desires, morals, and ethics tied up in the issue make it a matter of concern. Latour (2004) further argues that, although matters of fact exist without context, in an attempt to reveal the unquestionable, matters of concern exist with context(s).

Moreover, Latour claims that mistakes are made, and the mistake he made was to believe that there was no effectual way to disprove matters of fact except by moving away from them and focusing on the circumstances that made them possible.

The idea of matters of concern, according to Van Poeck *et al.* (2016), directs enquiries to specific environmental issues. Van Poeck *et al.* concur that critical to Latour's argument, the concept of matters of concern refers to a relation between humans and the environment, which highlights their willingness and active engagement in contributing towards sustainability and social-ecological issues. Therefore, this calls for active commitment, effort as well as dependency. What is needed then, is to create an environment conducive for youth to conduct investigations into sustainability issues which affect their lives.

In addition, there is need to extend our understanding to address sustainability issues as matters of concern, and to examine how to create knowledge and promote the required attitudes and behaviour change (Van Poeck *et al.* 2016). This can be addressed when human beings show an affection for the environment. Thus, the notion of concern, Latour (2004) argues, should be comprehended in terms of ‘attachment’. Elaborating on this, Latour argues that people's reactions to problems - whether they manifest as awareness, curiosity, or participation – should be evaluated through the prism of attachment. Attachment, in this sense, is a state of being affected in which people are both actively dedicated to and dependent on a source of emotion (Marres, 2005). The

object binds them in the sense that it defines their pleasure, fate, way of life, and possibly even the meaning of their world, and they must work hard to keep this object of passion alive (*ibid*).

Marres argues that individuals can also be adversely involved in matters of concern, based on this concept of attachment. They have different attachments, and the attachments that exclude them undermine the sustainability of these attachments. Being jointly and antagonistically implicated in an issue, then, implies that diverse attachments are tied together by mutual exclusivities. The delicate balance between sustainability concerns and the acknowledgement of a variety of commitments and values is based on exactly these combined and antagonistic attachments through which a diversity of individuals is caught up in a matter of concern (Van Poeck & Vandenabeele, 2014).

Marres states that, “the great merit of controversy is that it provides an occasion to enact the irreconcilability of actors’ attachments” (2005, p. 127). Van Poeck *et al.* (2016) note the concepts of ‘matter of concern’ and ‘attachment’ enable us to express how educational practices can move beyond contrast and simple environmental education research objectivism reinforcing active education (educating matters of fact about issues of sustainability) and the simple subjectivism that is often associated with a mixed approach (the cultivation of pure values, views and partialities) (*ibid*).

Van Poeck *et al.* (2016) note that both ‘matters of concern’ and ‘attachment’ have an element of commitment. When youth are deeply involved in a problem that affects their long-term survival and well-being, they are more likely to take action. In addition, Van Poeck *et al.* (2016) argue that youth constantly hide their attachments behind unquestionable matters of fact, reducing their loyalty to matters of value. What is required, then, is to provide room for the enactment and research of attachments among youth affected by sustainability challenges (Van Poeck et al. 2016). It is therefore necessary to provide room for enactment and to investigate the attachments of youth as well as people affected by sustainability issues.

As a result, it is critical for youth to be totally committed to implementing a project of their choosing in this study, as this element of attachment will lead to a feeling of ownership. Furthermore, this project will allow them to address environmental sustainability practices as well as their community's well-being.

2.4 Sustainability practices and well-being

Sustainability practices in the context of this study are viewed as a response to environmental matters of concern. This section explores the concepts of sustainability, sustainability practices and their relation to 'well-being'. These concepts are important to this research for helping to unlock the full potential of youth as we develop sustainability practices within the eco-club intervention of this study. Moreover, the concepts bring together different perspectives about youth's matters of fact and matters of concern with respect to lives, regarding environmental or ecological sustainability practices.

According to Knight and Rosa (2011) sustainability means, incidentally or evidently, to strike a balance between societal demands on the environment and social well-being of current and future generations. Lane (2017) adds that for people to co-produce a sustainable society, it is important for humans to create a new generation which has sustaining values required to energise and assist their ongoing interrelation with nature. This can only be successful when people engage in self-reinforcing standards over the long term. That is, standards that support growth and activities that are "able to 'meet the needs of the present' without compromising the ability of future generations to meet their own needs" (Lane, 2017, p. 2). Sustainability is all about caring for our earth's natural resources and participating in safe practices for the benefit of present and future generations. Humankind presently faces serious environmental difficulties and challenges. Therefore, the need for sustainability is of paramount importance, not only for generations to come, but also the current generation's survival (Goodland, 1994). Knight and Rosa (2011) further assert that sustainability means sustaining human well-being into the unforeseeable future by minimizing humanity's impact on the natural environment upon which that well-being eventually depends.

In order to empower young people to take responsibility for creating a better tomorrow there is a need to stimulate discourse and practical sustainability societal practices in dealing with socio environmental problems. Jacobi *et al.* (2016) argue that sustainability as an integral effective unit or system reinforces shared values through education practices and supports action in response to socio-environmental challenges. Youth initiatives enable a significant number of young people to become imaginative in their daily lives and to speak up on local needs and interests and become actively involved in their local community.

If young people can comprehend how their personal choices have both local and international effect, then they will be enhanced and empowered to make environmentally informed decisions

(Olusanya, 2012). Such areas of environmental issues and responsibility might have valuable significance for youth's quality of life, health, abilities and well-being.

As socio-economic features are mostly about the well-being of the current generation of youth and environmental ones are about concern for the future, this means the former become twice as significant as the latter (Kuhlman & Farrington, 2010). This is because development can take place at the expense of future generations. Therefore, there is need to respond to the needs of youth that represent their socio-economic and demographic characteristics. Tanasescu and Oprean (2013) argue that sustainability is the degree to which human well-being is shaped by the circumstances in which people live and the way they take care of the environment. Environmental sustainability is becoming an important world-wide matter with a number of people now operating collectively to come up with programmes regarding the use and protection of natural resources (Scerri, 2009).

Individuals impact on the environment, and youths in every community have an influence on the use of resources. Despite their influence on the concerns of the environment, youth in urban societies often encounter challenging life conditions beyond their control that can be worsened by contaminated environments harmful to their present and future well-being (Rogge & Darkwe, 1996).

Olusanya (2012) argues that it is essential and possible to change to sustainable ways in dealing with environmental matters of concerns. Failing in our endeavours to become sustainable, the youth of tomorrow are less likely to be able to attain environmental sustainability (*ibid*). Approaching sustainability is not only urgent for the youth of tomorrow, but the present generations also depend on it.

Olusanya (2012) further argues that a sustainable future is achievable, given the capability of today's youth' to meet the challenges of global warming and climate change, biodiversity loss, pollution and deforestation, among others. This awareness is built on the capability of youths to signal change, considering the fact that a great number of them have a vision for sustainable world and responsiveness to inherit the planet (Olusanya, 2012).

Climate change signifies one of the main social challenges that humans face today, with enormous impact on our future generations. Climate activism and media trapping of environmental topics play an important role, yielding opportunities for activists to advocate for environment and to make

their voices heard on a global level, in an attempt to raise the public's awareness and to make calls for action (Cox *et.al*, 2013).

On the 15th of March 2019, more than 1.6 million learners took to the street in 125 countries to protest against the climate change effects, as part of the Fridays for Future movement (The Guardian, 2019). The displays signified the largest day of global climate action ever conducted. At the centre of this movement was Greta Thunberg, a Swedish 16-year-old climate activist and a Nobel Prize nominee, whose battles and addresses serve as an inspiration for both learners and adults (*ibid*). This is proof that children and youth's voices regarding climate change can be heard and are capable of making positive changes within their communities. This implies that an environmentally sustainable future may after all be achievable. Sustainability issues such as global climate change and increasing poverty are critical for youth to fully comprehend and it is essential for them to feel empowered and equipped to address the issues for the sake of their future. Sustainability becomes particularly meaningful to youth when they are given the opportunity to infuse it with meaning in their own everyday lives (Wals, 2006).

Kahlman (2010) argues that although natural resources are depleted at the cost of the future generations, wealth in the form of capital and shared knowledge are generated in order to raise future well-being. Moody (2000, as cited in Olusanya, 2012, p. 210) proposes that "young people have a role to play in addressing environmental and sustainability issues; with their knowledge of these issues, will-power, and enthusiasm, youth can offer an explicit perspective on the implementation of ecological change". Addressing environmental and sustainability issues starts with the human being, and the actions are taken at home, school and in day-to-day life. Our daily lives play a crucial role in urging youth to contribute towards living a sustainable lifestyle. Urging youth to be important drivers of sustainability necessitates providing the essential opportunities and knowledge for sustainability in education, learning and living. (de la Harpe & Thomas 2009, Wals & Jickling, 2002).

Chambers et al. (2000, p. 3) argue that "to make sustainability happen, we need to balance the basic conflict between the two competing goals of ensuring a quality of life and living within the limits of nature". With the increasing accountabilities for world-wide youth, youth need to be empowered with sufficient resources and be equipped to challenge environmental issues in an effective way (Cooper & Hays, 2007; Schusler & Krasny, 2008). Chapter 25 of Agenda 21,

adopted at the United Nations Conference on Environment and Development (UNCED, 1992) in Rio de Janeiro, reads as follows:

It is imperative that youth from all parts of the world participate actively in all relevant levels of decision-making processes because it affects their lives today and has implications for their futures. In addition to their intellectual contribution and their ability to mobilize support, they bring unique perspectives that need to be taken into account. (p. 1)

The notion of sustainability practices has been inspired by O'Donoghue's Handprint series. He discusses sustainability practices as cases of environmental change. The notion of practices is linked to the notion of a 'handprint' whereby sustainability becomes not only about decreasing a footprint but also about increasing one's handprint (practices sustainability) (Fox & O'Donoghue, 2009). The emphasis is on sustainability practices that can be taken up within the perspective of what learning can bring to environment and sustainability concerns. The goal is to work towards re-imagining more sustainable livelihood practices in a warming world (*ibid*). The host of abilities and attitudes related to sustainable livelihood practices are amongst numerous outcomes related to youth engagement. Engaging children and youth in community building promotes environmental sustainability and has important implications for the communities in which they live (Brown *et al.*, 2011).

As a result, it's vital to involve children and youth as practitioners in making meaningful decisions in response to unsustainable practices. This is only possible if youth well-being is attained at the same time. So, it is important to involve children and youth as agents of change in responding to unsustainable practices through meaningful decisions. This can only be achieved if the well-being of youth is achieved at the same time. Well-being is a wide notion described and classified in various ways through different forms of literature, without any exact definition or concurred aspects - "well-being is a complex construct whose meaning remains contested" (McAllister, 2005, p.5). According to Chambers (1997), well-being can be explained as distinct from wealth, wellbeing unlocks the entire range of human experience such as psychological, social, spiritual and material. Thus, the idea of well-being for youth and concerns for others and the natural environment go hand in hand. In view of the above, well-being is not at the cost of equity and sustainability but is improved when added to these.

The notion of well-being as reflected in this study incorporates different dimensions of youth's present and future lives, and at different levels that involve personal and social domains. Improving

knowledge on the potential implications of environmental matters of concern for youth well-being can raise awareness amongst relevant policy makers. As suggested by Newton (2007):

In a number of contexts, a wellbeing focus has promoted an increase in awareness and recognition of the combined effects of social, economic and environmental factors. It has helped to promote joint working and more holistic approach to policy making (p.7).

Well-being includes different aspects of youth's present and future lives, and at different levels. These include living standards, access to basic services, health, peace of mind, love, choice, creativity and fulfilment and fun. This can be instilled in youth if they can acknowledge how their options have both national and international importance, following which they can be better equipped to make well informed decisions (Olusanya, 2012). Well informed decisions amongst youth helps to build their commitment towards the goals and vision within the community.

2.5 Well- being of youth

The WHO (2009) defines health as "... a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity". This indicates a "whole person" overview, placing health and well-being closely together.

Well-being is evidently more a condition of awareness, driven by individual and collective insight, than communication about how 'wealthy' we are, how 'healthy' we are and how 'good' the quality of the environment is measured to be (Scott, 2012). It is obvious that interpretations of well-being are difficult and are influenced by how a community understands individual or shared values. Well-being might mean any evaluation of a person's situation, or, more fittingly, any such evaluation which is focused on the person's 'being' (Gasper, 2002).

Well-being is normally considered as an account of the condition of individuals' life situations and an experience of good life satisfaction (McGillivray, 2007). Therefore, my working definition of well-being with youth will be "well and happy" when exploring my understanding of well-being. 'Well-being' might mean any evaluation of a person's situation, or, more fittingly, any such evaluation which is focused on the person's 'being' (Gasper, 2002). This includes living standards, living-well, personal growth, quality of life and happiness. These have a strong influence on the development and well-being of youth (McGillivray, 2007). It appears a vision and future of youth is fulfilled based on simple but basic components of livelihood which constitute well-being.

Improving the well-being of youth is significant for their future prospects and economic efficiency. Poor nutrition, for example, has negative effects on their ability to learn.

The fact that the notion of well-being is open to a broad diversity of interpretations for different people and contexts, allows a development programme to meet the differing needs of people (Chambers, 1997). The concept implies a standard of living, for both the individual and society as a whole. Well-being is a basic component of the human condition, the most common ones include life satisfaction, empowerment, prosperity and needs fulfilment (Chambers, 1997). Youth can aim for an easier and slower life.

Approaches for tackling problems in a definite and well organised way have also been found to lessen stress levels and create a sense of belonging (Patchen, 2006). In what has been found to improve the youth's sense of empowerment to react and manage worldwide environmental challenges (*ibid*). Nyoni (2009) signals that "participation is a key element of any change or development process. Inclusion gives people an important sense of self and a connection to the world they live in" (p. 87). Thus, significant youth involvement and empowerment to influence definite changes for their future can improve their sense of well-being. It is my hope that this investigation contributes to improving the understanding of youth engagement with environmental issues and well-being. Well-being needs a healthy environment, local and global, to 'be well' (Stevens, 2010).

Youth Forum Jeunesse (2008) argues that youth ought to be involved in the decision-making processes which concern them, especially with regards to their health and well-being. Hawkins *et al.* (2009) argue that meaningful approaches on caring of environmental issues promote well-being, such as a safe and healthy environment, good social relations, and financial security. Youth are not only connected with environment, their well-being is also dependent upon it. According to Bradshaw *et al.* (2006), youth interact with their environment and therefore play a central role in establishing their well-being, thereby responding to environmental issues and challenges. Poverty and deprivation have an impact on youth well-being due to a lack of economic resources (*ibid*). As far as youth's well-being is concerned, concentrating on their day-to-day lives and their interaction establishes a critical dimension of the well-being approach (Semerci & Erdoğan, 2014).

In this study, well-being constitutes a significant notion including manifold features of youth's current and future lives at individual and social level. It is then viewed as a condition as well as a process that is continuously influenced by the challenges of environmental issues. Youth well-

being is closely related to issues such as social inclusion and participation, equality and sustainable development (Youth Forum Jeunesse, 2008). The study includes an all-inclusive and multi-dimensional perspective, looking at exploring the implications of sustainability issues at personal, experiential, and social dimensions of youth well-being whilst bearing in mind the effect of their wider environmental, socio-cultural, academic, and political context (Hall *et al.*, 2010; White 2008).

2.6 Social learning

The intervention for this thesis is guided by Wals's (2011) social learning framework. In this section the concept of social learning is explored. Social learning can be defined as the development of meaning by individuals or groups of people through shared social interactions with each other and the environment (Reed *et al.*, 2010; van der Wal *et al.*, 2014). Van der Wal *et al.* (2014 p. 2), similar to Reed *et al.*, 2010, define social learning as a "convergent change in the stakeholders' perspectives on the problem and its possible solutions and risks, as well as on their own and other stakeholders' position and responsibility with regard to solving the problem".

Learning happens at both individual and collective levels; therefore, social learning occurs when individuals encode what they have learned in social memory (Wals' 2011). Social learning is explained as learning by individuals or collectives, so long as they bring about new ideas, synergy and work as a team.

Glasser (2007, p. 18) explains social learning as "learning by individuals that takes place in a social setting and /or is socially conditioned; for others it means learning by social aggregates." The term social learning can therefore be defined as learning that happens amongst people and/or at a collective level where stakeholders gather and get involved with one another, interact and discuss pertinent issues. Social learning goes beyond cognitive knowledge. This concurs with Wals *et al.* (2012), who describe social learning as a social, collaborating process, irrespective of whether it is individual or social.

Glasser, (2007) argues that social learning refers to a special kind of learning that contributes to understanding the learning community, which is important in comprehending a more sustainable world. Social learning both describes and adds to a 'learning system' in which individuals learn from and with one another collectively to develop the capability to handle setbacks and insecurity.

Above all, social learning is about being able to accept one other's differences and put the differences into use (*ibid*). While social learning may be a process of individuals learning from each other, the results of these social interactions are often described as related to a broad range of additional potential outcomes (Reed *et al.*, 2010).

Social learning theories support the notion that learning should be considered as developing and occurring through participation in a community of practice (Handley *et al.*, 2006). Wenger (2011, p. 1) defines communities of practice as “groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly”. Learning, as it were, relates to stakeholders' capability to create and negotiate meaning from individual and collective experiences. Jacobi *et al.* (2016) concurs that the concept of social learning is considered to add value to stakeholder and community participation, as part of education for sustainability to increase awareness and to deal with difficult issues related to environment. Through social learning processes, stakeholders learn to work together, develop relationships and eventually undertake shared actions regarding widespread environmental concern (Cundill, 2012).

Wals *et al.* (2009) claim that there is need for a clearer meaning in order to avoid everything people perform together in interaction being called social learning. They argue that, in the context of sustainability, a social learning process should be approached as new ways of doing things and new ways of understanding, while at the same time bearing in mind that environmental issues are understood and dealt with in a different manner by different people (*ibid*). Sustainability does not merely concern actions we do better (more efficiently) but is also about doing things differently (developing new practices) and, possibly, about doing better things (developing values, advantages and standards) (Wals & Rodela, 2014).

As sustainability and sustainable development are gradually understood as developing from collaborative learning, the formation of a sustainable planet needs *learning*; not just any learning, but learning that leads to new kinds of thinking, values and co-created, inspired solutions, co-owned by more responsive citizens, living in a more responsive and strong society (Wals, 2011).

The notion of social learning is important for this study, as identified sustainability practices are going to require a concerted effort among youth in addressing environmental concerns through collaboration and social cohesion. Social learning is learning by persons or collectives, provided they share ideas and knowledge brought by others (Glasser, 2007). Social learning includes observation, simulation, demonstrating, self-instruction, discussion and mentoring, among other

strategies (*ibid*). These viewpoints are valuable for my research in the sense that it is learning that will build the capacity of youth and can improve their individual and collective capabilities in relation to their environmental concerns. If learning is to be considered “social learning,” it must prove that change in understanding has taken place in the individuals involved through social interactions or direct interactions (Reed *et al.*, 2010). In this regard, social learning occurs when children and youth come together with a common goal to advance issues of common concern. As such, social learning can be described as a change in understanding beyond the individual to develop within broader societies of practice across social interactions among actors in social networks (*ibid*).

Internationally, several youth and environmental activists have been addressing environmental challenges and are coming up with a variety of sustainability practices through education at different levels (Jacobi *et al.*, 2016). Policies that seek to involve individuals and stakeholders acknowledge that one group alone will certainly not resolve the most difficult problems, but instead that collective efforts and processes allow different shared ideas to be presented and discussed, frameworks and decisions assessed, resolutions taken, and action implemented (*ibid*). I trust that youth are bound to make informed choices about alternative environmental practices after investigating and engaging in a sustainability project. Glasser (2007) raises concern with learning that leads to a lack of environmental action. He raises concerns about gaps between visions of sustainability and what is truly happening in practice.

Romina (2014) argues regarding other disciplines where social learning is used to refer to socially situated learning processes, the term is used to refer to outcomes and processes assumed to be in place when people/stakeholders meet in order to discuss, or reach a consensus, regarding natural resources and environmental issues of concern. Jacobi *et al.*, (2016) state that the concept of social learning is effective in dealing with issues related to environmental issues. There is an up-and-coming general agreement that the important result of social learning is better decision-making supported by a rising awareness of human environmental interactions, better relationships and improved problem-solving capacities for participants (Cundill, 2012).

Social learning in the context of this study is centred on the eco-club and allows youth to learn and contribute to a sustainable urban future. Reed *et al.* (2010) suggested that social learning is a learning process in which youth are presented with new ideas, and new ways of doing things in collectives, but that it involves their participation and engagement to make sense of the knowledge.

The knowledge obtained through these learning processes builds on prior knowledge and thus enables youth to familiarise themselves with existing practices to become more creative and more responsive to changing conditions such as environmental issues.

Woodhill (2002, p. 323) argues that social learning is a "process by which society democratically adapts its core institutions to cope with social and ecological change in ways that will optimise the collective well-being of the current and future generations". Social learning amongst youth occurs when they acquire both knowledge and skills to make informed choices for their benefit (UNESCO, 2014).

Allowing youth to be involved both at school and in the community help them to acquire a social identity and a sense self-respect in the school and community. Drawing on these perspectives on social learning, this study will establish a process conducive to social learning when children and youth come together to advance issues of common concern, meaning a collective action that involves youth to improve their local environment through interrelations. Wals, van der Hoeven and Blanken (2009) describe social learning as something that brings together people from different backgrounds for a common goal.

Glasser (2007) argues that most learning is passive social learning, as knowledge is drawn from others. In addition, he explains learning as part of observation, simulation, demonstration, training, discussion and other pedagogical approaches. Involving youth in sustainability practices at school such as gardening, can increase career opportunities. On the other hand, active social learning is based on reciprocal interaction, interconnectivity, and communication between at least two living beings.

In this study, social learning enabled youth to share ideas, knowledge and experience, and an active approach to learning included youth in interaction and deciding by consensus on a course of action to improve sustainability and well-being. Glasser (2007) explains active social learning in the context of a dialogue employing the Socratic method, dancing, community gathering, a public meeting, a public appraisal process and video conferencing on the internet. This is supported by Wals *et al.* (2009) who state that learning is about learning from each other, creating trust and ownership as well as collective decision making. In order to promote active social learning, facilitators may apply co-learning, because its need for team building, conclusive engagement, hands-on experience, responsibility and strengthening of the present knowledge, supports the production of novel knowledge and new approaches for tackling real global challenges (Glasser,

2007). As an example, the community of Makhanda has to deal with sand silt soils which are not suitable for gardening. To overcome this problem, co-learning can be used by brainstorming practical ways of making the soil fertile using sustainability practices. This can be achieved by critical assessment of the problem and bringing in existing knowledge. The youth may generate knowledge and apply this new knowledge to policy and practice in their everyday life (Glasser, 2007). In the learning process, learners are engaged in ideas and knowledge-sharing as a team. Through discussions and implementation, they are expected to be able to learn and implement the practices and apply them elsewhere within the community. This is learning by getting involved.

Tilbury (2007) adds that it is essential to have a social learning process which enables us to explore sustainability and build skills for change such as facilitation, participative enquiry, action learning and action research. Social learning can draw on any one of these processes to mediate learning. Social learning is discussed again in Section 3 in terms of how it was applied as an educational intervention. During the intervention, youth were engaged in a series of learning cycles involving discussion, experimenting and participation in the sustainability project.

Undertaking such a research is important because it provides a perspective on the learning process and experiences of the eco-club. It also outlines aspects of social learning relevant to this study and social learning which will be applied later in the study. Sustainability practices emergent from social learning are influenced by underlying factors. The next section focuses on the theory of practice architectures, which I used as the theoretical framework for the research.

2.7 Practice architectures as theoretical framing for the research

The notion of practice architectures highlights the theoretical, material, individual, shared, cultural, social, political and economic effects of/on practice (Kemmis & Grootenboer, 2008). Practice architectures theory was used in this study to understand the dynamics of the practice architectures that enabled and constrained the emergent sustainability practices enacted by youth.

Kemmis and Grootenboer (2008) refer to practices as ‘sayings’, ‘doings’ and ‘relatings’, which are enabled and constrained by the practice architectures of the site of practice. These practice architectures are made up of cultural-discursive arrangements, material-economic arrangements, and social-political arrangements of practice. Practice theory was used for exploring sustainability practice in terms of sayings, doings and relatings by youth, and practice architectures that represent

enabling or constraining factors of youth's practice. The theory of practice architectures is valuable for examining local conditions that affect what happens when children and youth come together to work with one another, and how particular sayings, doings and relatings influence these happenings.

Within the youth project, practice architectures help explain the models around what participants do and say. According to Kemmis *et al.* (2014), practices, being social and situated, are shaped by and shape prefigured arrangements that jointly make practices attainable. The theory of practice architectures includes a comprehensive group of practice theories that draw attention to social life, and specifically the different and characteristic ways people, objects, discourse, relationships, activities and circumstances are entangled in practices and sites (Kemmis *et al.*, 2014). Within the eco-club project, practice architectures are the conditions and circumstances happening around the participants and within the project. A facilitator must be able to be on the ground with them not only as a teacher but as a human being who also shares the challenges of learning new languages, learning to do things differently using different resources, and building new solidarities with one another and with the club members outside of a school system. Practice architectures help to validate the models we use to understand what individuals do and say, the intention being to clarify what they are attempting to do once they speak; to make the connection between what is said and done; to see how models of doing and saying flow in time and how the time-based arrangements that the models raised may be understood (Nicolini, 2012).

Every particular practice has its own specific architecture (Kemmis & Grootenboer, 2008, p. 57), and these arrangements constrain and enable practices and their sayings, doings and relatings (Mahon *et al.*, 2017). Practice architectures as a whole are comprised of the following three kinds of arrangements found in or brought to a site:

- Cultural-discursive arrangements (in the medium of language, in the dimension of semantic space), which shape and give content to the thinking and sayings that orient and justify practices (Kemmis *et al.*, 2014, p.32). They also make possible the *language* and *discourses* used in and about this practice and enable and constrain the *sayings* of this practice (Mahon *et al.*, 2017).
- Material-economic arrangements (in the medium of *activity* and *work*, in the dimension of *physical space-time*), which shape and give content to the doings of the practice (Kemmis *et al.*, 2014, p. 32; Mahon *et al.*, 2017, p.10). These consist of the use and

accessibility of physical and financial resources, and the use and accessibility of time. The resources also make possible the *activities* undertaken during the practice; these arrangements enable and constrain the *doings* characteristic of the practice (Kemmis *et al.*, 2014).

- Social-political arrangements (in the medium of *power* and *solidarity*, in the dimension of *social space*) which shape and give content to the *relatings* involved in the practice. The resources also make possible *the relationships* between *people and non-human objects* that occur in the practice; these arrangements enable and constrain the *relatings* of the practice (Kemmis, 2009; Kemmis *et al.*, 2014).

The notion of practice architectures enables an understanding of the enabling and constraining factors of the practices themselves. Practices and architectures are joined and entangled with one another, thereby comprising ‘three dimensions of intersubjectivity’, or spaces (Mahon *et al.*, 2017, p. 10). Following most closely from Kemmis *et al.* (2014), both cultural-discursive arrangements and sayings are realised in the semantic space in the medium of language; material-economic arrangements and doings are realised in the physical space–time dimension in the medium of work and activity; and the social-political arrangements and *relatings* are realised in the social space via the medium of solidarity and power. Figure 2.1 below demonstrates the multifaceted, common relationships between practices and architectures, as well as the spaces in which sayings, doing and *relatings* exist bundled together in the three above mentioned arrangements (Kemmis *et al.*, 2014, p. 34). As it were, the spaces are in relation to each other, all are of equal importance, and all interact concurrently.

Moreover, these spaces ‘lie between’ people and are not hidden but are demonstrable and equally tangible (Hemmings *et al.*, 2013). These are the three media or spaces in the centre of Figure 2.1.

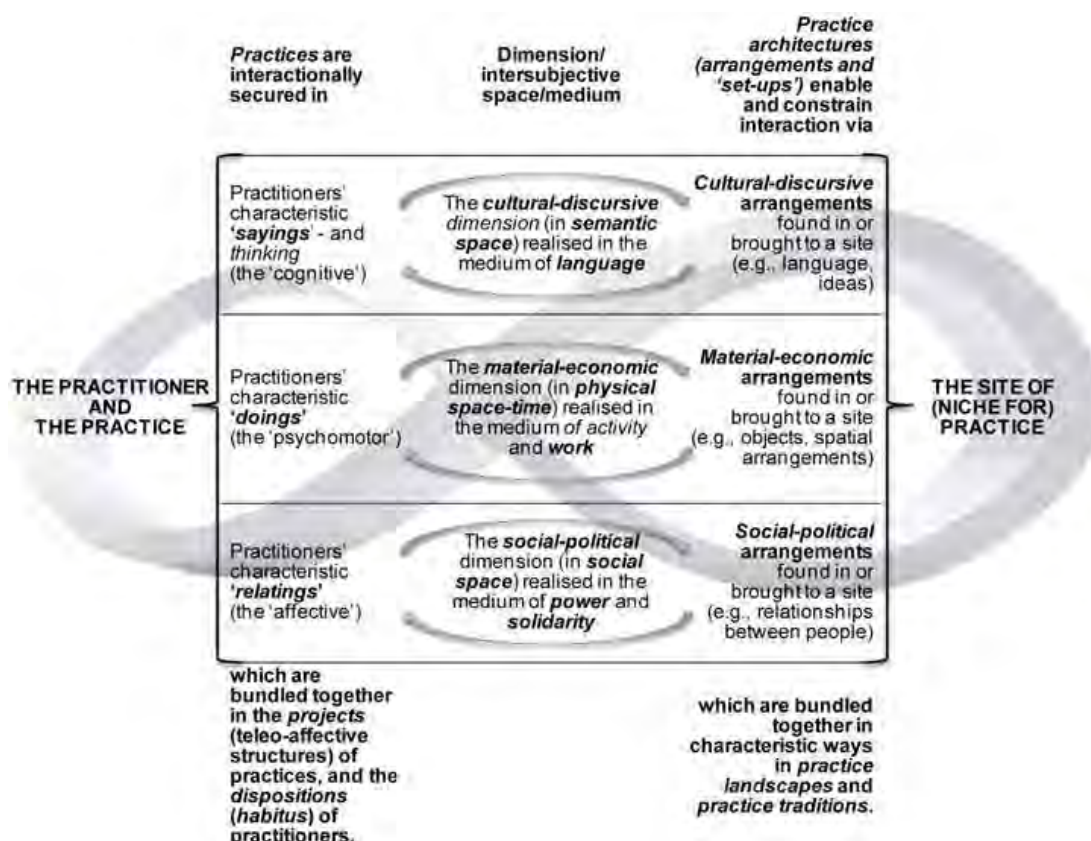


Figure 2.1 Diagram of a theory of practice architecture extracted (Hemmings *et al.*, 2013, p. 475)

Acknowledging the human, social features of practice allow greater emphasis to be placed on how “social interactions shape the relationships which constitute practices” (Edwards-Groves *et al.*, 2010, p. 44). This praxis-positioned view of practices explains how youth in educational practices create, reproduce and transform modes of personal and socio-political practice in the contexts of the project and the community. Schatzki (2003, 2005, 2006, in Kemmis, 2012) distinguishes these contexts as site ontologies where practice is situated in particular circumstances and conditions with co-habitants maintaining interdependent relationships with other people, objects and species as well as constructing their own being and identity. Practices do not exist completely in practice architectures, as explained above; they are bundled together in a practice landscape.

Figure 2.1 above illustrates that the theory of practice architectures contributes a new way of understanding the duality of sustainability practices, and the cultural-discursive, material-economic and social-political arrangements that hold particular sustainability practices in place, that is, sustainability as it happens in actual local sites. In the light of our theory of practice

architectures, we can now further elaborate our definition of sustainability. We may now say that sustainability, properly speaking, is the practice by which youth are introduced into other practices.

The conduct of practices is never unbiased but continuously guided by prior involvements of all participants as well as pre-existing ideas, beliefs, practices of the subject, discipline and knowledge. This is explained as the prefigurement of practices. Yet, enacting practices is not only affected by what conditions pre-exist at the site but by what is brought into the site (like particular resources, ideas, language) and by who is present at the time and the relationships between them. Practices are formed not only by “the intentional action and practice knowledge of participants but also by circumstances and conditions which are ‘external’ to them” (Kemmis, 2012, p. 887).

In addition, practices are ever pre-figured by other practices and practice architectures are not essentially pre-determined. In view of this, practices are enabled and constrained by other practices, are always dynamic and contestable in their conduct, and always occur amid other practices (Kemmis *et al.*, 2014). Practice architecture enables and constrains new communication, providing familiar practices with their characteristic shapes. For example, when talking about littering, children and youth are engaged in discussions to stop or reduce littering. The language used to communicate will enable interactions as they will use isiXhosa (their home language).

2.8 Conclusion

This chapter discussed matters of concern that young people encounter daily, specifically matters of concern that are caused by human interaction within the environment. The chapter further reviewed literature on sustainability practices as well as the relationship between sustainability practices and well-being. Well-being as reflected in this study incorporates different dimensions of youth’s present and future lives. Literature on the well-being of youth was reviewed. Social learning as a concept was also discussed, defining it in detail. The concept of social learning is effective in dealing with issues related to environment. Furthermore, Social learning is crucial as identified sustainability practices require concerted effort in addressing environmental concerns. Social learning will be discussed further in terms of its role in the research intervention. Practice architectures theory was discussed as it was used in the research to examine children’s and youth’s practices, bundled together as sayings, doings, and relatings. The theory of practice architectures includes a comprehensive group of practices that draw attention to social life.

CHAPTER THREE: RESEARCH DESIGN AND RESEARCH METHODOLOGY

3.1 Introduction

This chapter discusses the research methodology and processes that have been used to generate data to address the research questions. The chapter begins with a discussion of the social learning process that was used to guide this interventionist study. Wals' social learning process is discussed in terms of how it was used as an educational framework mobilising sustainability practices. The research site and participants are then described. This is followed by a discussion of my positionality as a researcher and a participatory researcher. In addition, the chapter elaborates on the methods used to generate data; namely a literature survey, individual interviews, focus group discussions, observations and document reviews. The chapter further provides an outline of how data was organised and analysed. The chapter concludes by discussing the strategies that were used to ensure validity and reliability of the research.

3.2 Social learning as an interventionist study

The educational framework for the intervention was guided by Wals' *et al.* (2009) framework of social learning processes for mobilising sustainability practices. Wals *et al.* (2009) identify stages and some activities to help design or monitor social learning.

Figure 3.1 describes social learning as a process of cyclical learning. The figure represents 'the macro-learning cycle' consisting of six different stages (the white rectangles), namely contemplating, orientating, activating, selecting, implementing and evaluating, which form a repetitive loop or cycle. These stages guided the intervention activities for the two eco-clubs

- they guided engagement and transformation of the selected matters of concern. As mentioned earlier, the clubs focused on the eight themes highlighted in Chapter 1 namely, 'education', 'energy', 'home-life', 'mobility', 'leisure and communication', 'waste', 'water use' and 'food'.

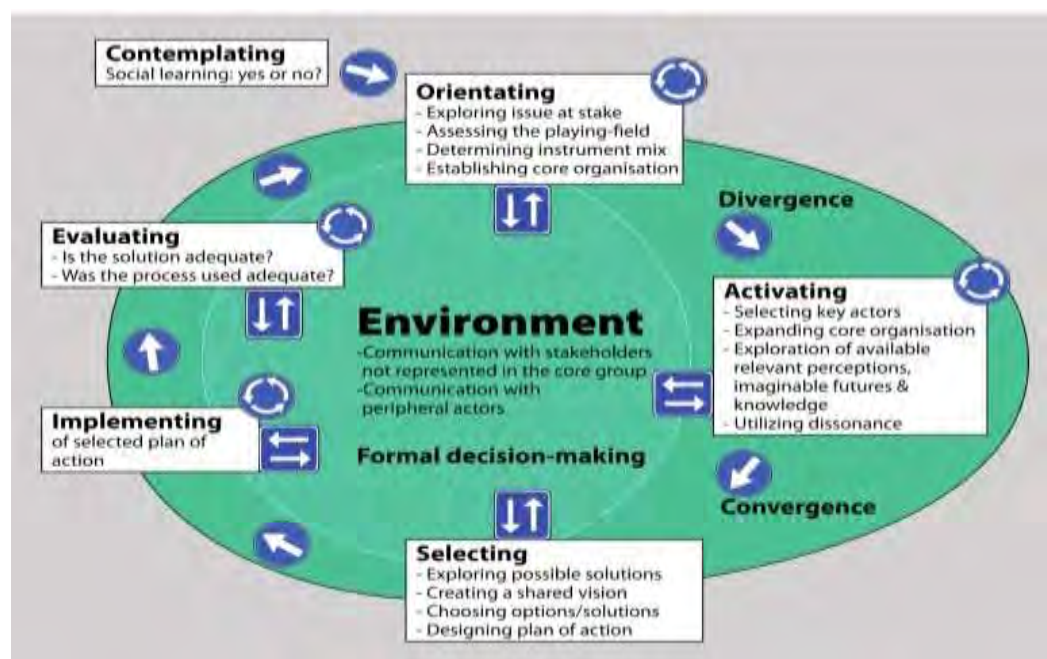


Figure 3.1 Social learning processes extracted from Wals *et al.* (2009, p.13)

The six stages, explained fully below, were used to guide the dynamics of sustainability practices initiated through the social learning intervention. The purpose and processes for each are explained below. In addition, the intervention activities implemented at each stage are described.

STAGE 1: Contemplating: This initial stage is where the eco-club members decide whether to participate in the process or not. To make it easier for them to decide, I conducted a pre-meeting with the youths to consider the intentions of the intervention and the duration. The youths were then asked if they were interested in participating in the intervention. From the two clubs 28 members expressed an interest, while a few were not willing to take part in the intervention but were still interested in continuing with the club activities. We therefore decided to make the intervention a separate activity, in addition to the normal club programme.

STAGE 2: Orientating: This stage of the process explores the key issues of concern or challenges at stake. After contemplating, this next stage is where the participants familiarise themselves with the problem area. According to Wals *et al.* (2009, p. 16)

...the change process and the corresponding ‘problem area’ are carefully and tentatively explored by a selected group that will then identify the most significant interested parties and players and will gain an impression of the institutional and political leeway and support that is available.

This is intended to develop participants' awareness of the issue at stake and possible ways to identify interested parties and what support is needed.

Activity 1 – Wals *et al.* (2009) urge the process facilitators of social learning to be creative by making use of visual materials, videos and PowerPoint presentations. Newspaper articles and video clips were used to introduce different themes. I asked the participants to bring newspaper clippings on matters of concern pertaining waste and water in Makhanda from a local newspaper (Grocott's Mail). The videos we viewed were on global orientations to matters of concern while the newspaper articles dealt with localised matters of concern. The video clips we used covered three topics, namely transport, education and energy use, which were identified as three different matters of concern. Discussions about the selected newspaper articles and videos were facilitator-led and required participant-centred involvement to help the facilitator identify and consider important aspects of instruction and learning that occur in both the newspaper articles and videos. After watching the videos, a discussion followed on how youth viewed the concerns raised. I supplemented discussions of these with newspaper articles on environmental issues and what they encounter in their everyday lives. The newspaper articles dealt with issues such as illegal dumping sites (waste) and problems relating to the water supply in Makhanda. I described sustainability practices which could be considered to respond to the issues brought up in the video clips and newspaper articles. Here the intention was to introduce sustainability practices, being the main focus of my research. Most of the videos explained sustainability practices. This was followed by a focus group discussion with the children and youth, who were now reflecting on the issues in Makhanda which affect their everyday lives, focusing on five themes, namely 'education', 'home-life activities', 'mobility', 'leisure and communication' and 'food'. They were asked to create a photographic presentation which they would discuss in Activity 2. Initially we started with five themes. Two of the themes had two people covering them in each group as the groups consisted of 7 people. Later the following themes were split; 'home life activities' into 'energy use', 'home life' and 'water' and then 'food' was split into food and waste. We continued the project with the following themes: 'education', 'energy', 'home-life', 'mobility', 'leisure and communication', 'waste', 'water use' and 'food'. The themes 'education' and 'home-life' were discarded as they were contextual.

Activity 2 – The children and youth created a photographic record of their daily lives throughout the week in groups of four, each person in each group covering a different theme. Two themes were covered twice as there were 7 participants per group. The youth were asked to discuss the

photos they captured explaining their reasons for taking the photos. Each group of 7 participants constructed a photo narrative. The follow-up focus group discussions with each group were conducted comparing and reflecting on the captured photos.

STAGE 3: Activating ([Self] Awareness raising): Wals (2007, p. 41) describes [self] awareness raising as “eliciting one’s own frames relevant to the issues or challenges”. This stage is focused on raising awareness amongst participants in the club. It also identifies key actors within the community who can build knowledge and help learners in decision-making. The youth created a photographic record of their daily lives throughout the activity.

Activity 3 – This activity was intended to raise awareness about sustainability practices in response to issues raised by the photo narrative. This was not difficult as participants were already aware of what is meant by sustainability practices. Practices included use of grey water to address water shortages, the use of home-made pesticides to deal with aphids and other pests in the food garden, energy saving techniques, and the use of compost and manure instead of fertilisers which weaken the soil. I raised awareness of sustainability practices in two ways which elaborated on the ideas from Stage 1. These were: a) I brought in the *Handprint Series* of sustainability practices (O’Donoghue & Fox, 2009). This series covered practices for saving water, waste reduction, reuse, recycling and gardening and b) I brought in an expert to talk about or demonstrate a sustainability practice to further stimulate ideas. The examples gave the youth a deeper insight into and understanding of sustainability practices. From these activities, participants deliberated on five possible sustainability practices to address the different matters of concern which were raised in the previous activity.

STAGE 4: Selecting: At this stage in the framework, we select actions, designs, activities, or solutions to take forward (Wals *et al.*, 2009). The solutions chosen ultimately will not necessarily suit everyone. Challenging each other’s suggestions was encouraged as part of the learning process.

Activity 4 - A Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis was conducted to decide on which of the above-selected five sustainability practices to take further. The older youth educated the younger ones on what a SWOT analysis is. They analysed each theme to come up with the best project. This was intended to prompt critical thinking and to generate ownership. Everyone was involved and worked towards a shared vision.

STAGE 5: Implementing: This stage in Wals's social learning framework involves the implementation of the selected plan of action and chosen solution to the issue.

Activity 5 - Club members put together a plan of action. They came up with specific, measurable, appropriate, results-oriented and time-bound (SMART) realistic goals and formed working teams where participants volunteered for roles which they felt confident to execute, set meeting times, and decided on success indicators. They spent three more club sessions working on the plan of action to start a garden. However, timing slowed the process because the group from the high school had only one common day where they were all free during the afternoon. This was the biggest challenge as younger club members would not intervene without them. They later agreed that the primary group would meet and deliberate with the few who managed to attend and then there would be feedback after every session to cater for those who were absent. This worked satisfactorily and new members from the primary school were recruited to help with working in the garden.

STAGE 6: Evaluating: During this stage participants evaluated their roles and achievements (Wals *et al.*, 2009). In this case we are referring to achievements in terms of an effective sustainability practice. Additionally, it is an opportunity to “reflect upon the overall process in order to learn from that as well” and to “adequately assess the added value of social learning” (Wals *et al.*, p.24).

Activity 6 - Fourteen members were involved in taking photos throughout the project implementation. These members were from both schools. These photos were assembled as a second set of photo narratives at the end of the project. Participants drew on these to explain the reasons for their activities and actions and to evaluate the actions. The other 14 members had a focus group discussion to evaluate what they did throughout the project. All these members from the 2-groups volunteered to take part in either taking photos or to be in the focus group evaluation. They assessed how issues were addressed through deliberations and compared what they had achieved against the action plans and also reflected on the social learning process itself. (Wals *et al.*, 2009). This important stage for the group examined whether the desired goals and/or the intended outcome of the social learning process had been achieved.

Wals *et al.* (2009, p. 23) argue that “people often think in terms of hard results but often tend to forget the soft results”. For example, in this study I focused on evidence not only of tangible results

(for example, a food garden) but also understanding and respect, which are valuable for developing a sustainable community.

3.3 Research context

3.3.1 Research site and participants

The research was conducted in Makhanda, in the Eastern Cape Province of South Africa. The participants were volunteers from two eco-clubs at two local schools. Not all the members of the two clubs took part. We began by forming focus groups of 28 in total which means 14 members from each of the two selected schools in Makhanda. The selection process was determined by volunteers from the same two eco-clubs (involved in the study) who expressed an interest in participating in this extended activity of the club. This is further explained in Section 3.4. The participants for the educational intervention were subdivided into two 7- member groups from each of the two clubs. Each group was composed of children and youth of different genders, age groups, backgrounds and religions to get a broad representation of youth. The participants were between the ages of 12 and 17, from both primary and high schools.

3.3.2 Researcher Positionality - Formative Interventionist

The primary goal of this research study was to understand the matters of concern of the youth in order to support change. Midgley (2000) defines formative intervention as “purposeful action by a human agent to create change” (p. 113). The youth were involved in the gardening project to bring about change through their action, decision making and the way they perceive things within the environment. Researchers in formative intervention research are involved in projects where design, implementation, and research are closely entwined (Penuel, 2014).

My role in this research was as a formative interventionist, being with the youth, and planning things with them in a formative way. As a formative interventionist, my role was to bring participants together, engage with them around a central problem, and help them to make decisions to bring about change. In formative intervention, the design is driven by historically formed contradictions (Sannino, 2011). Similarly, Wals’s social learning framework which was used to guide the intervention includes a stage for activating or raising self-awareness and these stages

may create differences of opinion amongst participants. This is where a formative interventionist may be required to intervene and support the process to enable collective engagement with the contradictions rooted in practice. My role was not only to help them resolve their differences but also to utilize dissonance (see Figure 3.1) to support and allow them to accept their setbacks and to put these differences into use within the design.

This research study was partly a participatory research in that the participants answered sub-question 2 with me. The rest of the sub-questions - the literature survey (sub-question 1), the analysis of the learning process (sub-question 3) and the analysis of the practice architectures (sub-question 4) - I answered alone. The participants identified an environmental matter of concern and were able to implement a sustainability practice in response to the issue. Simons (2009) confirms the significance of participatory research and explains that the initial aim for investigating the 'self' is that "you are an inevitable part of the situation you are studying" (p. 2).

The participants were actively involved in solving their own problems. As a participatory researcher I gave participants the 'stick of power' presenting, analysing and interpreting their own reality in the field (Chambers, 1992). This enabled them to understand what could help them and their community to move forward and to establish what was holding them back. My role as a participant researcher was helpful in grasping components of the participants' knowledge and facilitated a richer process of collecting qualitative data through the shared understanding of the experiences of the participant group.

A participatory researcher must help participants work collectively and make them feel empowered by the whole process (Gayford, 2003). This makes them grow and gives them courage to be creative and innovative. The primary skill required of the participatory researcher is the ability to listen carefully to discussions and to be able to assist by clarifying what was discussed, to take on the role of facilitator and to help to reconcile the differences that were created through dissonance (*ibid*). I managed to be a participatory researcher as I was able to encourage more active members to participate and to value their individuality and I also made sure that at the end of each activity participants reflected and made their own judgment of their sustainability practice. Through being involved I have gained an interest in youth's rights to participate. Participation enables learners to develop as people in many ways, learning new things and acquiring skills they might not have had previously.

3.4 Data generation techniques

This section presents the data generation techniques and tools that were used and reasons for using them. It also explains the advantages and limitations of each technique. The data generation techniques used in this study were a desktop literature survey, individual interviews, focus group discussions, observations and document review. Using a range of techniques, I could ask questions, observe activities as they unfolded, read and study the texts (Bassey, 1999). This also provided me with thick, rich and meaningful data.

3.4.1 Desktop document review

According to Bowen (2009, p. 47), document analysis is “a systematic procedure for reviewing or evaluating documents - both printed and electronic material”. This research used a desktop document review to answer the first sub-question and to gain a deeper understanding of the environmental concerns in Makhanda before conducting interviews. Denscombe (2003, p. 212) describes this method as “the first port of call”. The desktop study established the context for understanding the local community’s experiences and sustainability initiatives. A summary of the results from this study was included in a publication titled *Young life in seven cities – a scoping study for the CYCLES project* (Nissen *et al.*, 2017). Thus, this study contributed to a publication as part of the international CYCLES project. A document log was used record the documents used, content and the purpose of each document (see Appendix A). The document log shows the type of documents used and for what purposes, and the value that each document contributed to the research.

3.4.2 Interviews

Bertram and Christiansen (2015) describe an interview as a discussion between the researcher and the respondent or respondents using a set of pre-planned core questions. Interviews are flexible instruments for collecting data and allowing multi-sensory channels to be used: verbal and non-verbal. (Cohen *et al.*, 2011). There are three different types of interviews, namely structured, semi-structured and unstructured (Chambers, 1994). This study made use of semi-structured interviews because they allow the interviewer to change the order, rephrase, modify and repeat questions for clarification, and to probe with follow-up questions. Individual interviews were conducted with 6

out of the 28 eco-club members participating in the educational intervention. These were participants who had volunteered themselves. Initially there were 12 in total who had volunteered, and some were nominated by the eco-club members. Each of these 6 eco-club members was interviewed once at the implementation stage of the intervention, and discussion included reflection on this stage as well as the previous four stages in the learning process. Thus, there were 6 interviews conducted (see Appendix B for an example of the interview questions).

This was done to gain insight into the sustainability practices in which they were engaged and to consider how these were supported by the different stages of Wals's social learning process. The interviews were recorded and transcribed for analysis. Xhosa conversations or words were translated into English and presented in square brackets in the transcriptions (see Appendix C for an example of a transcribed interview). Conducting individual interviews allowed the youth to share their own understanding and to discuss situations from their own perspectives (Cohen *et al.*, 2007). This facilitated understanding of each member's opinions, experiences and contribution to the collective work on the sustainability project. The disadvantage of this method was that the questions were sometimes not clear to the 12- and 13-year-old children, so the questions needed clarification. I was able to ask the participants to elaborate further and ask more questions (Bertram & Christiansen, 2015).

As I was interviewing the youth about their experiences and their views it was generally through a conversation. For me to get the in-depth information I needed, I had to be friendly and encouraged them to be more relaxed (Bertram & Christiansen, (2015). These interviews can still be influenced by power relations and I, as their teacher, had a position of power. However, during the orientation stage I became part of the group as a participatory researcher which created a good rapport and reduced the potentially negative effects of unequal power relations.

3.4.3 Focus group discussions

According to Terre Blanche and Durrheim (1999, p. 388), a focus group is "a general term given to a research interview conducted with a group. A focus group is typically a group of people who share a similar type of experience". Rule and John (2011) add that focus group interviews are a formal/informal discussion which involves 8-10 participants and the researcher facilitates a discussion among the participants. Krueger and Casey (2000) explain that focus groups are used to develop a clear understanding of how people feel about the issue at hand. Focus group

discussions in this study were used to explore a range of ideas and to deepen understanding about the youth's everyday experiences and their experiences in responding to emerging matters of concern. The focus group discussion sought to record the learning experiences of the eco-club members on the garden project, their interactions, tensions, relationships, problem solving, conflicts, contradictions, perceptions, challenges and opportunities. Rule and John (2011, p.

66) explain the advantage of a focus group as an opportunity to “yield a large amount of data suitable for a case study”. By using small groups of 7 the focus group provided an atmosphere for participants to think clearly together and to generate new insights to probe discussions around the dynamics of sayings, doings or relatings before and during the implementation project. I was able to monitor and involve everyone in the discussions. I used 4 groups with 7 participants in each group in activity 1 and 2. The focus group discussions were recorded and transcribed verbatim.

The limitations of this method are that, if not well coordinated, it may result in only the dominant people participating. This may result in other participants feeling less comfortable and unwilling to speak out and contribute. I managed to involve all participants, even those who seemed to withdraw themselves, by asking them to elaborate if they confined themselves to one-word answers.

The first 6 focus group discussions (i.e. 3 introductory and 3 follow-up discussions) for the first 3 groups were conducted during the last three weeks of June before the end of term 2. The introductory and follow up sessions for the 4th group were conducted in the third and sixth weeks of term 3. (see Appendices D and E examples of transcribed introductory and follow-up focus group discussions). The last focus group discussion involved evaluating the whole project. This group had 12 participants from the four previous focus groups, who were chosen by the participants to evaluate the whole project. This also allowed in-depth discussion related to the actual practices and the experiences encountered throughout the project (see Appendix F). The approximate time for each of the focus group discussions was 90 minutes. This extended time was required for the active participation of group members.

3.4.4 Observations

Bertram and Christiansen (2015) state that observation is an opportunity for the researcher to get first-hand information by going to the location of study and observing what transpires there.

Observation helped me to oversee all stages of the study and enabled me to immediately deal with situations that needed ethical attention, reflexivity, or realisation of data.

The purpose of using observation is that the researcher obtains first-hand data, meaning that what is reported is what the researcher witnesses and records, rather than relying on what other people tell them (*ibid*). Observation is further explained as “... a research process that allows an investigator to gather ‘live’ data from naturally occurring social situations” (Cohen *et al.*, 2011, p. 456). Richards (2003) describes observation as the method of gathering data through direct interaction with an individual or group of individuals. During observation, I limited my participation. I shared my knowledge where I felt it was required but refrained from becoming involved in the focus group discussions to avoid contributing my personal opinion. Bless and Higson-Smith (1995) define two types of observation, namely non-participant observation and participant observation. I used both participant and non-participant observation in order to collect as much data as possible.

As a participant and non-participant observer, I was aware from the start of data collection of the importance of establishing trust and a good working relationship with the participants, and I believe I was very successful at accomplishing this. During the implementation stage where participants were involved in the physical digging, preparing the garden area, planting and watering the plants, I joined the group more as a participant observer, “a way to collect data in naturalistic settings by ethnographers who observe and/or take part in the common and uncommon activities of the people being studied” (DeWalt & DeWalt, 2011).

Observation was used to record activities designed to support Wals’ social learning framework. All the six stages of the intervention were observed. Throughout stages 1-3 of intervention, I used audio recordings to record the activities (see Appendix G for a transcribed observation). These observations were used for reflecting on activities, group dynamics and interactions among the youths themselves during the social learning intervention (Wilmot, 2005).

Ethnographers learn from “studying a culture sharing group at a single site” (Denzin, 2009, p. 110) and in this investigation elicit data in response to the research question. This meant that I could observe and understand the youth’s behaviours, feelings, attitudes and beliefs while being part of the group (Bless & Higson-Smith, 1995). As an observer I made sure that I prepared myself with a digital audio recorder, a camera and notebook. I only used the digital audio recorder in recording during interviews. Sometimes I could ask participants to take photographs of whatever activities

they would be performing. The photos revealed some moments where the youth were individually brainstorming and sharing ideas.

3.4.5 Document review of participants' work

According to Cohen *et al.* (2011, p. 249) “a document may be used as a record of an event or process. Such records may be produced by individuals....”. Cohen *et al.* (2007, p. 146) describe document analysis as “the process of summarising and reporting written data – the main contents of data and their messages”. Where appropriate, written documents from the intervention were used for analysis. The youth took photos, narrated, and reflected on what they were doing. The first photo narrative (Section 3.4 - Activity 2) was captured and analysed as a discussion that was recorded and transcribed, but the second photo narrative (Activity 6) was analysed as a written document. The written photo narratives were thus used as documents which helped to capture rich descriptions of the intervention activities. The documents were analysed as a way to substantiate findings or validate evidence from other sources (Bowen, 2009) (see Appendix H).

3.5 Summary of Data and Indexing

Additional data was generated during the different Wals' stages and the following system of indexing was used for data tracing of these different data sources. Table 3.1 shows the description of the indexing of each data generation method. The table also shows lists of the intervention activities for analytical purposes, the data capture methods, and the sub- questions which the different data sources responded to.

Table 3.1 A summary of learning activities and associated data generation methods

Wals' Stage and date conducted	Learning Intervention activity	No.	Data generation research Method	Captured How	Sub-question
Orientating 23/05/18 30/05/18	Activity 1 Discussion on the video clips and of issues (all 8 themes).	24	Observation 1	Audio recorded and transcribed notes.	2
06/06/18 08/06/18 15/06/18 30/07/18	Group discussion on the themes (about the themes and choosing the themes).	4	Follow-up Focus Group Discussions	Audio recorded and transcribed.	2
13/06/18 19/06/18 21/06/18 13/08/18	Activity 2 Discussion on the themes (Photo narrative 1) Discussion of the newspaper articles	6	Follow-up Focus Group Discussions	Audio recorded and transcribed.	2
Activating 01/08/18 08/08/18 15/08/18	Activity 3 Discussions: a..Handprints b. discussion with an expert	24	Observation 2a Observation 2b Observation 2c	Audio recorded and transcribed	2
Selecting 29/08/18 05/09/18	Activity 4 Discussion (SWOT analysis): energy and waste water and food	24	Observation 3a Observation 3b	Audio recorded and transcribed.	2
Implementing 12/09/18 19/09/18	Activity 5 SMART goals Action plan Actual implementation	24 12	Observation 4 and Individual Interviews	Audio recorded and transcribed.	2,3 and 4
Evaluating 26/09/18	Activity 6 Reflection through photo narratives 2	12	Observation 5 Document analysis of photo narratives 2	Audio recorded and transcribed. Notes from documents	3
28/09/19	Reflection 2	12	Focus Group Discussion Evaluation	Audio recorded and transcribed	3

The field work lasted for approximately 16 weeks, due to the school holidays and because the programs for high school youth made scheduling appropriate times difficult. This resulted in my concentrating on the eco-club members from only one school, although a few high school

participants stayed throughout project activities and implementation. For easy identification of data sources, I numbered all data sources and allocated them according to codes (Table 3.2 below).

3.5.1 Methods and abbreviations used.

The table below illustrates methods and abbreviations that have been used for as data sources for allocating codes.

Table 3.2 Indexing used for different methods

Method	Abbreviations used
Observation	OB 1a, OB 1b, OB 2a, OB 2b, OB 2c, OB 3, OB 4 and OB 5
Introductory Focus group discussion	IFGD 1a, IFGD 1b, IFGD 1c and IFGD 1d
Follow-up Focus group discussion	FFGD 2a, FFGD 2b, FFGD 2c and FFGD 2d
Focus group discussion evaluation	FGDE
Individual interviews	IP
Document analysis	DA, P1

The table above shows the coding system that was used to identify the method of data collection and the respondent during the Wals' stages in social learning. The respondents were identified as P1, P2, P3, P4 and so on.

3.6 Data analysis

Data analysis is defined by Cohen et al. (2007) as an activity in which one arranges and clarifies data. Furthermore, O'Leary (2004) defines data analysis as a way of progressing from raw data to significant grasp of the data. Analytical memos were used in the form of tables to analyse the data in a meaningful way. The data available for my analysis was the information from the desktop document review, interview transcriptions, focus group discussion transcriptions, audio

transcriptions from observations and documents created during the social learning activity. The research has 5 sub-questions which were responded to through 5 analytic phases.

Phase 1 addressed Sub-question 1: What is the social-economic and educational status of Makhanda and Makhanda youth? It was aimed at deepening understanding of the socio- economic, educational and political issues experienced by Makhanda youth. A desktop document review was used in this phase to create a contextual profile of Makhanda. The contextual profile included the challenges that are faced by Makhanda youth in living sustainable lifestyles. Table 3.3 shows the categories that emerged from the analysis. Data from the desktop review were analysed using the codes below. Inductive analysis was used for this contextual analysis phase.

The following are the themes that emerged from the document review:

- Demographics
- Poverty
- Housing
- Education
- Employment

Table 3.3 Category List – Phase 1 analysis of socio-economic and educational status

Categories	Code
Demographics	DEM
Poverty	POV
Housing (Relationships, home life, energy	HOU
Education	EDU
Employment (unemployment of parents, statistics, socio-economic status)	EMP

Phase 2 addressed Sub-question 2: What are the matters of concern in sustainability practices, issues, risks and practices emerging from the [socio-economic and educational] context? Inductive analysis was used for this phase, exploring sustainability matters of concern emerging from the socio-economic data presented in Phase 1. Data were analysed from the focus group discussions,

observations and some of the intervention activities from Wals' social learning stages 1, 2, 3 and 4. Data were analysed to develop six detailed case narratives using six themes. Data analysis was organised using analytical memo A (see Appendix I). The themes used were pre-determined as explained in Section 1.3, contributing to the international CYCLES study (the themes were pre-determined by the broader study).

Phase 2 reviewed the different environmental matters of concern amongst youths in Makhanda. For this data analysis process the categories that were used were based on the above themes outlined from the CYCLES project. The categories that emerged from the analysis are shown in Table 3.4.

Table 3.4 Category list- Phase 2 analysis of matters of concern

CATEGORIES	CODE
Energy	Emoc
Mobility	Mmoc
Leisure and communication	Lcmoc
Waste	Wsmoc
Water	Wamoc
Food	Fmoc

Phase 3 addressed Sub-question 3: What are the potentials and challenges of the pedagogical intervention at each stage in the process of social learning? This analysis had two parts. The first part was analysed inductively using analytic memo B (see Appendix J). It involved triangulation of focus group discussions, semi-structured interviews and document analysis. During this phase, I was able to explore what enables and constrains the social learning process, with a focus on each phase of analysis - what the participants said during discussions and interviews, what was observed during discussions, project implementation and evaluation and what was read from the documents (of photo narratives where participants were evaluating what they were doing and lessons learned). Their reflections on the successes of the activities set up for them to help to establish the sustainability practices were used to answer Sub-question 3. The category sheet below was developed with data from the nine focus group discussions, individual interviews and document analysis of the second set of photo narratives. It was analysed from the themes in the categories

listed below. The different categories were used to help in the analysis and in providing answers to Sub-question 3.

The second part of this phase also focused on the theme selected by the learners to take further as a response to the sustainability issues and risks they had identified and explored in Stages 2, 3 and 4 of the social learning interventions. The selected themes were food and water, where the youth elected to respond to the issues identified for this theme by starting a gardening project in one of the schools. This phase drew on data generated during the responsive stages of Wal's social learning cycle, namely the implementation and evaluation stages (stages 5 and 6 respectively). The data analysed were generated from the observations, focus group discussions (evations), interviews and document analysis of learners' narrative photos taken during the implementation stage. The action plan [Activity 5 of the implementation stage of the social learning cycle] briefly explained what the youth did, and their reflections on what did and didn't work regarding the sustainability practices which were used in Phase 5.

Table 3.5 Category list – Phase 3 analysis of potentials and challenges of Wals's social learning cycle

POTENTIALS	CODE		CODE
Potentials in Orientating	PO	Challenges in Orientation	CO
Potentials in Activating	PA	Challenges in Activating	CA
Potentials in Selecting	PS	Challenges in Selecting	CS
Potentials in Implementing	PI	Challenges in Implementing	CI
Potentials in Evaluation	PE	Challenges in Evaluation	CE
Potentials in Evaluating	PE		CE

Phase 4 addressed Sub-question 4. Practice architectures was used to analyse the data abductively. The youths' sustainability practices were presented as bundles of 'doings', 'sayings' and 'relatings' through Wals's social learning stages. Data from focus group discussions, document analysis of photo narratives and observations were triangulated. This was a second level analysis of findings from the previous phases as well as a full analysis of the raw data. The analysis was made with special attention to the sayings, doings and relatings which constitute enabling and constraining preconditions for the conduct of sustainability practices. The analysis was also composed with particular attention to the sayings, doings and relatings that comprise these

practices, for different youth participating in the project in diverse ways and with diverse viewpoints. The analysis also focused on how sustainability practices were formed by (and form) the practice architectures that hold them in place; the architectures that enabled or constrained interactions through cultural-discursive, material-economic and socio-political arrangements that relate to the sites where the practices were taking place. In order to keep track of how I was interpreting practice architecture, I used indicators that are outlined in Table 3.6.

Table 3.6 Action and practice architectures indicators

Action/Praxis	Indicators
Sayings	Involve language used during the project implementation. Knowledge (sayings) regarding sustainability issue at hand is shared among the participants within the project. Relevant and constructive ideas being shared. Language used to be understood and comfortable with every participant.
Doings	Type of activities and actions in physical space–time. We look at what the participants will be doing within the project (activities). What activities are conducted? What is the project aiming at achieving at any given time? Are there any connections between activities? Are there any skills distributed among the members? Is there any interconnectedness of activities? Is the use of available resources for the project cost effective? For example, the use of recycled materials to be fully utilised.
Relatings	Synergy and network of relationships with other people are established among stakeholders. - The relationship between human and non-human entities. How the participants have become agents of change within the environment.
Practice architectures	Indicators
Cultural-discursive arrangements	Describes the language which is being used. Observing the use of language as a medium of communication (English and isiXhosa). Is the language used by participants, the expert talking about sustainability practices, the facilitator and or community members easy to understand?
Material-economic arrangements	Having to do with objects and spatial arrangements. Looking at the site where the project is being implemented, time allocated for the activities and the resources available.
Social- political arrangement	Having to do with relationship prevailing in the practice, Observe the dynamics which exist within the relationships. Observe protocols established for working in the group. Looking at the network of relationships involved in particular activities that contribute to sustainability practices.

For this research I used both inductive and abductive approaches for data analysis. Gray (2013, p. 400) defines the inductive approach to research as “the development of theory or inferences from observed or empirical reality”.

The analytical approach was formed making use of the theory of practice (Schatzki (2005)) and the theory of practice architectures by Kemmis & Heikkinen (2011). Sub-question one and two used an inductive approach and described the eight themes namely: ‘education’, ‘energy’, ‘home-life’, ‘mobility’, ‘leisure and communication’, ‘waste’, ‘water use’ and ‘food’.

According to Danermark *et al.* (2019) abductive analysis is “to interpret and recontextualise individual phenomena within a conceptual framework or a set of ideas, to be able to understand something in a new way by observing and interpreting this something in a new conceptual framework” (p. 80). In this study, a practice architectures theoretical framework was used to analyse Phase 4 abductively. Table 3.7 below summaries characteristics of the four analytic phases.

Table 3.7: Summary of the four analytic phases

Analytic Phase	Sub-Question	Data Used	Theory used (if any)	Abductive / Inductive
Phase 1	1. What is the social-economic and educational status of Makhandia youth?	-Desktop review of documents	None	Inductive analysis around information from the 8 themes.
Phase 2	2. What are the matters of concern in sustainability practices emerging from this context?	-Desktop review of documents -Detailed 8 Case narratives based on observation of stages 1, 2, 3 and 4 of Wals’s social learning.	Social learning	Inductive analysis using Information from participants about the matters of concern

Phase 3	3. What are the potentials and challenges of the pedagogical intervention at each stage in the process of social learning?	-Observation -Documents -Interviews -Focus group discussions -Document analysis	Social learning	Inductive analysis Descriptive narrative highlighting possibilities and challenges (what worked and what did not work). Descriptive analysis resulting in detailed case narrative on food and water.
Phase 4	4. What are the dynamics of practice architectures from the chosen sustainability project?	-Desktop -Observations -Participants' documents analysis of photo narratives 2	Practice architectures	Abductive analysis - Analysis made through triangulation of all previous data to describe whether practice architectures have enabled or constrained interactions through cultural discursive, material-economic and socio/political arrangements.

3.7 Ethical considerations

3.7.1 Respect and dignity

In this research study, I ensured that youth were able to express themselves freely and to openly criticise each other without causing harm or hurting each other's feelings. I also ensured that all participants were treated with dignity and respect and were allowed freedom of expression. This is encouraged by Bassey (1999) who states that ethical consideration in schools should be guided by respect for truth, respect for persons, and respect for democracy. McNiff, Lomax and Whitehead (1999) stress that you must ensure that the rights of participants are protected, that they are comfortable and aware that they may withdraw from the research if they wish to do so. To safeguard the privacy of participants, I have used pseudonyms where necessary of course, during their deliberations they were using their real names when speaking to each other. This is supported by Denzin and Lincoln (2008, p. 193) who state that "confidentiality must be assured as the primary safeguard against unwanted exposure". I assured participants that confidentiality of their identity and privacy was protected.

At the outset of the study, I committed to anonymity by stating that I would not use the names of the participants. Instead, participants were referred to by numbers. When the participants were engaged in discussion, they would naturally refer to each other using their real names, but in the transcripts, I had to use pseudonyms (Cohen *et al.*, 2011). I chose to use code names such as 'Participant 1' (P1), for example, to refer to individuals. Similarly, I committed myself not to show photographs that reveal the faces of participants, even though none of the photographs chosen for the study showed participants or their families in a bad light. I received permission from the parents to show the face of their child in some cases. The permission from one of these parents is shown in Appendix K. In other cases, where permission was not obtained, faces in photographs have been blurred.

3.7.2 Transparency and honesty

All participants were informed about the intention of the research, its expected duration and their rights as participants. I also explained how the research would benefit both the school and the learners (participants). I sought participants' consent to use the activities for research purposes and to record and conduct interviews. I explained the reasons for the interviews. Before the research commenced, I asked for permission to conduct my research in the two schools from the Department of Education in the Eastern Cape Province as well as the Makhanda District Department of Education (see in Appendix K an example of a letter permission sent to the DoE). After being granted permission from the Department of Education, I then obtained permission from the two schools where the research was to be conducted (see Appendix L). Permission was obtained from parents and participants before taking photographs and audio recordings, as suggested by Cohen *et al.*, (2011).

3.7.3 Accountability and responsibility

As a leader, I am aware that I hold a position of responsibility and trust. I remained conscious not to abuse my power as a researcher, nor to take advantage of minors by not following ethical procedures. I was very careful to ensure accountability and responsibility of this research study, as discussed below. I was obliged to maintain complete integrity regarding data generation for my research. Dane (1990) highlights that there is a need to protect the rights of the participants

from physical and psychological harm. This was done by ensuring that, as a researcher, I protected the participants and ensured that they had safe transport home after club activities. I was always with them when they were using garden tools. To protect them from psychological harm I ensured that their opinions were respected, and that exploration of their practices did not negatively affect their self-esteem.

3.7.4 Integrity, academic professionalism and researcher positionality

I followed the correct channels to obtain approval and formal permission to conduct the research. I wrote formal letters to the department of education provincial offices, district offices and school principals asking for approval to work with eco-club members in their schools (see Appendix L for an example of a letter to the school). Since I was working with minors, informed consent letters were written to parents and consent forms were supplied to the club members for them to fill in and return (Cohen *et al.*, 2011) (see Appendices M and N). I also obtained permission from parents to use some photographs in the research without blurring the participants' faces (see Appendix O).

My position as a researcher was clearly explained to the participants, that I was a participant observer (Bertram & Christiansen, 2015) because of my role as a facilitator taking an active part in the project implementation. The outcome of the research was influenced by my intervention as researcher. For example, I guided the process through the activities designed to support the social learning process, and within the activities I asked leading questions and made suggestions if there were impasses or hesitation.

3.8 Validity

3.8.1 Triangulation

Triangulation in research is about gaining different perspectives on a phenomenon. Triangulation is important for strengthening validity (Kerfoot & Winberg, 1997). Triangulation requires bringing together data from different methods and searching for patterns and contradictions. Analysis for Sub-question 3 used different methods to gain insight on the matters of concern and how children and youth responded to these concerns using focus group discussions, observations, individual interviews and document analysis, for example. This helped me to gain different viewpoints on the sustainability practices that emerged after a theme was selected for a project. Further

triangulation can be seen in other analytic phases responding to the other sub-questions, comparing what the participants said with the data emerging from the observations.

3.8.2 Member checking

I gave the participants the transcribed scripts of the interviews and focus group discussions for them to check whether what was written was a true reflection of what they had said and what they would like to have reported (Wilmot, 2005). I informed participants that if there is any information which they may not want to be shared, this would be removed from the research. This ensured that the tools that I used would not put the participants at risk. They read the scripts and no changes were made.

3.8.3 Peer review

Peer review is significant to ensure credibility, transferability, dependability and conformability of the research study. I gave my critical friends from the Master of Education (MEd) course my work to review during the stages of the research study. During MEd sessions I presented my research to the other students. This helped me to receive critical feedback and to develop academically.

3.9 Conclusion

This chapter discussed the research design and research processes that were used to collect data in the research. The methodological approach, namely an interpretivist case study that was explored through qualitative methods, was discussed. The interventionist approach to the study was also discussed. Wals *et al.* (2009) social learning processes were explained, illustrating how this framework was actioned for mobilising sustainability practices. The five main sources of generating data were discussed in detail in this chapter namely: desktop document review, focus group discussions, observations and document review. Summary of data and indexing followed by data analysis were described, and it was explained that for the data analysis I used two main modes of inference for analysing data, namely inductive and abductive modes. The chapter concluded with a discussion of ethical considerations and validity. All the findings that emerged from this research study will be discussed in the following two chapters (Chapters 4 and 5).

CHAPTER FOUR: DATA PRESENTATION AND DISCUSSION OF WALS'S SOCIAL LEARNING FRAMEWORK AND PRACTICE ARCHITECTURES

4.1 Introduction

This chapter presents data generated through Wals's social learning framework activities and the research process in response to the research questions as highlighted in Chapter 1. The chapter starts with a section reporting on the social-economic and educational status quo of Makhanda with respect to eight themes namely; 'education', 'home-life', 'energy use', 'mobility', 'leisure and communication', 'waste', 'water' and 'food'. This constitutes Analytic Phase 1 of the research, which was the baseline desktop study conducted prior to meeting with youth. This is in response to Sub-question 1 of the research, exploring the activities and learning that emerged from the first 4 stages of social learning.

Phase 1 of data analysis was then followed by Phase 2 analysis in Section 4.3, which presents detailed case narratives on the eight themes, explored by means of photo narratives detailing the youth's daily lives and matters of concern with respect to sustainability issues and risks. The first 4 exploratory phases were used to generate data for this phase, which responds to Sub-question 2 of the study. The same 4 phases are used to organise the presentation of the data in this section.

Phase 3 of the analysis is presented in Section 4.4 of this chapter, addressing Sub-question 3 of the study. The data generation for this phase occurred during the last 2 phases of Wals' social learning framework: namely, 'implementation' and 'evaluation'. The presentation of the data in this section is organised according to these learning phases. This was done after choosing the theme to be carried forward as a project implementation.

Phase 4 of the analysis is presented in Section 4.5 of this chapter and addresses Sub-question

4. In this section I present data illustrating the dynamics of the enabling and constraining sustainability practices which emerged from the themes of water and food, and the gardening project established in response to matters of concern raised during exploration of these themes. Data analysed were extracted from observations.

4.2 Socio-economical and education status quo

The data reported in this section were yielded by the desktop study prior to the research intervention (see Section 3.5.1).

4.2.1 Demographics

According to Census 2011, Makhanda's population is estimated at 50 217, with about 23.2% children (0-14 years), 6.2% elderly people and 69.4% working age (15-64) (Statistics South Africa, 2011). Of the total population of Makhanda, 53% are women of which the majority are between the ages of 20 and 35 whereas men represent 47% of the population (Statistics South Africa, 2011). The dominant language in the municipality is Xhosa (85,5%), followed by Afrikaans (13,3%).

There are 21 388 households in Makhanda with an average of 3,5 persons per household, 49,8% of households have access to tap water, and 35,4% have water on their property (Statistics South Africa, 2011). Of the 28 494 economically active (employed or unemployed but looking for work) people in Makhanda, 32,5% are unemployed, Of the 7 777 economically active youth (15–34 years) in the area, 42,2% are unemployed (*ibid*).

Households with no income or occupied by the elderly are entitled to free basic services. Each household is entitled to 6.1 kW (Statistics South Africa, 2011) of electricity monthly. A study conducted by Statistics South Africa (2012), reported that the majority of the households had access to amenities like television sets (79.8%), radios (70.1%), computers (26.1%) and refrigerators (76.2%), although these statistics may have changed over time.

The distribution of the population pyramid by age and sex for the Eastern Cape shows that there are fewer girls than boys between the ages of 10 and 24 years (*ibid*). The pyramid is narrow at the base (which represents ages 0-14). This indicates either that children have migrated with families to other provinces or that there is a low birth rate in the city (Statistics South Africa, 2011).

4.2.2 Education

In Makhanda, in the age group 20 years and older, 6% have completed only primary school, 35.4% have some secondary education, 24.1% have completed matric, and 14.5% have some form of higher education. 6,3% of those aged 20 years and older have no form of schooling whatsoever (Statistics South Africa, 2012).

The Eastern Cape schooling system continues to face a number of challenges, perhaps best demonstrated by poor Grade 12 pass rates, most especially in Mathematics (Department of Education (DoE), 2012). According to the Eastern Cape Department of Education 2011, 24% of the Eastern Cape learners who enrolled for Grade 11 in 2008 dropped out before the end of the year. In 2009 and 2010, 36% of all enrolled Grade 11 learners in the province dropped out with only 59% being promoted to Grade 12 (DoE, 2012). The South African Schools Act of 1996 made schooling for all South Africans compulsory for the first 10 years of basic education. This is from Grade R to Grade 9 (6 years to the age of 15 years) (Statistics South Africa, 2016).

In Makana 22.7% of youths have a matric or higher qualification. This is attributed to the fact that a large number of university students and highly qualified lecturers reside in Makhanda (Makana IDP, 2020). Makana is among the municipalities who have the smallest proportion of people without schooling, at 8.2% (*ibid*). This is a notable increase from 5.3% in 2011 as reported in Table 4.1.

Table 4.1 Education attainment levels: Education level 20 year

Socio analysis	Economic Makana	(Stats Makana SA 2011)	Stats percentage %	SA Growth p.a
No schooling	5 373	3 594	5.3	-3.3
Some primary	9 581	18 510	23.3	9.3
Complete primary	4 012	4 494	6.6	1.2
Some secondary	14 233	23 154	34.2	6.3
Grade 12	7 707	11 817	17.4	5.3
Higher	4 741	5929	8.8	2.5

(Statistics South Africa, 2011)

Statistics 2011 reports that 5.3% of the population over 20 years of had not attended school. The figure is average in relation to other Provinces and also shows a decrease of 3.3% p.a since 2001 when 5373 of the population over 20 years had not attended school at all (Statistics SA, 2016). The general direction from 2001 to 2011 indicates that pedagogically there is hope. In the Eastern Cape province, according to Stats 2011, the drop-out rate from school has been 23% of pupils between 7 and 18 years of age. Some reasons for this might include a lack of money for school fees, inability to perform academically at school or having too many family commitments. Families lacked money for school fees, 14% suggested that education is useless, 19% of the girls' reasons were family commitments and marriage and 8% of girls gave pregnancy as the reason (Statistics South Africa, 2011). Dropping out of school is a major concern for youth, leading to lower quality of life. According to Dowrick (2003), youth leave school due to poor grades, failure, having to repeat a grade, poor attendance, low self- determination and a dislike of school.

In an effort to cushion parents from the impact of poverty and inequality, the South African government introduced the school nutrition programme to provide nutritious meals to learners so as to improve their ability to learn (DoE, 2012). Additionally, the government is trying to curb the inequality issues in terms of access to resources in the schools and infrastructure (Alebiosu, 2005). The rising cultural diversity in educational institutions requires that educators train learners with cultures, backgrounds and languages that are unfamiliar to them (Meier & Hartell, 2009). Black learners in a largely white school feel it is anticipated of them to adapt and accept the existing philosophy of the dominant culture (*ibid*). By merging former white towns with townships and integrating privileged areas with less developed areas, the intention was to reduce inequalities, promote racial integration and to ensure equal sharing of services, including educational services (Siyongwana, 2020).

The right to a basic education is a fundamental human right enshrined in the South African Constitution (Republic of South Africa, 1996). South Africa has also ratified various international conventions in terms of which it is compelled to provide free education; these include the United Nations Convention on the Rights of the Child (<https://www.unicef.org/child-rights-convention>), the African Charter on the Rights and Welfare of the Child (<https://au.int/en/treaties/african-charter-rights-and-welfare-child>), the Millennium Development Goals (https://www.who.int/topics/millennium_development_goals/about/en/), Education for All and the Dakar Framework for Action (Tamatea, 2005).

Most primary and secondary government schools provide free education while private schools are regulated by the government and parents can apply to be exempted from paying fees. “With this free education privilege comes quality of education” (Chisholm, 2005, p. 212) and “inequality of outcomes in terms of pass rates and university admissions between schools” (Lemon & Battersby-Lennard, 2011, p. 106). Access to these privileged schools is limited by the levying of high school fees” (Chisholm, 2005 p. 211). In terms of basic education, Lemon (2004, p. 170) recognises “the need for a major redistribution policy to build a unitary education system in the country”. African universities are expensive for learners and their families, largely owing to government underfunding. Notwithstanding the fact that tertiary education is out of reach for many, South African economist Dawie Roodt argues that South Africa is distant from attainment of the completion stage of “free” higher education, due to a fragile economy (Moerane, 2015).

4.2.3 Home-life

The poor state of living conditions in Makhanda is indicative of the high levels of poverty and unemployment. According to Makana Municipality’s 2014-2015 Integrated Development Plan (IDP), 45% of households were poor with an income of less than R801 per month, therefore technically falling under the poverty datum line (Makana IDP, 2015).

The population lack buying power which makes it difficult to exploit local economic development opportunities and the situation implies a high dependency on social grants. Assuming that no individual qualifies for more than one grant, then 45.5% of the total population is receiving a social grant (*ibid*).

In Makhanda, 73.2% of households use flush toilets, 6.8% use pit toilets with ventilation pipes, 10% pit toilet without ventilation, about 5.4% use bucket toilets supplied and cleaned by the local municipality (Statistics South Africa, 2012), and 0,3% or 48 000 households use ecological toilets, also known as urine diversion/separation or composting toilets. Given the scarcity of water in South Africa, this type of toilet is expected to become much more common in future (*ibid*).

According to the 2007 Community Survey, in the Eastern Cape the percentage of households living in shacks not in backyards in 2007 is 3.1% (also 3.1% in 2001), compared to 3.8% in 2007 for those living in formal dwellings (down from 3.9% in 2001) (The Housing Development

Agency (HDA), 2007). About 110,000 children under the age of 18 live in shacks not in backyards, making up 35% of the total number of people who live in such dwellings in the province (*ibid*).

4.2.4 Energy use

In spite of extensive electrification over a decade ago, and the view that the use of fuelwood was declining, most households continue to use firewood for cooking and heating, whereas electricity is favoured for lighting (Shackleton *et al.*, (2007). A high proportion of households use electricity for cooking and heating, while the less urbanised areas rely heavily on paraffin, firewood and candles for these functions (Moller, 2000).

Most residents in Makhanda rely largely on electricity, gas and paraffin for cooking, with 89.51% using electricity, 3.11% gas and 7.38% paraffin (Statistics South Africa, 2011). For lighting, 90.2% use electricity, 5.3% use paraffin and 4.5% candles (Statistics South Africa, 2011). Some poor households are entitled to free basic electricity, of which they receive 50 kWh per month (Makana IDP, 2015).

4.2.5 Mobility/Transport

The importance of transport for urban youth is underlined in Sustainable Development Goal (SDG) 11.2, which aims at access to safe, affordable, accessible and sustainable transport systems, with special attention to the needs of those in vulnerable situations (specifically including children) (Bagoury & Yousef, 2018). Youths continue to be excluded from transport planning globally, notwithstanding the vital significance mobility for their access to education, health and other services (*ibid*).

Makhanda is a small area that does not have transport specifically catering for youth, so they use public transport to move around. The following forms of transport services are used by residents in Makhanda: coaches and buses (such as Greyhound and Intercape) are used for longer distance inter-town transport, although they do not have offices in the town (Makana IDP, 2015); within the town, the primary form of transport consists of minibus taxis that are locally operated (associated with Uncedo, the taxi organisation) (*ibid*).

The Makana IDP states that, “The transport sector in Makana has limited opportunities for growth, partly as a result of its small and stable population” (2015, p.135). Because of the small size of Makhanda, around three-quarters of youth are estimated to walk to school and there are limited options for public transport (*ibid*). However, safety remains a major concern for youth on the streets in South Africa, with concerns about child trafficking, rape and violence. In response, and to reduce the barriers to education, the South African government offers ‘scholar transport’ for children that do not have access to a school nearby (SA Stats, 2011).

However, not all learners from far afield are able to access this transport if a child is not sent to the nearest school (*ibid*). Nearly three-quarters (72%) of South Africa’s learners walk to school, while 8% use public transport and 2% use hired transport or transport provided by the government (Hall & Lannoy, 2014). According to Stats South Africa’s 2014, General Household Survey (Statistics South Africa GHS), learners walk long distances to school and get to school late. Such long daily walks or the high costs of transport to and from school result in early drop-out from school or consistency of attendance. Transport organisers and policy makers rarely consider issues, such as activities, patterns and household-related problems of the youth (Mbatha, 2005).

4.2.6 Leisure and communication

Makana Municipality has built sports stadiums for sports and recreation. There are 3 fields for soccer, 2 rugby fields and a basketball court, and another field which is still under construction. All the fields need upgrading, especially lighting stands and ablutions and some need levelling (Makana IDP, 2015). There is one cricket stadium with turf wicket and practice nets. The Indoor Sport Centre is a new facility which is functional for all indoor sporting activities and has a gym (*ibid*).

The communications sector has grown whereas the transport sector has decreased between 1995 and 2007 (Makana IDP, 2015). There is a new recreation centre named the ‘Youth Hub’ which is in the Joza township which caters for everyone in the community (*ibid*). Joza township is in Makhanda East and is one of the locations/townships in Makhanda. Youth Hub is offering computer lessons to learners who are computer illiterate and do not have computers in their schools (Makana IDP, 2015). The main aim is to stimulate youth with a variety of after school activities (*ibid*). This is to promote digital citizenship within the community. It is also intended to establish a space for disadvantaged children and youth to get the opportunity to access information

technology on an equal footing with other youth from fully resourced schools (private schools). It only catered for primary school kids within the age range of 12 - 17 years (Grade 6 - 11) but from the beginning of 2020, it opened its doors to all children and youth. The targeted groups from schools have access to computers from 3pm to 4pm and then from 4pm to 5pm. The centre is open to everyone who wants to use the computers. On Saturdays, it is open from 9am to 1pm. Some of the youth who failed to qualify for university entrance due to low mark aggregates were accepted into the Youth Hub programmes. The Youth Hub centre also has other activities for young children including a toy library, a chess club, a music project in marimba and other musical instruments, a road traffic training centre and sporting activities. It is a safe centre for youth to meet as there are facilitators and instructors to assist and look after them (<https://www.awarenet.org/joza-youth-hub-jyh/>, 2017).

The key challenge is that any infrastructure which does not have security is sometimes vandalised. In Makhanda East, there has been a park built for leisure purposes, but this has been vandalised and it is now an open space with nothing left. For community development, Rhodes University also has comprehensive information and communication technology (ICT) infrastructure which is connected to public libraries (Makana IDP, 2015). The way children and youth communicate is through socialisation at school and in the community, and by using smartphones for social media such as Facebook, WhatsApp and Instagram (Mason, 2017). Youth get internet access at school and at 3 local public libraries.

4.2.7. Waste

According to Clearly (2019), in Makhanda garbage from households is put in black plastic bags which are provided by the municipality weekly. When the bags are full of garbage households put them outside by the roadside to be collected by a municipal truck (Makana LEAP, 2005). Sometimes garbage is left at some collection points for days without being collected. The garbage starts to decompose, stinking and attracting flies and creating a serious human and environmental health hazard (*ibid*).

The National Waste Management bill was passed in 2007. The bill reconsidered and reinforced present bylaws relating to waste management in the country and highlighted environmental awareness and sustainability (<https://cer.org.za/virtual-library/legislation/national/pollution-and-waste/national-environmental-management-waste-act-2008>). According to the waste

management laws of South Africa it is the responsibility of the municipality to ensure that the solid waste management process in every community is effectively carried out (Department of Environment, 2011).

4.2.8 Water

South Africa is a water scarce country (Crookes *et al.*, 2018). In addition, Eastern Cape province in South Africa has been facing a severe drought since 2015 which has had a major socio-economic impact on the large deprived rural population, as well as urban areas where supplied water services have broken down in (Mahlalela *et al.*, 2020). Household water security challenges related with water service delivery in South Africa are notably difficult, multi-scaled, including many players and elements and having no single solution (Weaver *et al.*, 2017). Water outages, combined with Makhanda residents' perceptions of poor water quality, have resulted in rising frustrations and lack of trust between the municipality and residents, culminating in service delivery demonstrations (*ibid*).

It is in Grahamstown East, (a poorer socio-economic side of town) where water service delivery disappointment is badly felt as the majority of the poor population lack the ability to mitigate against supply shortfall (*ibid*). Reconstruction and Development Programme houses need household water connections, and this contributes to added pressure on the already overstrained water supply system (*ibid*). Challenging socio-economic issues resulted in many residents being unable to pay for water services (Statistics South Africa, 2011). According to Stats SA (2018) approximately 46,3% of households in the Eastern Cape had access to piped water in their dwellings, an additional 28.5% accessed water on site whereas 12.3% relied on shared taps and 1.9% on neighbours' taps, while 2.7% of households fetch water from rivers, streams, still water pools, dams, wells and springs (*ibid*).

The majority of households have taps as their main water source. According to Statistics South Africa (2011), 51.9% have piped water inside the dwelling. Flush toilets connected to sewerage (73.2%) have been installed in Makhanda. Accessibility to clean water is a great challenge in Makhanda city and townships. Makana's ageing infrastructure adds to huge water losses and theft of copper pipes contributes to the problem. In certain areas where water is piped uphill, the low pressure causes frequent water cuts. These factors make the supply uneven and sometimes unreliable.

Grocott's Mail (2019), reports that "with municipal water supply running critically low and dam levels continuing to drop, residents' best hope is for much-needed rain". Rhodes University has warned that if the municipality fails to take crucial action to alleviate the city's water crisis, the university could be forced to close (<https://www.grocotts.co.za/2019/01/21/residents-queue-for-hours-as-spring-slows-to-a-trickle>).

4.2.9 Food

South Africa is facing a rapid increase in food prices while household income is rising at a slower rate. The result is that an increasing number of South Africans are struggling to meet their basic household requirements (Musemwa *et al.*, 2013). About 20% of South African households are projected to have insufficient or severely insufficient access to food (Statistics South Africa, 2014).

Hunger in South African cities also has a gender dimension, with female households being the most food insecure and most vulnerable (Battersby *et al.*, 2009). According to Stats SA (2017) report, after 2011 there was a national increase in the number of people (from 11 million to 13.8 million) living below the 2015 poverty datum line of ZAR 441 per person per month. The Eastern Cape province is one of the provinces in South Africa that have been identified as having the greatest number of persons vulnerable to poverty and food insecurity (*ibid*).

In the Eastern Cape province, home gardening is recognised as the most promising approach to help cope with food problems in households (Mcata, 2019). Food production in urban areas is one of the fundamental features in safeguarding enough food for families; this is how poverty can be alleviated (*ibid*).

The Eastern Cape province is responsible for one of the largest school nutrition programmes in the country, providing 1,6 million learners with free school meals daily (National School Nutrition Programme (NSNP), 2015). Due to the sizable population of learners who are living below the national conventional poverty levels, the Eastern Cape is in need of the support offered by the NSNP (*ibid*). In 2013 the Department of Education reached 95% of learners benefiting from nutrition programmes and reports that it surpassed its target of providing nutrition to 60% of the poorest learners (DoE, 2012).

The NSNP is implemented by the Department of Basic Education under the Care and Support for Teaching and Learning programme and in cooperation and collaboration with the Provincial

Education Departments (PEDs) (NSNP, 2015). Under the school feeding scheme schools are required to “provide meals on all school days; nutrition education which promotes healthy lifestyles among learners and school communities; and school food gardens which promote food production, teaching schools on how to grow food” (*ibid.* p. 13). This is done to enhance the quality of education and well-being of learners. Learners get at least two meals per day (*ibid.*). “The Department of Basic Education primary school feeding scheme operates at about 80% of primary and high schools” (South African Human Rights Commission, 2010, p. 52). In view of the current socio-political situation, such as poor service delivery from the municipality, there are several groups which are coming up with sustainable means for the poor. The Grahamstown Area Distress Relief Association (GADRA) is a local Non- Governmental Organisation (NGO) with a mission to transform individual lives through education programmes. Meals-on-wheels Community Services South Africa (MOWCS SA) is a non-profit organisation which aims to provide meals to the poorest of the poor. In Makhandla, it provides meals twice a week. That is every Tuesday and Thursday to people in need by delivering the meals to a common place where people would come to collect the food (<http://www.mealsonwheels.org.za>). The Department of Social Development has centres in all towns which seek to address malnutrition, they prepare, cook and serve nutritious meals to all community members who are underprivileged during weekdays.

Tackling malnutrition is not only about safeguarding access to food, but about ensuring that there is access to sufficient types of and diversity of food (Jowell, 2011).

4.2.10 Other

Approximately 56% of South Africa’s population live in poverty (Statistics South Africa, 2017). Makhandla has poverty-stricken communities. This is coupled with unemployment and lack of access to basic infrastructure such as formal housing, sanitation facilities, recreational facilities, water, electricity, education and security (Alebiosu, 2005). 47% of Makanda’s total population is unemployed though 36.6% of the employed earn R6 400 or less per month. Six out of ten individuals in the province have been classified as poor using Census 2011 data, with a poverty gap of 27,2% and poverty severity of 15,3% (Statistics South Africa, 2014).

Makhandla has seen an increase in unemployment among the community living in shacks and sub-standard houses. Statistics South Africa (2011) reveals that 17.6% of the potential workforce is unemployed and an additional 45.8% were not gainfully employed in 2011. According to Statistics

South Africa, (2011) the Eastern Cape had the second highest poverty levels, with 47.5% of the households in that province living below the upper-bound poverty line, with the poverty gap at 19.7% and the severity of poverty at 10.6%. The remaining 36.6% of individuals were employed. The overall dependency ratio is 5 persons per ten population of working age. Statistics South Africa (2011) also reflects that 5 705 of the youth in Makana are unemployed. Below is the table that shows Makana employment levels. Table 4.2 illustrates the employment level in Makana.

Table 4.2: Employment level

Socio Economic analysis	Makana area (Statistics South Africa, 2011)	%
R1-R400	2 789	5.5
R401- R800	2 565	5.0
R801-R1 600	8 573	16.8
R1601-R3 200	4 610	9.0
R3 201 – R6 400	2720	5.3
R6 401 - R21 800	2 515	4.9
R12 801 - R25 600	1 627	3.2
R25 601 - R51 200	535	1.0
R51 201 - R102 400	127	0.2
R102 401 – R204 800	79	0.2
R204 801 or more	50	0.1

Source: Statistics South Africa (2011)

Statistics South Africa 2011 reported in the Makana IDP (2015) that the unemployment rate in Makana is 45.5% compared with Makhanda District, and slightly higher than the Eastern Cape Province. Due to unemployment and underemployment in Makhanda, there is poverty within the community. Inequality in South Africa is extreme as this is evident comparing income levels and looking at the geographical/demographical distribution of poverty (SA Stats, 2011). Support grants also assist the children's well-being, allowing them to buy some necessities. The grants exist to support children aged 14 years and under, and to help elderly people aged 60 and older if they earn below a specified annual income (South African Human Rights Commission, 2010). Makhanda is

a small town with limited industry and many of the trading shops are closing due to a lack of business (*ibid*). According to Statistics South Africa (2011) there were 5705 unemployed youth (19-25 years) in Makana.

Statistics from the two clinics in Makhanda East report that the figure for youth between the age of 16-24 who are HIV infected is 26%, teenage pregnancy is 16% and mental health problems are experienced by 48% of the population (SA Stats, 2011).

4.3 Detailed case narratives

Wals' social learning framework was used as an educational framework to mobilise sustainability practices. In the first part of the educational intervention the activities focused on the 8 theme-based matters of concern in accordance with the first three stages of Wals' social learning framework. This was to stimulate people's thinking on matters of concern, create photographic records of their daily lives, and to share and discuss issues related to each photograph. This resulted in the group choosing a single theme to work on as a project.

This section begins by describing the contemplation stage during which the eco-club members had not yet started exploring specific themes. **Conntemplating** is the first stage of Wals's social learning framework, for which I conducted a preliminary meeting to explain my intentions and to invite participants from both schools. I explained that participation was voluntary. This was done in both schools on different days. This was simply an introductory stage and was not used in the different themes.

From the primary school eco-club most of the learners were eager to participate in the project, although some were reluctant to take part in something which could add more work to their daily activities. Most of the high school members were eager to take part in the project. These were some of the responses observed:

Participant 15: I have just fallen in love with the project I cannot wait to start. I hope we will have a chance to communicate with other young people in the 6 countries and get to know what matters to them most.

Participant 5: I strongly believe this project will bring about change through the youth taking part for solving issues at hand as most of the older people do not give us this chance. It's time to prove to ourselves that youth are the agents of change.

Participant 18: I would very much want to take part, but my transporter is a problem, he will not agree to change of venue or time again (OB 1a).

The primary school members expressed the same sentiments:

Participant 2: I am really looking forward to the project as it is another way to learn how we as young people can be in a position to bring about change to our everyday lifestyles.

Participant 8: I am really looking forward to photo taking and the narratives sound really an interesting way to learn about our challenges (OB 1a).

The primary school eco-club consists of 22 members from Grade 4 to Grade 7 aged 10 to 15 years. My project targeted learners aged 12 to 14. There were 4 learners who were 12 years old, 5 aged 13 and 5 14-year-olds. That made 14 in total from the primary school club. Although the rest of the members were in not my target age group, I nonetheless allowed them to take part, since some of them were eager to be involved. The high school eco-club consists of 18 members from grade 8 to grade 12 aged 13 to 18 years. Of the young people who volunteered, 5 were aged 15 years, 4 were 16 years old and 5 were aged 17 years. Overall, there were 28 learners in total, of which 18 were girls.

For my participants to do their work and activities freely it would be best to have a venue that was easily accessible for everyone. The venue for the club meetings was chosen by both groups to be at the primary school. I assured the older youth that I would provide transport for them. This helped me as a facilitator as the primary school was where I was teaching, so it was easier to access most of the things needed for the group.

The **second stage** in Wals's social learning framework is **orientating**, which I facilitated using four video clips namely; What is Sustainability, Home and energy use challenges (under the Home and energy use theme), Understanding challenges facing South African education (under the education theme), and SA world class transport system (under the theme transport). The first video clip was introductory in order to educate the participants about what is meant by sustainability, so that everyone was on the same level of understanding the project that they were about to start. The idea was that the video clips would be shown and discussed as we addressed each. The intention was to initiate discussion and understanding of the theme and the matters of concern addressed in each video. This helped to familiarise the participants with the themes and to help them to select

the theme to take up for project implementation. This also led to further discussion on the main concept of sustainability practice.

The upcoming sub-sections report on the eight sustainability themes that were the focus of the eco-club activities. Each of the eight themes is discussed separately. The first two themes, 'education' and 'home-life', are foundational contextualising themes and were not considered for the sustainability project. These themes are only discussed as far as the orienting stage of Wals's social learning framework. The next five themes (energy use, mobility/transport, leisure and communication, waste and water) are discussed according to three stages of the learning framework, namely; orienting, activating and selecting. The final theme ('food') is discussed up until the final stage of Wals's social learning framework and so includes the following sections: orientating, activating, selecting, implementing and evaluating. Because water was so integral to the food garden sustainability, project which was chosen as the way forward, data relating to both food and water issues are integrated into this theme.

4.3.1 Education

The video on education reported on the issues affecting the education system in South Africa. The video highlighted the following issues: schools which are poorly resourced; teachers' absenteeism; inequality of education; and crime and violence. After watching the video, the participants discussed the matters of concern, which were many, and how they affect their everyday lives. The following were matters of concern which were raised by participants from the high school after watching the video, relating it to their own contexts:

Participant 1: The video has raised matters of concern which is, inequality in schools as most of the township schools where we learn are too crowded in one classroom, not fully resourced but poorly resourced and the infrastructure is not so good as compared to schools in town.

Participant 18: There is a lot of absenteeism and late coming to work from teachers.

Participant 15: There is crime and violence in schools, the police must do something.

Participant 22: The space in our schools is so small that there are no sporting grounds in the school for co-curricular.

Participant 21: South Africa change the curriculum without fully training the teachers

(OB 1b).

The primary school participants felt that teacher absenteeism, crime and violence were not matters of concern in their school to the same extent as the high school. The primary school club-members' main concern was lack of textbooks (OB 1b). Overcrowding in some grades and unavailability of sporting fields were matters of concern raised by both the high school and the primary school participants.

A 13-year-old (participant 5) also raised an issue of lack of textbooks,

I don't like it as we do not have enough books, the subject teacher would photocopy some pages and give those without textbooks. I don't like it as it will be in black and white and you won't see the coloured pictures (FFGD 2b).



Figure 4.1: Participants sharing textbooks (Faces blurred to protect anonymity)



Figure 4.2: An overcrowded classroom (Faces blurred to protect anonymity)

Sharing her experience in such classrooms, Participant 1 said:

I don't learn properly when other students are making noise. This is due to the fact that we are too many in one classroom (FFGD 2d).

The above issues could not be solved by the participants as these need resources to refurbish existing sport grounds, have a fully resourced library at school and access to public libraries, and the procurement of textbooks. These educational challenges were beyond the scope of the viable sustainability projects for the eco-clubs and so were not pursued. However, information such as a lack of resources was an important consideration for other themes and to ensure the viability of the chosen projects.

4.3.2 Home-life

Home was also treated as a contextualizing theme so no videos and handout materials for sustainability practices were used. I introduced the theme through question-and-answer discussions. During the discussions the patterns that emerged were concerns about space and

infrastructure, and relationships (some dealing with shared relationships and some with love relationships).

The photo narratives highlighted an important aspect of youth well-being, namely family relationships. The following emerged from the follow up group discussions of the photo narratives with the participants:

Participant 2: My father always shouts at us when we do something wrong, my grandmother would caution him that children are scared of him (FFGD 2a).

Participant 5: What I don't like about my home is that it's not a lovely home. Most of the time my parents are at work. The only friend that I have is myself. Even when they come from work there is no family time or to ask me about what is happening at school or in my social life (IFGD 2c).

Participant 2: Our house is not all that very nice and loving, there is always fighting taking place between my mother and my uncle. There is no fun. He is ever drunk and there's no peace at home but when not drunk he is quiet and moody (IFGD 1d).

The family to some, is broken and they wish they could do something to mend the broken relationships (IFGD 1d, P3;1a, P6). The issues that came up from this theme were loneliness, privacy, safety, aggression and drunkenness. Some participants stay with both parents who are busy with their careers with no time for the child, who has to entertain him- or herself with the phone or television. This means there is no actual family time at home, a primary requirement for all children. Other participants wish to have better housing with bathrooms with taps indoors.

Some older participants need privacy, but they do not get it due to families which are large, with a lot of siblings having to share space.

Participant 4: The toilets are about two hundred metres away from my house, we are forced to use buckets during the night which is not healthy and secure. The challenge is that the houses are not built with the bathrooms inside or outside the house. We use the basins to bath inside the house (FFGD 2b).



Figure 4.3: The only space available for bathing is the kitchen

Some younger participants are happy with their home life as they have loving homes with welcoming parents who want the best for their children. Participants reflected that home is where they feel safe and loved. Elaborating on this point, the participants' views are presented below: *“Home is where love, sense of belonging and security is found”* (IFGD 1c, P3). *“Home is warm and loving”* (IFGD 1d, P 6). Most of the youth were happy and there were no matters which could be considered to be of concern, they reported that their environment was warm and loving (IFGD 1a, P1; 1b, P6; 1c, P2; 1d, P1 and P5).

However, there are some who feel home is a lonely place to be, as parents are too busy with their careers and have no time for the child. One participant shared the following:

Participant 3: It's quiet and lonely since it's me and my mom it's quiet and its very spacious and I know when I get home, I'm just going to go to my room and then I go to sleep what I don't like when I am at home, I don't like talking a lot because when I am at school I talk with my friends (IFGD 1d).

Most of the youth in this study live with their grandparents or their single mothers with two living with a stepmother and/or stepfather. Three live with both parents (OB 1a; IFGD 1a, P4; 1c, P1; 1d, P6).

4.3.3 Energy use

Orientating

A video was used to open the discussion on energy use. The video topics such as the energy challenges faced in the home, how to help households reduce their energy consumption and an explanation of how energy is used. It further explained home activities that affect energy consumption and energy bills. The video showed how the activities performed in the home, and the associated energy use, change over time depending on factors such as habits, the outside weather and the number and ages of the people in the household.

Prior to watching the video, the youth were asked to note down the matters of concern highlighted in each video and discuss their thoughts and insights afterwards. The group chose two facilitators within the group whom they felt had the necessary qualities and skills. They agreed to choose facilitators from each school, primary and secondary. According to Wals *et al.* (2007) it is also quite acceptable that if there are participants within the group with facilitation skills and qualities, they may be chosen to play this role. The discussions gave the youth the opportunity to think about the matters of concern presented in the video. The home and energy matters of concern focused on energy used at home, specifically electricity (OB 1a). Extracts from the discussion recorded during the observation are:

Participant 1: I stay with my grandparents and these matters of concern highlighted in the video are similar to what is happening at home. We end the month without electricity, having to ask money from my mother and aunts. We switch on all the lights, do all the cooking, the geyser will be switched on for my siblings and cousins to bath, so energy consumption is too high during the night.

Participant 4: The video shows also a person boiling a jug full of water for making one cup of tea (laughing). It means there is no saving of electricity as all the water will not be used so more minutes are spent in boiling the whole jug than when boiling just enough to fill a cup.

Participant 2: Geysers should be switched off when not needed as it shows that they consume 31% of electricity.

Participant 5: We need to be educated on energy use so that we can teach our parents, grandparents and siblings as we lack clear understanding between science and our everyday knowledge on electricity.

Participant 1: In our house electricity is most consumed during family time as most the gadgets that use electricity will be on as we will be cooking, some

of my siblings will be ironing uniforms, others will be bathing while my grandparents will be watching television(OB1a).

From the focus group discussion, it was apparent that participants were able to identify key issues by watching videos and finding the parallels with their own experiences. Wals (2007) states that orientation and exploration involve participants looking for main matters of concern or main challenges to address in a way that connects with their own background and past experiences, inspiring and motivating them. The objective of using videos was to enhance the interaction with co-participants, exchanging practical experiences, learning from each other, as well as learning more about environmental communication (Wals et al., 2009). Over the period of my research, participants evidenced positive personal growth by demonstrating the ability to work on their own, taking responsibility and developing social skills to use in their daily lives (DA P1; P3 and P6).

This activity showed that participants were able to interpret matters of concern with respect to energy consumption in the home and make suggestions for more sustainable practices for saving electricity in their homes. Some commented that it was a learning curve to practice energy saving and it was their responsibility to educate their siblings and parents/grandparents (OB 1a).

Activating

The video stimulated discussions of ideas for change. During discussions, the children and youth came up with ways to save electricity in the home, as most of them use electricity. Social learning resulted in creative solutions in dealing with challenges they experienced in their homes. From the discussions that emerged, it was evident that learners learned from one another and were able to explain ideas and give support to each other. This is what came out of the discussions:

Participant 13: Our grandparents at times would not want to listen to what we tell them but instead we need to be innovative. For example, I make tea for them so that I can monitor the amount of water in the jug. To make sure we save electricity.

Participant 10: We need to switch off lights in the room with no people using them. Geysers should be off every time and be switched on 30 minutes before people bath to allow water to be hot. All the people in the house need to bath at the same time.

Participant 9: We need to tell our grandparents/parents and our relatives to save electricity through simple ways of writing small artistic papers to stick on all the switches to remind them to switch off electricity when not needed.

Participant 12: We can save energy by using electricity less when you are in the lounge make sure the lights in the kitchen are switched off. And then when we are using the kettle.

to make tea, we must only use the amount that is needed and not more. By doing this we are saving water and electricity (OB 1b).

From the discussion, it was clear that most of the participants' households have been unaware of the issue of saving electricity. The video and discussion have helped them to learn strategies to reduce electricity use in their homes and to try to educate their parents and/or grandparents.

Selecting

A SWOT analysis was used to structure conversation about what to take forward as a project by exploring the Strengths, Weaknesses, Opportunities and Threats of a problem or decision regarding a theme. This helped participants to decide if a particular theme would be taken further. It also helped the participants to identify and prioritise which theme to take forward as a project and to identify practical actions in response to matters of concern raised during the orientation and activation stages (OB 3a). The SWOT analysis was repeated for all the following themes. Table 4.3 below illustrates the SWOT analysis for energy use that was drawn up by participants (OB 3a).

Table 4.3 SWOT analysis for energy use

Strength	Weakness
-We use electricity in all our homes -Electricity can be saved both at school and in our homes. -No electrical appliances are used by learners at school except for lights.	-We use electricity monitoring.
Opportunities	Threats
-Most of the homes with old people receive a certain amount of electrical power for free every month	-Poverty restricts the use of electricity

In the SWOT analysis above, participants brainstormed and came up with an analysis for energy use. Their strength on energy use was mainly the use of electricity in their households. However, they failed to come up concrete weaknesses apart from the unnecessary waste of energy in their homes. The opportunities mainly concerned the free allocation of electricity to the elderly each month. Finally, their concern regarding threats focused on load shedding during exam times and the high cost of electricity tariffs. Not much emerged from this theme and participants decided not to take the theme further to project implementation. Participant 16 felt that *“The best place to conduct this project is at our homes as we have a lot of appliances that use electricity. However, it will be difficult to partake in the project as we need to work as a group not individually”* (OB 5).

4.3.4 Mobility/ Transport

Orientating

A video clip about transport in South Africa was used to open up the discussion on transport. The video covered the challenges citizens face when traveling from one place to another during the day, commuting to and from school and work. The video was made in Johannesburg and showed the modes of transport commonly used by most people in the city. Many residential areas in Johannesburg are far from workplaces and this forces people to leave home as early as 4 o'clock

in the morning. According to the video clip, 80% of the people in Johannesburg use public transport, although this is expensive, and trains, which are cheaper, while 20% use their own transport. The train system has not changed or been upgraded for many years, which results in trains being unreliable. In the video a matter of concern was also that the trains were overcrowded, which is not healthy.

Makhanda is a much smaller city where most of the schools are located in high density residential areas, being the townships where most of the youth who participated in the project live. Taxis are the most commonly used form of transport, consisting of either formalised public transport or private cars. This is what emerged from the discussions:

Participant 17: The needs for everyone in an independent South Africa of women, children, and disabled people for cheap and safe transport are very vital.

Participant 19: The South African government has failed to address this important post- apartheid transport issue in a sustainable way (OB 1b).

The video raised matters of concern about government responsibility and the safety of commuters.

The photo narratives helped to adapt the issues more specifically to the context of the smaller city of Makhanda. Some participants said that they usually walk, especially boys as they enjoy walking for exercise. Nonetheless, there were transport-related matters of concern raised by the participants. The photographs in Figure 4.4a and b taken by participants showed a major matter of concern, being the condition of both tarred and gravel roads.



Figure 4.4a: Showing the tarred road. Figure 4.4b: and gravel road with potholes

These are some of the issues raised by the youth in the focus group discussion:

Participant 6: I would like to change the roads; I think there are many potholes in Grahamstown that need to be fixed because we struggle in the morning to travel on the road because of potholes and they can cause accident with other cars and or they can damage cars. Some of the taxis are very old but are still on the road and these may also cause accidents (FFGD 2b).

Participant 4: I walk to school. What I like is that you can actually exercise as I will be walking to and from, what I don't like is that when it's hot there is dust on my shoes and when it's raining there will be mud every time I arrive at school (IFGD 1c).

Participant 6: Then on transport people should be encouraged to use public transport than using their own transport. We should also walk more than using transport on short distances. It's also a way of exercising.

Participant 2: I walk when I'm going to school then when I want to get to town, I use a taxi What I like about taxis is that you quickly get to your destination and what I don't like is when the fuel price goes up the taxi fare also goes up and I am still a student so I won't always have the means to use a taxi (IFGD 1c).

Participant 4: When I am coming to school it depends on if I have someone to go with. If there is anyone, I will walk but if I do not have anyone, I will use taxi since I am afraid to walk alone. I use a taxi when going to town (IFGD 1d).

Participant 5: I walk to and from school, I do not feel safe because when I come to school, I pass there is a tavern (IFGD 1a).

Participant 2: Every time when I am in Grahamstown, I always walk but when I am going to town, I use taxis. Sometimes I do not like going on foot to gym or school because sometimes it will be raining like today and then I will get there soaking wet and muddy (IFGD 1b).

Participant 4: I do not usually use taxi because when I am going to town I go with my mom and she has a car. So, what I do not like is that there are a lot of potholes. They can damage cars. Then sometimes my mother and I do not use the car we use taxi because my mother's car once had a problem because of the potholes so it costed a lot of money (IFGD 1b).

Participant 4: I do not like the roads that we use which are gravel because when it's hot there is dust on my shoes and when it's rainy there will be mud and every time, I arrive at school dirty (IFGD 1c).

In summary, the matters of concern raised were unsafe roads due to potholes, dirty feet caused by dusty or muddy roads and transport price hikes due to petrol price increases which result in participants not being able to afford taxi fares. Walking was valued as a way of exercising. Safety was also reported as a factor for girls when going to school, who felt uncomfortable having to walk past certain places like taverns.

Activating

Ideas for change that the youth suggested included putting gravel in the potholes, but they also realised that rain would soon wash away the gravel. They concluded that superficially repaired potholes would soon reappear and that what was needed was for the roads to properly reconstructed, which would require a budget to pay for tar and labour. This conclusion was reached after they examined the history of the roads and how they were fixed before. I agreed with them that a project dealing with roads needed to be financed and this would take a long time to be successfully achieved.

Selecting

A SWOT analysis was not done for this theme as we decided against a response or an intervention with a sustainability practice.

4.3.5 Leisure and communication

Orientating

The youth identified matters of concern that are derived from their own prior experiences and interests. There was no related video for this theme, but I opened the discussion with the questions: "How do you spend your leisure time?", "Which places do you go to as youth- friendly venues?", and "How do you communicate with each other?". What emerged from the discussions was that there are no youth-friendly places where youth can go to enjoy themselves or engage in healthy activities. It was raised as a matter of concern that the municipality needs to investigate and address. Many of the youth spend their free time indoors watching television and/or on social media on their smart phones. Some children and youth visit the Youth Hub mentioned in Section 4.2.6, although some girls did not feel safe there. From the observations, a number of concerns were raised to shed light on the facilities available in Makhandia. Information was gathered about how different factors related to leisure and communication can influence environmental matters of concern amongst youths in Makhandia. These were some of the things participants had to say:

Participant 3: We love having the facilities for us to go out and spend time with friend where it is safe to be. But here in Makhandia there is no such places which are youth lovely places.

Participant 8: The other thing ma'am is that the facilities are very old. I think they were used with our parents when they were our age and we are also using them, and they have not been upgraded. They are really very old. If we can have youth friendly places to go and enjoy ourselves where they are swimming pools, Luna parks and outdoor games for every age. These changes can be made if people are willing to work together in looking after these things.

Participant 7: Even if we go to the local youth- hub centre for entertainment, we feel not safe because there is no security. You can go with your phone and you can come back without it. So, it's not safe to be in these places especially us girls.

Participant 5: We do have a soccer field in front of the school just after the road but the toilets and shed have been vandalised.

Participant 1: I only know that the stadiums are the facilities that are there so it's only for sport people. There are no theatres and swimming pools (OB 1b).

Participant 3: In Makhandia we don't have places where we can go and enjoy ourselves. The stadium around is mainly the men and boys who go and exercise play soccer. We once went to the In-Door Sports Centre for gym and the men who are responsible there were laughing at us when we were

lifting weights, this made us feel uncomfortable, so we stopped going there. Since it's not safe to walk around the location (FFGD 2d).

Participant 3: At Indoor Sports Centre the equipment for gym are limited only the older ones have access to them because they just come and take it from us because we are young



Figure: 4.5a; b; c; and d. Examples of the photographs taken by different participants indicating how the young people spent their leisure time (Permission obtained from parents to show faces).

Figures 4.5 show how the youth use places close to the home or their homes as safe spaces to spend their leisure time. Participants explained that there is a lot of crime and vandalism in Makhanda as

there was a playing area, but the equipment was stolen. This leaves them with the streets and their homes as the only places where they can play with friends. One 12-year-old said.

Participant 2: I like roaming the streets with my friends, where I stay. As this is the safest place I can be. During the weekends I wake up early because I go to church on Saturdays. It's a Sunday school programme. Sometimes when I do not go to church, I play skipping rope and sometimes we go and sit on the grass at my friend's house and play cards or walk around the streets (FFGD 2a).

Participant 4: Since we do not have recreational centres nearby, we play soccer on our street until dark at times we are distracted by the cars moving about (FFGD 2a).

Participant 1: I took these pictures because here in Makhanda children are not allowed to lift weights. At Indoor Sports Centre the equipment for gym is limited, only the older ones have access to them because they just come and take them from us because we are young. So, my brother and myself thought that we should make our own weight lifts and do the exercise at home as it is safer to play at home (FFGD 2b).

From the discussion it emerged that the youth had no confidence in the municipality with regard to young people's welfare. Furthermore, it shows that the young people lack trust in the infrastructure for leisure and feel threatened by older youth. As a result, they spend their leisure time at home indoors, playing skipping ropes and soccer in the streets, or with friends.

The lack of sporting grounds was also highlighted by the photo narratives as matters of concern. The schools lack adequate space on their grounds to accommodate sports grounds. Neither school has a soccer field due to a lack of space. At the primary school, the sporting grounds are being restored since they have not been used for almost four years. There are netball courts at both schools.

I would like to change the fact that there is not a lot of sport because I am a fan of sport and the sport that I like which is hockey is not played. It would be great if there was hockey, tennis or even swimming (FFGD 2d, P7).



Figure 4.6 Sports being played on an open space outside the school premises

Activating

Potential sustainability practices were complex. These needed funding and for the municipality to be involved, so the issues were simply noted and discussed and we did not consider implementing sustainability practices to address them. What emerged from the discussion is that the sporting facilities provided by the municipality could not be used by the youth as they need to be upgraded. The community needs to support this by providing security and infrastructure for these facilities. It also needs to build recreational facilities like fitness corners within municipal centres.

Selecting

A SWOT analysis was not done for this theme as no potential sustainability practices were raised.

4.3.6 Waste

Orientating

We began looking at the theme of waste with a video clip discussing illegal dumping sites in Makhanda. These sites have an unpleasant smell and pose a health risk. The following was the discussion elicited by the video clip:

Participant 5: With no help from the municipality some residents have resorted to burning litter while others throw the litter on their closest dumping site.

Participant 10: The residents are the ones who are building up these illegal dumping sites wherever there is an open space (OB 1b)

The following photos were taken by the group working on the theme of waste. These participants live close to dumping sites.



Figure 4.7a and b: Illegal dumping close to participants' homes

This is the discussion from the participants when the photo narrative was shared with the larger group:

Participant 6: Next to my home there is a dumping site where people dump waste. It is not legal to dump but they dump and run away, and others dump

during the night. It's not very comfortable. There are a lot of rats. It's scary to see very big rats running across and in front of you. There are lots of mosquitos and flies during summer (IFGD 1a).

Participant 2: If we have more waste and the truck does not come, we are forced to throw the waste at the dumping site (FFGD 2b).

Participant 1: I hate the way they throw their rubbish there. They don't care about other people who live next to the dump sites that they will get diseases and infection from the waste (FFGD 1a).

Participant 6: We live close to the dam, so we throw litter at the back of the house close to the dam. In my area there is a dumping site and the municipality man came to the area and announced that people should go and clean, but they did not go so there is still litter and its growing bigger and almost getting into people's houses (IFGD 1b).

Participant 1: We usually burn the trash at the back of the house (IFGD 1d).

Participant 4: There is a drum at the back where we put rubbish but then the dogs like going and making the drum fall which makes the yard dirty. At times we burn our waste to avoid dirt (FFGD 1a).

The discussions highlighted that the illegal dumping is creating a health hazard, resulting in the spread of diseases and pests like mosquitoes, flies and rats. The participants who live close to the dumping sites are affected greatly by this, as they are forced to keep their homes shut all the time to keep the smell and pests out. One participant said that he is unhappy with the living conditions at home, and it looks bad because they live next to an illegal dumping site. A number of participants reported that they burn the litter when it is not collected. They do that during the night when everyone is indoors to avoid the smell of burning getting into people's homes.

The discussion underlined that dumping is the result of the non-collection of waste. Three participants said that they also illegally dump waste if the municipal truck does not come to collect it (IFGD 1a, P2; IFGD 1b, P6; IFGD 1d, P3).

This waste which is all over does not give us pride and sense of ownership. If our area is dirty, it affects us as we end up not happy with our hometown (OB 2b P6).

Pride and ownership are what some of the youth long for when it comes to their city.

Activating

According to LEAP (2005), the problem of illegal dumping in Makhandla requires raising public awareness, setting up a community-based rubbish collection project, and establishing a new recycling company. Some of the plans are being implemented, for example through workshops to create awareness of illegal dumping as well as identifying potential funders. Among the ideas for change raised by the group discussion was that participants felt that if campaigns to raise awareness about illegal waste dumping were held frequently, it may bring home to residents that a clean environment is important. This could then lead on to education campaigns on solid waste management. They suggested that 2 to 3 waste bags per week should be provided by the municipality. Currently the municipality provides 1 bag per week. They also suggested that there should be support for recycling initiatives or local environmental organisations, which could be led by youth and school leavers.

The booklet titled 'Waste reduction and creative re-use beats recycling at a Grahamstown school', from the Handprint series, was used to open up ideas for sustainability practices for this theme. The scenario presented in the booklet recommends a recycling project using waste collected through an eco-school initiative. This scenario is summarised below:

A Grahamstown class through their teacher wanted to create a difference in the community by establishing an Eco-school club. The grade 7 class came up with a waste recycling centre at the school and it was a success. The centre became a collection site for wastepaper, aluminium cans, bottles and plastic for sorting and recycling. With time, challenges started to develop within the project. One of the challenges was the windstorm which blew the waste not yet sorted back into the community. Parents and children had to face a dilemma of either to continue to bring waste to school for recycling or rather taking care of the waste they produced. This prompted the club to undertake a life cycle audit of the four main types of waste being brought to the school: plastic, paper, metal and glass. This enabled the club to come up with more creative and innovative ideas of making money (O'Donoghue & Fox, 2009).

This Handprint was used to give the youth ideas for how to solve the key issues of waste. The key idea raised was the establishment of a recycling centre. This became one of the options for participants to consider when choosing the theme to carry forward as a project. This is what came out of the discussions:

Participant 3: On the part of waste maybe if we remove dumping sites and start community gardens if we do that slowly the dumping place will be a thing forgotten (OB 2a).

Participant 6: I'd like to change the dumping sites because they are ruining our community because people throw away anything there and then we are the ones who have to deal with the stench of dead dogs and then other dogs die because of eating things that are at the dumping site (OB 2a).

Participant 2: It is not very comfortable as there are lots of rats, which are very scary to see and at times they would run across and in front of you. There are also lots of mosquitos and flies during summer (IFGD 1a).

Participant 7: We can take all the rubbles from the dumping sites and sort them so that we can recycle. The rotten ones are manure for the community gardens. It is also a way of starting an income generating project (OB 2a).

Participant 10: We can start a recycling project at school looking at the case study and how they started their recycling project. This is from a dumping ground to a recycling project (OB 2a).

From the above discussions, it is evident that participants would like to remove these dumping sites and replace them with community gardens or recycling projects and centres. The sustainability ideas presented above show that the children and youth are aware of the problems of littering and are ready and able to take responsibility and find ways to properly dispose of waste. Recycling can also create jobs for youth to earn a better living.

Selecting

I asked the participants to look at the practice of recycling and do a SWOT analysis. The youth deliberated together on the strengths, weaknesses, opportunities and threats. These were written down by one of the facilitators as shown in the table below. Table 4.4 below reports on the SWOT analysis conducted by the learners to explore their capacity for responding to the waste issue.

Table 4.4 SWOT analysis for waste

Strengths	Weaknesses
-Recycling is the best way of reducing waste. -We can make an income through recycling. -We really want to reduce waste in our community and around the school. -We can play our part in reducing waste by raising awareness in our community.	-Lack of proper planning from the municipality on waste management. -Lack of education in the community regarding disposal of waste material. -The municipality is very weak when it comes to enforcing council by-laws
Opportunities	Threats
-If more paper is recycled fewer trees will need to be cut down. -Recycling promotes proper handling and disposal of plastics and cans. -By recycling and selling water bottles and plastics, people can also benefit financially.	-The continued use of non-recycled paper results in deforestation. -Waste contaminates the soil

During the SWOT analysis the children and youth expressed their concern that as youth they feel that they do not have the authority to tell their elders not to discard their waste on illegal dumpsites.

Participant 6: The most difficult part is to see an elderly man with a wheelbarrow full of trash throwing that on the dumping site, I cannot tell him not to throw waste there.

Participant 3: It is so hard really for us young people to tell our elders especially these whom we do not stay with to pick up papers or whatever they throw away (OB 3a).

This was also supported by participants 4 and 7 who wished their voices could be heard without being dismissed (FGDE).

The children and youth ultimately opted not to pursue this theme as they had decided that a recycling station was the best response to the waste problem (see Table 4.4). Wormeries, which was one of the orientating ideas they were had been given, is discussed under ‘food’ even though it could have been considered to be an organic recycling project. The reason they gave for not

pursuing the recycling station project was that they were unable to raise the funds required for the recycling bins (OB 3a).

4.3.7 Water

Orientating

Newspaper articles dealing with the water supply in Makhanda were referenced by the participants for this theme. The articles covered the failing infrastructure and dealt with issues such as the old water pipes and the lack of money to repair them. Some of the articles also shared how businesses, Rhodes University and residents were affected by the water shortage in Makhanda. From the discussions these were the matters of concern which the participants raised:

Participant 7: Makhanda is experiencing an ever-growing population with limited supply of water.

Participant 2: I think that we may blame each other of not saving water but maybe residents do not know to save water. So, what need to be done is to educate our community members on the water saving practices.

Participant 6: Some of the actions and practices the residents do is maybe out of ignorance. At times you see some of the residents using hose pipes for watering their gardens.

Participant 16: If Makhanda does not have water to drink and bath to take that limited water to the ground will be a waste. But we need to not to lose hope if ever we are to choose the garden, we need to have a small one which we will be able to maintain (OB 2a).

From the discussion it is clear that participants are concerned with the water crisis as this affects their lifestyles. There is a need to educate the community to be more water wise, water conscious and to improve behaviour patterns. There is also a need to determine how the municipality could cater for the ever-growing population, for example to reduce garden sizes in order not to use too much water. One participant from the high school shared his thoughts on how to make improvements in the water situation:

We young people as the members of the community can make changes within our community. We are the voice of the voiceless as we are seeing all these challenges. We need to stand up and make our voices heard. We also need to ask the community to have youth representatives in the policy decision making. I believe we are the agents of change and leaders of tomorrow, so this is the right time to start building a better community. We need to improve the quality of water as most of the people are forced to buy water when they

do not have money. Even boiling drinking water will be using electricity which is costly to the poor people. We need to find the root causes of having water which is not suitable for drinking and the case needs to be rectified (IFGD 1c, P2).

From the above it is apparent that if the children and youth can be empowered to overcome their challenges, they can also be empowered to make changes in their communities.

The pictures in Figure 4.8 below were taken by participants for the photo narrative and group discussion on water.



Figure 4.8a and b: Containers for storing water

Houses in certain parts of Makhanda do not have taps inside but in the backyards. Many of the participants live in homes like this and they use containers to store water. This is what came from the focus group discussions:

Participant 4: At home we have 10 by 25litre bottles and buckets that we have to make sure that they are full before we use them just in case water is gone so we say 25 litres is for the toilet and the 55 litres is for uses inside the house (IFGD 1c).

Participant 5: We no longer drink the tap water. We buy from town we use tap water for washing dishes, washing clothes and watering the garden (IFGD 1c).

Participant 2: We get our water from the tap for bathing, cooking and washing clothes. Drinking water my father has a 5-litre bottle, so he fetches

water from his work from the tank. We drink only that water. It is rain harvested water. We drink and bath with tap water. Long ago, when I was still a toddler tap water used to be clean but now since there is water shortage, it comes with whitish and brownish in colour like it has mud, so we don't drink it anymore (IFGD 1a).

Participant 1: At times it goes for the whole weekend without water coming out and come Monday there will be no water. At times we are forced to go to school without bathing, we just wipe, or we would not attend school (IFGD 2d).

Participant 4: Ok in Makhanda sometimes we have water shortages and when it comes out its brown and dirty, so some people get sick from tap water (FFGD 2c).

The key elements that stand out from the data are that municipal water is no longer safe to drink but is used for home cleaning activities; families either buy drinking water or use rain harvested water; and due to water scarcity the residents use containers to store water.

Activating

The Handprint Series booklet, (O' Donoghue & Fox, 2009) was used to explore potential sustainability practices regarding water. The story in the booklet was about a science teacher who shared with a class regarding the water crisis in Makhanda. There was a lot of fear that water from taps was dirty and dangerous to drink. The Handprint explains how the class explored the origin of spring water outside Makhanda which was safe for consumption.

From observations this is what emerged from the discussions:

Participant 5: We don't use the spring water as it is in the outskirts of Makhanda so only those with cars are the ones benefiting. Not all with cars go to the spring. Some people always expressed their disappointment of walking 2-4 km carrying buckets and bottles and waiting in long queues.

Participant 1: Even those who have cars do not have patience as during the days when there is no water, there are very long queue at the spring.

Participant 2: If we see that there is no water, and we go to the spring and fetch some water. We get there and there are long queues, and my parents would leave us there and go back home. We have to wait for more than 3 hours because it's always full.

Participant 6: Spring is a sustainable practice as the water is clean and by taking water from there, we will be saving municipal water.

Participant 8: The spring is a clean area as residents make sure that they do not litter around the spring (OB 2b).

It is evident that from the above discussions that a few participants benefit from the spring water due to the location. They also reported that the spring is overwhelmed by so many people and that the water pressure is low. The spring water is one of the sustainability practices that can save municipal water. It is well taken care of by the Makhanda residents.

Selecting

A SWOT analysis was conducted, and the emergent discussions are presented in Table 4.5 below.

Table 4.5 SWOT analysis for water

Strengths	Weaknesses
-Awareness campaigns are being held to save water. -Posters are being displayed on billboards. -Small gardens can be produced to save water. -We can save water by harvesting rainwater. -We can save water by reusing grey water	-Land degradation and poor soil management. -If crops are not watered regularly, they eventually die. -People continue with unhealthy eating habits, which affects their health.
Opportunities	Threats
-NGO are seen funding gardening projects. -Other ways of getting water at school is by encouraging people to bring 2 litres of water from home. -If the project is registered with the municipality water would be provided to sustain the project.	-Unpredictable climate change, weather patterns resulting in water scarcity. -Projects are at risk if there is a risk of water supply disruptions. -Several community projects have closed due to water problems.

Based on the SWOT analysis the participants opted for this theme to go hand in hand with the gardening project. Even though there are water problems in Makhanda, many gardening projects are still being conducted in schools, communities and homes. The SWOT analysis showed that there are many strengths and opportunities, and this would help in the selection of the theme.

4.3.8 Food

Due to poverty within the community, the Department of Education introduced the schools' nutrition programme which seeks to provide nutritious meals for learners in the hope of improved attendance and full participation in classes and active learning. There are nutrition programmes in public schools. Food is prepared before schools starts, and at break time and after school the food is distributed on each school day of the year. Furthermore, this caters for those from poor homes so that they do not learn on empty stomachs. However, schools are also encouraged to start food gardens in order to produce vegetables.

Orientating

The theme of food was explored by the group, identifying matters of concern that affect their everyday lives. Primary among the concerns raised was that 21 participants' families rely on.

grants and some of their grandparents or parents are not working. Some of the parents who are working are employed on a contract basis meaning that the flow of money is not on a regular monthly basis. As a result, they do not often buy food. Some households with unemployed members find it very difficult to obtain food, and some are too young to qualify for an old age grant.

The issues relating to the food theme were explored by means of a question-and-answer session to open up matters of concern that affect their everyday lifestyles. These were some of the questions asked: "What type of food do you eat at home?"; "How do you get the food?"; "Is the food adequate and healthy?". Participants said that the main food that they eat during the week consisted of simple meals with vegetables. Participants gave examples of rice with spinach and potatoes and/or carrots, stiff pap with cabbage, or spinach in soup.

The photos below show examples of the food which the participants usually eat at home and at school. Figure 9c shows food usually served on the weekend, called a "seven-colour meal". Most of the families eat cheap or traditional meals during the week and save money for Sundays or Saturdays to have full meals which they refer to as seven colour meals. This is a meal consisting of many different ingredients of different colours: browned meat, white rice with salads, red beetroot, orange carrots and butternuts and green vegetables like spinach, kale and peas Figure 9d shows samp mixed with dried beans and potatoes.



Figure 4.9a *food eaten in some homes*



4.9b *Food eaten at some schools*



Figure 4.9c: *Food eaten at home.*



Figure 4.9d: *Food eaten in some homes.*

Many of the participants stated that the food they eat during the week was cheap to buy and simple to prepare. Others indicated that they cannot afford meals as the social grant is not enough. Most of their meals include vegetables. These are some of the responses from the participants during group discussions:

Participant 6: We do not usually cook most of the days. We prepare sandwiches for supper. When we cook, we prepare the traditional food which is African salad when it's hot this looks like rice though it is mealie meal cooked in little water then mixed with sour milk. When cold we eat samp mixed with dried beans and is prepared together and lastly rice with potatoes

and cabbage cooked together. Figure 4.7b shows mqha rice (rice with cabbage and potatoes). This type of food is affordable, and you do not buy a lot of ingredients. We depend on our social grant, that is for my grandmother, my two siblings and myself (FFGD 2c).

Participants 4: The grant money is too little to buy food for the month, it will not last us for days. Unemployment is the main problem; we are struggling to make ends meet. (FFGD 2d)

Participant 2: Here at school, we get food in the morning. At 10 a.m. they give us food from Monday to Friday. They vary the food that they give us. Monday we might get rice with pilchard, Tuesday we get chicken livers and samp. And then Thursday we get African salad (FFGD 2d).

Judging by the responses, many children and youth eat food which is cheap, as they depend on social grants to buy food. At school they also reported eating food which is healthy and easy to prepare. During the weekdays they mostly eat rice or samp with vegetables. From the discussions, vegetables are used in all meals.

Activating

For this stage, the participants used the Handprint booklet and were given a presentation by an expert. '(Self) - awareness raising entails eliciting one's own frames relevant to the issues or challenges identified' (Wals, 2007, p. 41). The Handprint booklet, by O' Donoghue & Fox, (2009), entitled 'Grow your greens'. was used to explore sustainability practices.

The Handprint booklet presents a case study of how a Zimbabwean woman grows leafy vegetables to earn a living and feed her family (*ibid*). Participants read the story and discussed how the kale vegetable can be grown as a sustainable crop. I grow kale vegetables at my home and selected a few that I brought to the club meeting so that they could see and learn about the vegetable being discussed.

The following discussions were recorded during observation:

Participant 1: We call the stem that grow on the vegetable 'shooters'. So, when you want to grow or share with others you just cut off the suckers. The same vegetable can be used for more than 8 months depending on how you use it. This type of vegetable will be good for us to have one bed of it so that we can also have the stems.

Participant 15: I think this type of vegetable if it produces many shooters it means it will help even to expand our garden and sustain us from harvesting vegetables but having them for quite a long time. Growing our own vegetable

like this type will save a lot of money as we will even have vegetables to sell to the community and for our own consumption. This will greatly help in growing our own vegetables and aspiring for a sustainable livelihood.

Participant 8: We can grow different types of vegetables and will have a variety of them to sell and prepare soup for ourselves this reduces cost of going to market store to buy vegetables (Ob 2b).

The sustainability practice learned in this case study is that one can cut the 'shooters' growing from the main stem and replant them or share them with others without removing or destroying the original plant, which continues to grow. In science and agriculture these parts of a plant are called 'runners'.



Figure 4.10: Kale vegetables growing after being taken from the original stem

The Handprint booklet used an example of a case study about how a woman used a tyre in which to grow vegetables using wastewater from her bath to water them. The woman produced good vegetables until she experienced a decline because of soap pollution which appeared in soil. She spoke to a friend who had experienced the same problem but had then seen a video describing a grey water filter used to separate soap from washing water. His plan was similar to the woman's, using shower water to water his vegetables at low cost. His friends discouraged him saying it was not cost effective because he was still paying for water and paying for seedlings.

Her friend learned that it was important to treat grey water before watering vegetables. Through friends he also learnt that a small amount of soap can control aphids on vegetables. Together with some students, he designed a shower water filter to water the vegetables. They also discovered that kitchen and washing machine water is contaminated by detergents and it is advised not to use this grey water even after filtering. It can however be used for lawns, flowers and trees (O'Donoghue & Fox, 2009). A third Handprint booklet entitled, '*Reusing shower and bath water*' case study was used in activating ideas for sustainability practices.

After reading the case study, Participant 4 responded,

We can re-use water that we have bathed with and use it to wash a car instead of throwing the water away or you can use it to flush the toilet (OB 3c).

Participant 3 responded in support of the Handprint,

After rinsing the clothes during laundry, water can be also used on washing of car (OB 2b).

This process was evident in the observations (OB 2a, 2b and 2c). From the participants' reflections on this stage, the following emerged (OB 5):

Participant 10: "The Handprint series also helped us to look at the sustainability practices in the following themes water, waste and food. We learned different ways of sustaining ourselves through water saving practices, recycling, reusing and reducing waste and starting vegetable gardens".

Participant 2: "I compared enjoyed the presentation from the invited guest, I actually did not know that worms are used in making soil fertile. I was afraid of the worms but could easily tell how fertile the soil was as from the other soil type that we have. We cannot use our sand soil type to plant vegetables unless we make it fertile in order to produce healthy vegetables. We learnt the difference between organic and chemical fertilisers. That was the main reason for a sustainability practice of using wormery to make the soil fertile. This was to curb the use of chemical fertilisers as they weaken the soil".

Participant 6: Also, through the newspaper articles we were able to see the consequences of illegal dumping to our community and to those living next to the dumping sites. It was a good lesson to revise our actions on creating dumping sites as a way of reducing waste in our homes.

Participant 4: "Using Handprints, newspaper articles and presentation relationships were created as we were identifying the matters of concern. This was done though sharing of ideas and experiences and the available knowledge. I did not like Amahle (pseudonym) but as she shared the

challenges of staying close to a dumping site, I felt drawn close to her wanting to help her clearing the dumping site so that she would enjoy staying at home as we did. From there we created a strong bond as we were working towards cleaning the site”.

The data extracts above highlight the capacity, skills and knowledge of the participants and that this came from their mutual need to use and share resources. The sustainability practice suggested by this case study is the use of grey water to reproduce vegetables. The other sustainability practice would be the treatment of grey water before watering the vegetables.

To further broaden their knowledge of sustainability practices, a teacher from a neighbouring school in Makhandia was invited to do a presentation on wormeries and soil preparation. She explained the importance of fertile soil and why there is a need for natural compost instead of chemical fertilisers. She also explained how to breed the worms using kitchen waste and keeping the soil moist at all times. She brought a bucket filled with fertile soil containing earthworms. She also brought four learners with her, who did a practical presentation on preparing soil for planting by mixing the fertile soil they brought with our soil. This was a great motivation to my group as this inspired them to choose which project they would like to engage with. This is what came from the discussion:

Participant 5: Thank you so much. I have really learned a lot today. The concepts of conservation, mulching and now that we need to use compost so that our soil can have nutrients for growing healthy vegetables. I really did not know the main use of worms and I think we can also do that, but the challenge is we are afraid of worms.

Participant 11: I used to kill the worms in the soil not knowing they play an important part in the making of fertile soil. Recycling is also done when worms eat kitchen waste. What a lesson. This is a typical example of sustainability practices really,

Participant 4: This is helpful if ever we are going to have wormery or garden as a project. New terms have been learned. I did not know that mulching is a way of conserving water and should be done when the plants still small to prevent from sunlight.

Participant 1: Thank you ma'am. We have really learned a lot. It was mouthful. This will help us in choosing the best theme to take forward for sustainability practices.

Participant 6: Thank so much ma'am. This is our biggest concern on the soil type. By showing us how to make compost, we are guaranteed that if we have fertile soil our vegetables can grow well.

Participant 5: Yhuyu this is nice I love working with soil, but I am afraid of these worms

(OB 2c).

From the data discussions above, it is clear that the participants were motivated and learned a lot, judging by the questions participants were asking to get in-depth understating of the practice. They learned new concepts such as conservation, mulching, composting, and recycling of kitchen waste. One participant reported that she is afraid of worms after seeing the big earthworms which were brought by the expert. However, she is determined to work with the soil. In addition, participant 1 from an individual interview stated that:

The workshop where we invited the expert from another school with her learners was so helpful to me. I managed to see them doing practical work and this gave me the will power to want to work with the soil and have food on the table.

This influenced the participants' choice to make a garden, as they had prior knowledge on how to prepare the soil. This is evident through what participants said,

Participant 9: learned a lot from the teacher and her learners who demonstrated to us how soil is prepared before we plant our vegetable. It is important to prepare the soil as this is the storehouse of all nutrients, air, organic matter and water. She told us that our soil is sandy type of soil and does not store water, so we need to add manure to build the soil (OB 3a).

Participant 6: I loved the way these learners were demonstrating mixing the fertile soil with our soil which is not fertile. The practical activity that they were involved in made me to select gardening as a project as there is a lot we can learn from the project (OB 3a)

This feedback indicates that the use of resources and external presentations in activating helped participants to learn new practices, encouraged thoughts about sustainability practices and enabled them to acquire new knowledge. This awareness raising helped the participants to understand each other and close relationships were created. The activating stage included "...putting participants into contact with one another (confrontations) in order to come to a shared analysis of the underlying problems" (Wals et al., 2009, p. 21).

Selecting

A SWOT analysis was conducted to consider a project under the theme of food. The kale vegetable was selected as the main vegetable which could lead to sustainability practice. Table 4.6 shares the SWOT analysis that the learners conducted regarding growing food as a possible sustainability practice.

Table 4.6 A SWOT analysis for food

Strengths	Weaknesses
-Availability of land for gardening in the school and at home. -Great education on gardening from a facilitator. -Strong commitment from group members to work in the garden. -Hard working team -Water available at school in tanks for use. -The availability of seedlings and kale vegetables to start a garden.	-No garden in school. -Lack of adequate garden tools. -Lack of knowledge and skills on gardening. -Limited seeds for planting. -Water supply disruptions. -Sandy soils.
Opportunities	Threats
-Development of livelihoods in gardening practices. -Development of non-utilised land using manure from poultry (chickens) and animal dung as there are a lot of tame animals around. -Availability of technical knowledge from the teacher and caretaker.	-Other members might not be interested in getting involved. -Soil type is sandy silt. -Crop damage by stray cattle and donkeys. -Lack of water for crops. -Lack of funds for buying gardening tools and seedlings. -Drought. -Vandalism of available resources

Having done a SWOT analysis, gardening was chosen as the project to take forward. From the observations and discussions on water it was decided that water would also be a theme to take forward. The participants resolved to have a garden under the theme 'food', as it had the potential to save their parents and grandparents from buying vegetables. It was also thought that the vegetables could supplement their usual food eaten during the week. They could also be used as an additional supplement in the school nutrition programme.

Participant 1: The SWOT analysis was also helpful as I never thought that when selecting a project, a SWOT analysis can be used. I learnt this in EMS and thought it only applied to businesses.

Participant 2: I liked the SWOT analysis as it was my first time to hear the words. At first, I did not understand how the SWOT analysis was related to selecting a project, but I later got a clear understanding. Thanks to the older group members who explained for us. By analysing each theme, it gave the opportunity of choosing the project with less external forces and internal forces which we can control. This helped to choose the issue we were able to work on.

Participant 4: When you are choosing a project to implement you need to do a SWOT analysis.

The club members commented on the SWOT analysis after they deliberated on their understanding of the process. The following discussions came out of individual interviews, the focus group discussion on evaluation, and document analysis. Selecting was part of learning and, from the discussions above choosing a theme through SWOT analysis, was a lesson from which many club members benefitted. From the other participants they acquired knowledge as individuals and as a group at different stages throughout the social learning process. Wals *et al.* (2009) state that learning happens at different levels: first at the level of the individual, second at the group level, and third in the social network of which the individuals and groups are a part. Through the material used on some of the themes, the youth showed that they understood the social learning process and the main reason why they were engaging with the various stages, and why they were using material for awareness raising. They were able to monitor and evaluate each stage. *“As we were discussing, this helped us to select the issue which we were able to work on without involving a lot of money and other stakeholders” (IP 6).*

Implementing

The implementing stage involves turning planned activities into practical actions. The club members, non-club members, teachers, parents and the school governing board were informed about the school gardening project. At this stage the participants were eager to start and accomplish the chosen task. The first task was to set goals which they were to achieve in a given time. During the meeting, club members designed an action plan (conceptualised by the older learners) with goals that were Specific, Measurable, Achievable, Realistic, and Time-bound (SMART). The

SMART activity was followed by the development of a comprehensive action plan. The action plan was intended to serve as the foundation for achieving the SMART goals. The action plan also included a detailed calendar of critical stages as well as a list of key people in charge of those responsibilities. This is what was suggested by the high school youth who tried to explain to the younger ones during their deliberations (they even volunteered to lead the discussions):

Participant 7: At the moment we have done a SWOT analysis. This needs to be followed by setting of goals in order to know that direction and if we have goal set, we will be motivated to do the work. The goals are Specific, Measurable, Achievable, Realistic and Time bound. This is abbreviated as SMART.

Participant 11: To add on, when we set goals, we are providing ourselves with a target that we need to aim for.

Participant 2: It is clearly explained and have finally understood the concepts. I think you know what we need to do so that we focus all our effort in achieving our goals.

Participant 6: I think it is true because when we have goals that are set, we will be having a guide and our project will be done according to the set goals (OB 4).

The high school youth led the discussion as they were familiar with the topic. This helped as the older participants code switched (i.e. using home language to explain English concepts) the concepts for the younger ones to understand. The goals were set and written down. The following Table (4.7) reports the SMART goals that the club members decided on. These goals helped them to establish the needs for creating the garden.

Table 4.7 SMART Goals

Specific	What is the specific task? To start up / grow our own vegetable garden and eat healthier food items. To plant a vegetable garden with four different crops that is, carrots, spinach, kale and beetroot.
Measurable	What are the standards and boundaries? The number of members within the club would allow the use of 4 beds of different vegetables with seven members working on each bed.
Achievable	Is the task feasible? It is achievable to create 4 beds which will need to be watered, bearing in mind the current water crisis. If seven members work with commitment on each bed, we will be able to achieve this as long as we get support from the school administration and space and tools are made available.
Realistic	Are enough resources available? Each group to monitor one bed for a week and then change the following week to another bed. The work involved in monitoring each bed with the resources available can be realistically achieved.
Time-bound	What are the start and end dates? A time period of 4 to 8 weeks is needed before the vegetables can be harvested. This means two months from when the club was established. By the end of the year the vegetables should be ripe and can be sold or taken home.

The older youth drew on their experience in Economic and Management Sciences and Business Studies to suggest using SMART goals in addition to the SWOT analysis to give them a sense of direction and assist them in organizing and reaching their desired goals. Table 4.7 below shares the outcome of the SMART goals activity that the learners agreed on.

From the discussion everyone seemed to grasp the concepts that were explained. This is evident from OB 4, participant 2: *“Thank you all for your explanations I really understood the SMART goals as if I am learning in the classroom”*. Participant 7 also supported this, *“I understood the concepts too and this will use it next year in my EMS topic, thank you all”* (OB 3b). Participants 4, 8, 10, 15 also supported the above participants as they stated that they had learned new things on the SWOT and the SMART goals, saying that this will not only help them in the project but also in their academic studies (OB 3b P4). Participant 5 said that she was able to understand the SWOT analysis and SMART goals as they were explained in the club and that it helped her with the same topic in Economic Management Sciences (IP 5). The SMART goals set aided the garden project to succeed. Participants were able to work towards achieving the set goals.

After the setting of goals, the next step was to draw up a plan of action, which was to create a guide for the activities to be done. The intention was for the members of the club to have a well-defined outline of responsibilities and tasks that needed to be accomplished.

The Action Plan below (Table 4.8) was designed by the club members a guide to track progress through the planned activities, and they did this to facilitate monitoring and evaluating the activities. The participants divided themselves into 4 groups of 7.

Table 4.8 *An action plan for the garden activities*

Activity	
Gain support from the school principal, schoolteachers, caretaker and parents.	
Draft a garden plan and start collecting dried grass and cow dung to make compost and manure for the garden. Planning and establishing roles and responsibilities.	July
Finalising of garden plan, designing the garden and deciding what to plant and when.	August
Preparation of the garden, going through seed catalogues, gathering garden materials including seeding trays-supply needs. Build beds and explore plant needs. Preparation of soil and planting of plants.	September
Seedlings and maintenance of the garden. Mulching, weeding, watering, transplanting seedlings.	October
Maintaining and harvesting.	November
Weeding, watering, and transplanting kale vegetables.	January
Growing the garden and sustaining the garden.	February
Explore garden life, how to deal with pests and water management.	March
Harvesting, share crops, plant new crops and collect more organic fertilizer.	April
Hold meetings to share challenges and achievements, to look at successes and areas for improvement.	May
Repeat the same process for expansion	June

Participants indicated that they had benefited from the plan. This is what was reflected by two participants: *“I learned that the activities that we conducted were planned and it made our lives easier as we had a plan of activities”* (Ob 4 P10). The other says, *“I loved the action plan as this form a guide and would refer to it to see if we are on track with all the planned activities”* (Ob 4 P2).

The first activity of the implementation phase was to choose the site where the garden would be located. The participants unanimously picked a garden site located where there was good soil and adequate light next to a school source of water. The site was behind the toilets next to the storeroom block on the school grounds. This site was chosen because it was close to a water tap and was secured so that there would be less chance of animals getting into the garden. Above all, the soil is fertile as the site had been used for gardening previously.



Figure 4.11: The chosen space for the gardening project

During the preparation of the gardening project, it was important to have direct supervision from the caretaker and myself to help avoid injuries. Different garden tools were used. The older participants helped the younger ones to measure the garden space. Participant 1 from interview 1 mentioned that she acquired a lot of knowledge and skills measuring the vegetable bed. *“I learned that there is need to measure the bed as this will help in the planting and spacing of crops if using the measurements on the back of the seedling packets”*. Participant 2 further added that, *“Each activity had a learning component which I greatly benefited from as it was my first time to be involved in the gardening project”* (OB 4). Another participant shared her sentiments on the social relationship between the younger and older participants. *“I never thought that Simamkele (pseudonym) would show me how to measure the width and length of the vegetable bed. I am now confident and free to ask anything from anyone”* (OB 4 P1). From the above discussions, it is evident that learning took place through the interaction between younger and older participants

and social relations have been improved. All the activities for the week were in the action plan. Another participant wrote that she learned that mathematics is not only learned as a subject but also could be applied to the real-life activities that they were doing, such as needing to measure out the spacing for the seedlings (DA P4).

After the measuring of the garden, they started collecting dry grass and animal dung to make compost for the garden. In preparing the garden the participants assigned roles for each other and shared out responsibilities according to their interests and capabilities. I observed that social learning took place, as they would communicate while working. Shared roles and responsibilities were assigned equally to boys and girls, depending on the requirements of the tasks at hand. Individual and group dynamics were observed between the participants, and there was an element of general consensus and team work throughout. The participants agreed to share space and tools, and the plants and seeds were planted according to the instructions on the seed packs.

They were shown how to use the spades for digging, how to prepare the beds and how to measure the spacing for planting seeds and seedlings in the prepared beds. During this stage of preparation, the group members got involved in preparing the physical space for planting. This stage also involved using a variety of gardening tools to till, dig, weed, and add more soil if needed. The caretaker and I were available during this stage to supervise and to prevent injuries when they were working with the garden tools.

From the start, I noticed social learning taking place while the club was involved in clearing the chosen area by removing grass and digging. As they were working, I noticed that those who had a little knowledge on gardening were guiding their colleagues who were gardening for the first time.

Two participants had this to say:

Participant 8: Had it not been for you guys, I would not have acquired this much, I can see that I am able to communicate with you as compared from when we started this project. I was shy and reserved but this has boosted my self-esteem.

Participant 11: Even myself I have never been involved in a project with older people and at first was scared to participate being afraid of the unknown but after working together for a while I learned a lot from my brothers and sisters and could communicate and ask anything without being afraid of being laughed at. I managed to plant the kale vegetables with the help of all the members I was working with (OB 4).

The statements above show how participants learned from each other and from being able to depend on one another. This helped them to communicate freely and to do the planting activities without fear of being ridiculed, because they understood that they were there to help each other with meaningful comment and illustrations.



Figure 4.12a and b: Land preparation

During the land preparation, frustrations and emotions were displayed by some participants as one participant complained, *“Are we really making any progress here? It seems as if we are not moving at all”* (OB 4 P8). Another one commented *“As we were digging and doing that manual work, I wanted it to end as it was so frustrating apply all the hard work with no progress seen”* (FGDE P4). On the other hand, other participants felt that good progress was made, for example, *“We need to be patient guys we have made a lot of progress here. Let us not expect results immediately”* (OB 4 P4).

The participants seemed to be getting a better idea of the direction in which they wanted to go and were thus developing ownership in the process. One participant kept referring to this project as ‘our baby’. Furthermore, judging by the responses, participants said that they enjoyed going to the garden when on duty as it created a sense of attachment (FGDE P8).



Figure 4.13: Planting of spinach seedlings

This stage of implementation further provided club members with opportunities to be involved in discussions concerning the kind of vegetables they wanted to plant. They opted for kale, beetroot, carrots and spinach as these are the types of vegetables mostly prepared in their everyday meals. After planting, signs were put next to the beds for easy identification of plants in each bed. Maintaining of the garden was the stage where learners learned to be patient as they waited for the plants to sprout. They also delegated duties to water the garden at different times and days.

Evaluating

This section discusses the evaluation stage of Wals's social learning process, describing how the eco-club learned about gardening and how they reviewed changes that occurred through their learning of gardening. Wals (2007) states that a social learning framework includes a stage for reflecting, monitoring and evaluation. In other words, the evaluation was intended to assess the effectiveness and efficiency of the gardening project, to identify and describe lessons learnt, and the challenges faced during implementation. Through observations, photo narratives, document review and the focused discussions that I had with the participants, I found appreciation for and

evidence of new relationships that formed during the learning of gardening practices. Some key examples of these occurred among the participants themselves, as they shared new knowledge and practices:

Participant 5: The digging that I was doing was difficult for me as the soil was dry and hard. What I liked is that they were other club members who helped me. It was my first time to do that, and I learned how to use garden tools and working with the soil to prepare the beds.

Participant 1: I learned to prepare a garden from scratch and that if I want to have a garden, I need to first prepare the soil by digging before planting. What I was doing on the picture is digging. I had to come during the weekend because during the club meeting day I will be having a lesson.

Participant 3: I took this photo to show the seedlings that have grown. I am happy with the progress shown. The seedlings will be transplanted though I do not know how this is done but with the help of the other members will be able to plant them.

I am not very good academically in class but found out that when it comes to working with my hands, I am a star and good at it. (DA).

From these reflections, it is clear that some of the participants acquired new knowledge and skills about using garden tools and working with the soil. It is also evident that they have not done this kind of work before but were willing to work and learn with the help of others to achieve the intended goal. They learned practical lessons about starting a garden and using tools for digging and planting. One participant reflected on the final photo narrative that, “*I volunteered to make sure that I water the garden before going home, I am now responsible I never took care of plants but now I am caring for vegetables and other plants*” (DA 1). Disruption of the water supply was a challenge for the project, as at times we would spend two to three days without water (OB 5). The action plan gave the participants achievable goals which could be used to track progress. It was evident that participants felt like they belonged to the group, where they participated and developed relationships through interacting with each other and becoming more confident in themselves.

Participant 1: We managed to do the project up to the end and strong relationships were built.

Participant 6: Working together has taught me that we can make a change if we are united and share responsibilities (FGDE).

The participants were able to forge new relationships, working collaboratively and sharing responsibilities. They reflected that working like a family, respecting and tolerating others, was key within the project. This led the club members to own the project. The hard results could be achieved through the soft results. Due to the water crisis, they failed to harvest all the crops that they were supposed to according to the action plans, but nonetheless they harvested spinach twice and a few were able to take spinach home. Below is an example of their reflections on their learning experience.

Participant 2: We were able to design the garden and agree on the crops that we were to plant. The soil was also prepared by putting manure and were able to plant.

Participant 9: All in all, we were able to follow our action except that the maintenance and harvesting was a challenge (OB 5).

The above illustrate how the participants evaluated their achievements against the action plan. They reviewed the action plan in order to formulate more successful plans, which would help them when planning ahead. During the implementing stage most of the planned work was done. A challenge arose in early November due to water shortages and it became difficult to maintain the garden successfully. This resulted in failure of some of the harvest as the soil became too dry for some of the plants due to water scarcity. Nonetheless, being actively involved with the gardening project strengthened collaboration amongst the eco- club, schoolteachers, the principal, and learners.

4.4 The potentials and challenges of the pedagogical intervention at each of Wals's social learning stages

According to Wals, "social learning requires reflection and reflexivity throughout the entire process, if only to improve the quality of the process itself and to monitor change and progress throughout" (2007, p. 41). This section reports on potentials and challenges of the social learning educational intervention. Each of the stages is discussed separately in the ensuing sub-sections. This section presents data from analytic Phase 3, which meant reviewing the intervention project from the perspective of Wals *et al.*'s social learning framework. An analytic memo was used to analyse this stage of Wals's social learning framework (see Appendix J).

4.4.1 Contemplating

This first stage was discussed in Section 4.3. No insight into this stage was gathered from the analysis, but as a teacher I feel it is worth explaining how the participants decided to be part of the intervention. The establishment of an eco-club for interactions and meetings was to ensure that the group reflects the interests and perspectives within which the social learning process would take place. I observed how the group was established; this was through formal and informal meetings which provided founding interactions from which the core group would emerge. This is the stage at which the club members decided whether they wanted to be part of the group who volunteered to take part in the gardening project.

4.4.2 Orientating

Wals explains that “orientation and exploration involve identifying key actors and, with them, key issues of concern or key challenges to address in a way that connects with their own prior experiences and background, thereby increasing their motivation and sense of purpose” (2007, p 41). Of course, in our case the key actors, being the group identified for the project, were the volunteers from the eco-clubs. I chose videos to provide stimulation for narrative explanation as part of orientation in social learning, and I made an attempt, where possible to choose relevant themes for the club. Within these categories, participants then highlighted issues of importance in their respective situations. Videos were used to explore some of the issues, specifically energy use, education and transport. The videos were intended to stimulate thinking and enable them to understand what they had watched in their own context. Newspaper articles were also used to examine local issues affecting the wellbeing of children and youth.

The introductory and follow up focus group discussions of the photo narratives were also used as part of orientating. The photo narratives were designed to explore key matters of concern. The video, introductory focus group discussions (IFGD) and follow up focus group discussions (FFGD) were used to stimulate full participation and in-depth discussions on the theme. The intention was to gain the participants’ commitment and to understand key issues of concern. This stage helped the participants to identify the matters of concern in their real- life situations (OB 1b). Videos and newspaper articles were used as aids to address ‘problem areas’ and to help in the

discussion of matters of concern. The participants gained new knowledge from the video about energy and the deliberations thereafter, for example suggesting ways to conserve energy like boiling only the amount of water needed. The videos ensured that discussions enabled contextualisation of learning, as indicated by participant 5 who stated: *“I enjoyed watching the video on energy use as it made the discussions easier, and we were able to relate to what is happening in our own homes when it comes to the use of electricity”* (IP). Participant 6 had this to say, *“... example when we watched different videos, we were able to relate to our own lives and experiences”* (OB 1a).

Participants reflected that the videos were helpful in preparing them to explore matters of concern. This is evident from the following two quotes:

Participant 2: By watching a video it gave us an idea on how we were to go about exploring issues.

Participant 4: The videos that we watched helped us to have an understanding of what we were going to discuss about the issues and risks that affect us (OB 1a).

From the above discussion, it is clear that audio-visual material is very useful as an aid to promoting discussion and for gaining understanding of concepts and ideas within the participants' own context and are thus important tools for an educational intervention like this one. Discussions on all themes were facilitated by listening to and giving each other a chance to speak (OB 2a, b & c). The facilitators were chosen from amongst the club members at the outset and showed that they had the qualities for facilitation, such as the respect of their peers and a sense of fairness and authority. They were also able to stimulate discussions. It was a good lesson for other participants, as indicated by participant 6 who said: *“Through discussions we have been able to learn from each other, It is very important to listen attentively to others that how you get ideas and new things. I also learned that we need not look down on one other as we all learn from one another regardless of age”* (IP).

One challenge in dealing with the theme of energy use was that the video we used was not entirely geared towards the level and age group of the participant. Particularly participants from the primary school struggled with some concepts (OB 1a): *“...I could not understand the part where it was explained about measuring instrument for energy”* (IP 4). Participants understood and empathised with what they saw in the videos as they were able to relate it to their own experience,

such as not saving electricity resulting in them having no electricity by the end of the month (see Section 4.3.3). The videos used were able to stimulate discussion and relate to participants' own.

The video on the transport system in South Africa used Johannesburg as its primary example. Participants managed to understand the challenges encountered but could not apply these to their own life situation as different modes of transport are used in Makhanda. This is what came out of the discussion:

Participant 2: The trains that we have just watched on the video are not here in Makhanda. Why don't we have trains to take people to work because they seem to be cheap and use less fuel?

Participant 8: Ja we need trains so that we can see them and have a chance to board them. I have never been in a train only see them on televisions and pictures.

Participant 1: How many people can a train carry at once. In the video they were so many, and this can be the best way to save fuel and also to have cheap transport in our town which can be afforded by almost everyone.

The video clearly did not serve its purpose to enable the participants to draw parallels with their own context. Most of the participants were eager to know how people in Johannesburg manage their commuting (OB 1a). This meant that the video presentation served little purpose, as participants were discussing trains and aeroplanes which are not found in Makhanda. It was not relevant to their prior experiences and backgrounds. The advantage of the video was that the question-and-answer discussions enabled exploration of the issue of transport and roads in general (OB 1b). I expected this video to be significant because it featured many types of transportation. However, I later discovered that the video was inappropriate because these modes of transportation were not used in Makhanda, and some of the participants had never experienced the various modes of transportation portrayed in the video. As a researcher, I learned that some of the tools I utilize do not always work as anticipated, and that if not properly applied, they can result in unexpected outcomes. Photos taken by the participants showed some of the issues faced in Makhanda, and they were able to deliberate on them (OB 1b).

4.4.3 Activating

This stage also involves (self) awareness raising. I observed self-awareness amongst the participants through their deliberations and their creativity, innovation and analysis in the way they

approach problems or challenges. They had innovative strategies in how they used the Handprint series and newspaper articles to create awareness (OB 2a). The advantage of this stage was that the participants were encouraged to be ‘free thinkers.’ During observations, (OB 3b) *“We were taught to think outside the box, and this means that we are creative and confident when it comes to sharing of ideas”*. As stated by Wals *et al.* (2009), change was visible at this stage, though small, but it showed that learning had taken place, and this kept the participants motivated (OB 2b). The only challenge in this stage for all the themes was time management, as the transport would come to collect some of the participants while they were still in the middle of discussions (OB 3b).

Wals *et al.* (2009) state that it is necessary to involve more people who are supportive and have high levels of energy and involvement. The potential for this stage is to bring in new knowledge and external expertise. For example, to support food growing, worm farming and soil enhancement skills were brought in from another school.

When the participants were deliberating about waste it became a vibrant discussion as waste is their everyday issue. The advantage of this stage and theme is that both external knowledge and as the group’s own experiences can contribute to the learning process. This can lead to creative decision making which may lead to a more sustainable society (Wals 2007; Wals *et al.*, 2009).

4.4.4 Selecting

Similarly, when dealing with the theme of water, a Handprint booklet about water and water issues were used to stimulate discussions to arrive at a shared analysis which could bring about change. In this way new knowledge was acquired and learning demonstrably took place. Among the advantages of the selecting stage are that the participants gained a new understanding of SWOT analysis, which they learn in Economics Management Sciences (EMS) at school, although SWOT analysis was new to some of the youth. It appears to have been a useful strategy in the ‘selecting’ stage. This is evident in the following quote:

Participant 2: I liked the SWOT analysis as it was my first time to hear the words. At first, I did not understand how the SWOT analysis was related to matters of concern, but I later got a clear understanding. Thanks to the older group members who explained for us. By analysing each theme, it gave the opportunity of choosing the project with less external forces and internal

forces which we can control. This helped to choose the issue we are able to work on (IP 2).

This was also supported by this quote:

Participant 2: I learned the SWOT analysis and was able to look at the strengths weakness opportunities and threats and be able to choose the most appropriate theme to work on (DA 2).

Another advantage of the selecting stage is that it helped narrow down the choices to select the theme that was the most viable for the group to develop a sustainability practice. Participant 2 also said that selecting the garden project as a sustainability practice would teach a practical skill which could help them in their daily lives due to poverty and unemployment amongst many of their parents (DA 2). Another advantage of this stage is that participants gain experience in critical discussion. An example of critical discussion which arose when discussing the waste theme was that, while some participants suggested that it is alright to burn litter as long as it is during the night when everyone is indoors, others said that this would result in destroying the environment. If critical deliberation is healthy and respectful in a group and does not result in conflict as, it can lead to consensus and benefit the group. This is supported by Wals *et al.* (2009) who state that conflicts are inevitable but should be considered as a significant source of collective learning. Time was a limiting factor in this stage as some participants would have to leave before the activities and discussions were complete (OB 4).

4.4.5 Implementing

This is the stage where action was taking place, as the youth were now working on the vegetable garden as the chosen theme. The sustainability practices of embarking on a garden project is a key outcome of the above-mentioned interconnected processes of social learning. The knowledge gained in the garden eco-club project was mainly practical. During the focus group discussion, one participant confirmed that they preferred working with their hands rather than sit in training: “*I prefer to learn by doing rather than sitting and listening, I prefer hands on learning*” (FGDE).

During my observation, I noted that most participants were not willing to work with soil which they considered to be dirty. However, in time I could see a big change in their attitude (OB 5). One

learner reflected that she no longer minds if she goes home dirty as long as she had worked in the garden (DA 1).



Figure 4.14: Water saving practices

The beetroot plants were showing signs of growth, although they eventually dried out due to the severe water crisis. The lesson learnt: club members saved water by placing two litre bottles of water next to the beetroot plants to avoid wasting water by watering the whole garden, including areas without plants (See Figure 4.13 above). This was done for a few weeks but then due to water shortages they could not continue with the practice, so the beetroot was not harvested. This phase was about participants collectively choosing solutions to implement in the garden project.

The garden project process is a key outcome of the above-mentioned unified processes of social learning. The knowledge gained was mainly practical in nature, and the application of the gardening practices was an important source of learning for the eco-club.

During the focused group discussion, one participant confirmed that, while they might not be good academically in class, they were good at working with their hands. It is evident from the processes of orientating through to reflecting on possible solutions above, that while there was great support of practical learning, there was also much time given to learning about the practices through

discussions, questioning and observing others. Through discussions, a gardening site was established within the school premises where the participants shared knowledge and material resources. The site for gardening was important because it was big and had good working space.

I also observed some conflicts about the maintenance and watering of beds. Water shortage was a major challenge to crop production. Learners struggled to carry water to the garden from the school water tanks, which were far away, and there were very few buckets. This prompted participant 4 to quip, *“This is not easy”*. One participant said it was time consuming as there were too few. Participant 6 reflected on her experience watering the beds. *“I wish the school could allocate two tanks at the garden site for easy access to water”* (OB 4).

I also observed how others felt that their current ways of knowing and doing were being challenged. For example, participants expected the school to build more rainwater harvesting structures, as reflected here: *“What we also need for the project is big tanks to capture and store water rather than relying mostly on tap water”* (OB 4).

It was through the actual implementing process that participants became aware of the challenges of a water shortage and had to learn how to adapt and cope with water issues. One participant brought two litres of water from her home to school for the garden and encouraged others to follow suit.

The group dynamics of the participants also shaped the implementing of the garden project. Division of labour played a major role in the actual implementing of the project. What I observed was the application of knowledge of gardening, which was most effective where knowledge sharing took place amongst the participants and the caretaker. I noticed that while the caretaker was demonstrating, some participants were watching carefully what was being done.

As explained above, the implementation stage involved the actual implementation of the gardening activities. It entails practices and involves building social relationships and learning amongst the eco club members, the teachers and facilitator.

4.4.6 Evaluating

Wals *et al.* report that they “.... treat monitoring and evaluation of social learning as part of the final phase as it is necessary from a perspective of a commissioning party to adequately assess the

added value of social learning” (Wals *et al.* 2009, p. 24). This evaluation stage is significant in the process in order to learn from similar social learning cycles. Some key examples of these occurred between the participants and the teachers and other learners who usually visited the garden site. I observed how these relationships became stronger over time, also as more learners began to express interest in being part of the eco club.

There were challenges with water scarcity in Makhandia continuing for weeks. Drinking water was provided by the municipality in motor tanks twice per week and this affected our garden. However, the participants through collective learning came up with solutions to the problem (see Figure 4.13). During activating stage, a Handprint booklet on the use of grey water had been used for discussions. This prompted the suggestion to use grey water to water the garden. The water was from washing dishes and bathing. Some participants also referred the group to the activating stage, where they discussed a Handprint series on ‘growing vegetables for free using a shower water filter.’

According to data from individual interviews and document analysis the participants confirmed that SWOT analysis and SMART goals stood out as new concepts for many of them. The ones with experience working in gardens demonstrated and taught their skills to the young ones. The older participants also reported that they learned new knowledge from the younger ones. They all participated in the selecting of a sustainability practice and all worked in the garden. before the drought crisis, the garden was functional, and it was being effectively cared for.

The sustainability practice was implemented as planned by the group, and club members managed to collect spinach twice. They were not able to harvest any other crops because these dried out when they did not receive any water during the drought (October, November and December). Water scarcity was a challenge which was beyond the reach of the club members to solve, although possible solutions were suggested and tried.

Ultimately social learning contributed to changed practices and ideas amongst the youth in Makhandia. Through this educational intervention it is evident that learning had taken place in all the stages of Wals’s social learning framework.

4.5 Practice architectures - food and water

The term 'practice architectures' refers to those practices which are shaped not solely by intentional action and the practical knowledge of participants but also by circumstances and conditions 'external' to them. A practice is shaped by social arrangements of ideas in characteristic discourses (concerned with language used during deliberations), material- economic arrangements (concerned with resources and funding of these), and social-political arrangements (club, school and community regulations) (Kemmis and Grootenboer, 2008). These arrangements form the core and conduct of a distinctive project of sayings, doings and relatings (Kemmis *et al.*, 2014) (see section 2.7). The food and water themes were analysed together as these two were interconnected in the project chosen for implementation by the eco-club members. The enabling and constraining factors that emerged from the data are listed below.

4.5.1 Cultural-discursive arrangements

All the youth except one spoke IsiXhosa as their home language. The languages used during club interaction were simple English and the youth's home language. As the video clips were in English, they had to be paused intermittently during viewing so that terms could be explained in Xhosa. Their home language was mostly used, this facilitated discussions as everyone could participate even when they could not find English names for the vegetables: "*Imifino, utyuthu, imbikicane no umhlabangulo*" (OB 1a). "*These vegetables are traditional and do not have English names and were used by our great-grandparents and by the settlers before they colonised South Africa*" (OB 2b, P9). For some learners, the names of the vegetables were a way to reconnect with their traditional practices of working in gardens within their respective communities. This is what emerged from the participants:

"The Handprints were so informative, I learned so much from them which relate to our own experiences and the way we use vegetables at home. As we were reading and discussing the Handprint, 'Grow your own' I felt connected to my culture and home experiences." (IP 6).

"The Handprint resource book on 'Grow your greens' helped us on how best we had to go about growing our own vegetable and the type of vegetable which is more sustainable" (FGDE, P11).

These resource books enabled participants to relate to their culture as well as helping them to choose vegetables which were sustainable. This also helped them to reconnect to home

experiences. The inclusion of an expert during the activating stage helped to introduce a scientific discourse to support the project. Concepts such as soil nutrients, for example, were presented and discussed. The Handprints used in the activating stage also used simple language and participants showed that they understood what was being communicated. The Handprint used sustainability discourse, including concepts such as ‘sustainable’ and ‘livelihood’ which were integrated into the discussion.

Participant 7: By growing our own food it means we are aiming to live a long healthy lifestyle. This means that having a garden can help us to live longer as we will be eating healthy food” (OB 2b).

“The Handprint resource book on ‘Grow your greens’ helped us on how best we had to go about growing our own vegetable and the type of vegetable which is more sustainable” (FGDE, P11).

The terms used in the selection stage were obtained from specialist discourses of the Economic Management Sciences/Business Studies curriculum. SWOT analysis and SMART goals were used to select the project to be implemented. These concepts were new, especially to the primary school children, as reflected by P 2 (see Section 4.4.3) from the individual interviews. The participants' home language was used during the implementation of the garden project, allowing the participants to communicate freely. This made it easier for the participants to relate to one another as they were working in the garden and within the school (OB 5).

However, language was also a constraint in some instances, as my home language and that of the club members was not the same. Although my own language is not isiXhosa, I can communicate in simple isiXhosa without challenges. The older participants preferred to use English, but they switched to isiXhosa in their deliberations out of consideration for the younger participants. (OB 1a, 3c). The terms used in the selecting stage, while being enabling in the educational sense, were also constraining, especially for the younger children who had not yet done Economic Management Sciences. Participant 1 reported that, *“I am confused with the use of these words strength, weaknesses opportunities and threats as this is my first time to hear them since I am still in grade 6 and we do not have this EMS as a subject, so it is difficult to marry them”* (OB 3a). The SWOT analysis needed to be explained clearly to the young people. It took additional time to explain the concepts to the younger participants, and this was a constraining factor. However, the older participants could relate and helped by explaining further in isiXhosa what they had learned in class during EMS and Business Studies.

The last constraint was that there were some participants who had no prior experience in gardening. They had no culture or background of gardening or of being involved in gardening at home. This is what participant 5 said, *“I have never done gardening or used any of these gardening tools. I would like to learn doing all this if they are any of you guys who can teach me”*. Participant 8 added that, *“Even I have never done any activity that involve gardening though the tools are there at home”*. These participants needed to be taught and struggled to correctly use the gardening tools. This was time consuming, although those who had experience had the patience to help them through the lessons of digging, planting, weeding and watering the crops.

4.5.2 Material-economic arrangements

The gardening project afforded the space for youth engagement and new practice architectures for learning. The invited expert and the Handprint series were resources which were used to suggest practical ideas for working on a sustainability project. One club member remarked that: *“The Handprint resource book on ‘Grow your greens’ helped us on how best we had to go about growing our own vegetable and the type of vegetable which is more sustainable”* (FGDE, P11). The Handprint provided information and practical ideas on how vegetables could be grown. The Handprint resource book fulfilled its purpose, which was to respond to matters of concern in the community (O’Donoghue & Fox, 2009). The practical demonstrations given by the learners who were brought by the invited expert inspired the choice of gardening as a project, as the participants were motivated by other learners who displayed their practical skills. Participant 8 commented: *“I am inspired to do a garden and looking forward to experience all this”* (OB 2c); and another explained: *“We decided to do gardening because we wanted to prove ourselves that we are also able to do like the other learners”* (IP 2).

The school has three water tanks which were used, as well as a municipal tap close to the space for gardening. The space selected for the vegetable garden was an important material- economic arrangement as it provided a reliable learning space which enabled youth to enact sustainability practices and different learning practices. The space was big enough for all participants to be engaged in the work prescribed for the day (OB 4).

Youth were involved in hands-on activities like digging, measuring the beds and designing the garden beds, mulching, planting seedlings, watering the garden and weeding. *“Today we were planting spinach, what was useful is that after we planted our vegetables, we covered them with*

dry grass and the older participants explained that it is mulching I acquired a skill that I did not have” (IP 6). Another participant reported that, “Doing gardening has been educational for me as I developed new skills, being accountable as I never took care of plants but now, I am caring for vegetables and other plants” (DA 1).

There were constraints that the club members encountered. One major constraint was the high school’s timetable, as participants could not attend all of the meetings that were scheduled. This is explained by Participant 4. who said:

The main problem that we encountered during all the stages of the project was time management, we could not managed time properly and we could not finish what we had planned for the day. Those from the primary school would finish lessons at 2:30p.m. and would start the discussions immediately. Those from high school they knock off at 2:45p.m. and would arrive here at around 3:05p.m. we could then explain to them what we have done then by the time we are in the middle of the discussions that is when we are supposed to leave (FGDE).

Participant 6: I also agree with the previous speaker time was really a challenge even when we were implementing the project, we also agreed to use Sundays and the same problem of arriving on time was a challenge to these attending on Sundays (FGDE).

An additional constraint was that garden tools were very limited, and this made the work difficult to complete as planned. One participant reflected and said, “On this picture only, few are working as they were no tools for everyone to use, this derailed progress” (DA 6). However, through discussions the club members came up with solutions to solve the problem as evident from the following discussions:

Participant 7: For us to do progress according to our action plan, we need to improve on the tools as we are not moving.

Participant 2: How are you going to improve that?

Participant 12: At home we have tools which I can bring so that I will use instead of waiting for three spades, so if they are some with tools let them bring so that we achieve our goals (OB 4).

Some younger participants volunteered to come on Sundays bringing their own garden tools. High school youth at times could not attend due to afternoon classes, and by coming on Sundays they could do the planned work which had not been completed. A passion for gardening was clearly born as evidenced by these volunteers to work on a Sunday. This was supported by:

Participant 6: We will bring our own tools on Sunday ma'am. If we can come for the next three Sundays, we can cover a lot (OB 4).

Another constraint was water scarcity, with the water situation changing over time in the whole of Makhanda. The garden needed water for watering the plants. The water crisis in Makhanda worsened in the middle of the project and this greatly affected the project as the school administration had to stop watering of the garden. This was explained to the club members and this is what the participant 10 said, *"How are we going to solve this problem of water"*. Participant 1: *"I think our city fathers have to do something about this worsening crisis of water, how is our gardening going to survive if they can't even provide drinking water"*. Through deliberations the members agreed to each bring 2-litre bottles of water for sustaining the project. As the situation became worse the garden could not be watered at all, as the club members were unable to bring water from home. This affected the project.

4.5.3 Social-political arrangements

The participants were from two schools and to support integration, I mixed the participants during group work (OB 1b). A web of relationships grew between primary and high school youth, the invited learners, the invited expert, the caretaker and I. The learners who came with the invited teacher were able to create good relationships through group discussions (OB 3a). By the end of the fourth week relationships were built, and the older participants were able to communicate and share whatever knowledge they had with the younger participants amicably. The older youth and the younger youth demonstrated a good working relationship and understanding of the different age groups within the club by tolerating one another. *"I would not mind working again with these older group as they were so patient with us. This made communication easy as we were able to ask and participate without fear of being looked down"* (FGDE 3, P4). In the same way, the older youth had similar sentiments about working with the primary school group during the project, *"I would have loved to work with these young group of kids as they shared constructive ideas and we managed to work together without looking down on them"* (FGDE 3, P8). From the interview this also came out, *"I loved working with the group as we were all able to tolerate and respect each other"* (IP 2). All the participants were happy with the communication and how they interacted with one another (OB 5). This was an added benefit, alongside learning about gardening activities

and creating synergies and building relationships with different people involved in the project. New social-political arrangements were formed through the interactions.

Mutual respect was built during the process between older and younger participants. During the gardening activities, the caretaker would come and watch the group working and at times he helped the participants with their activities. I helped in the project explaining concepts and working in the garden. There was also support from the staff members and other learners as they would come and watch, giving suggestions and ideas to help in the gardening activities (OB 3). This is another example of gardening creating practice architectures for learning. I watched teachers, along with the caretaker, bringing different practices of teaching and learning into the garden as they instructed the participants in specific practices related to the garden (OB 4).

Participant 4 remarked that: “The whole process has been a great lesson and a learning curve in my life as I have really benefited in the whole process especially in my communication. I have grown to trust my peers and have gained confidence in whatever I do” (OB 5). The social learning intervention was educational as is evident from Participant 5. Relationships were built and this improved their communication skills, trust and confidence.

4.6 Conclusion

This chapter presented data generated from the desktop document review, individual interviews, focus group discussions, documentation and review of participants’ work from the eco-school club. Through Wals’s social learning framework and practice architecture theory the chapter explored the dynamics of the emergent sustainability practices initiated by the eco-club members. The potentials and challenges of the pedagogical intervention at each social learning stage were discussed. This study has provided insight into processes to be followed to establish and support social learning approaches with club members. The chapter further went on to present the practice architectures enabling or constraining the eco-club practices. There was discussion of practice theory as it was used in the research to examine doings, sayings and relatings of club members, as well as the theory of practice architectures which sought to explore enabling and constraining factors in a practice. The essence of Chapter 5 will be to reflect on Chapter 4 and Chapter 2 to present an argument. Chapter 5 therefore discusses and interprets the data presented in Chapter 4 and synthesises the study findings relating to the research questions and the purpose of the study.

CHAPTER FIVE: DISCUSSION AND CONCLUDING STATEMENTS

5.1 Introduction

This chapter discusses the data presented in Chapter 4. It explores how the data contributes to answering the questions that guided this study while drawing in key ideas and concepts from the literature reviewed in Chapter 2. The chapter further provides a summary of findings and reflections on the procedures undertaken to answer the research questions followed by recommendations for future consideration. The recommendations also serve as a potential starting point for analytical and constructive engagement of others who may want to conduct research on how sustainability practices respond to environmental matters of concern for the well-being of youth.

5.2 Interpretation and discussion of findings

5.2.1 Socio-economic status of Makhanda youth

The first sub-question of the study was: 'What is the socio-economic status of Makhanda and Makhanda youth?' The desktop study used to respond to this question made use of a 2011 report to describe the demographics of Makhanda as a small town in the Eastern Cape province of South Africa with a population of 67,264, of whom 23.2% were youth (Statistics South Africa, 2011). Currently the town is the centre of rural to urban migration. Many young people from surrounding areas migrate to Makhanda in search of better education in primary schools, secondary schools or at Rhodes University. Makhanda's youth are poverty-stricken, consistent with unemployment being the main concern amongst youth (Statistics South Africa, 2011). 29% of the population are employed, 42% are unemployed and 29% of people do not contribute economically (Statistics South Africa, 2011). The majority of residents are Xhosa-speaking (Moller, 2008).

The residents in Makhanda mostly use electricity for cooking and lighting, while some use electricity mainly for lighting and use other sources of energy for cooking (gas, paraffin and firewood). On the theme of transport and mobility, Makhanda is a small town which does not have transport that specifically caters for children and youth, so they have to use public transport such as taxis. The majority of children and youth walk to and from school, and those who live far from

school have scholar transport provided by the Department of Education only during weekdays. This scholar transport is provided for children and youth coming from farm school and areas where there are no schools nearby. There is, however, much concern about their vulnerability to rape and child trafficking among the young people as they make their way to school (see Section 4.2.5). On the theme of leisure and communication, there are sports and recreational centres that the municipality has provided in Makhandla, but these face the challenges of coping with theft and vandalism (Makana IDP, 2015 -Section 4.2.6). The municipality recently built the Indoor Sport Centre for gymnasium and indoor sporting activities, and the Youth Hub which provides computer lessons and internet services to children and youth of school going age (see Section 4.2.6).

The Makana municipality provides service delivery for waste to be collected in each community once a week. The municipality provides a black plastic bag for each household to put their waste in (see Section 4.2.7). Water is scarce in South Africa, and Makhandla in the Eastern Cape province is particularly drought-stricken (see Section 4.2.8).

Section 4.2.10 of the desktop document analysis revealed that according to Statistics South Africa, (2011) the Eastern Cape has the second highest poverty level in the country. The research findings gave an insight into on how social grants are used in households in the city. Social grants are provided by the South African government with the goal of providing a certain level of income to less privileged groups such as the poor, orphans, elderly, and disabled people. The research showed that social grants are not enough to cater for household needs, including food. From the focus group discussions (4.3.8), youth reported facing difficulties in obtaining enough food for the whole family. Some of the reasons given were related to their parents being unemployed and the high food prices. The research indicated that grant money was insufficient to meet recipients' basic needs. This is exacerbated by grant recipients having additional expenses related to their education. The research further revealed that many families had to reduce the number of meals per day, in order to make ends meet on what they receive in social grants.

Lastly, on the food theme, the desktop document review found that there is a National School Nutrition Programme in all government schools providing two meals per day to children and youth (see Section 4.2.8). This is to alleviate hunger so that the children and youth are able to attend lessons on full stomachs. In addition, Non-Governmental Organisations such as "Meals on Wheels" are providing meals to the primary school learners, as it is a private school. The meals are for the less privileged who cannot afford to bring lunch to school (see Section 4.2.8).

5.2.2 Matters of concern in Makhanda

The second sub-question of the study was ‘What are the matters of concern in sustainability issues, risks and practices emerging from this context?’ This discussion is based on the key matters of concern as presented in Section 4.3 of the study.

One of the themes explored in this study was energy use. The children and youth raised a number of matters of concern regarding energy use. Findings from this section suggest that poor households struggle with high energy costs and some households are now using wood (see also Shackleton *et al.*, 2007 – Section 4.2.4), paraffin and charcoal for cooking and candles for lighting. According to Statistics South Africa (2012- Section 4.2.4), 80.9% of the Makhanda residents depend on electricity. It is evident from the discussion (Section 4.3.3) that residents depend on electricity mostly for lighting, cooking and boiling water. Participants felt that their households could not afford the high cost of electricity to meet their energy needs. Children and youth lamented that grandparents who headed households were less likely to monitor electricity usage, and also identified a lack of knowledge of environmental impacts, lack of education to motivate a change of lifestyle (in both elderly and young people), and difficulty with breaking old habits as obstacles to saving energy. There appear to be unrealized possibilities for working with parents, grandparents and guardians in homes to address some of the issues raised under this theme. These ideas could inspire future sustainability projects in the club.

The next theme explored in this study was transport. Children and youth remain a neglected population in the world of transport, notwithstanding the vital importance of education, health and other services for our future advancement and for sustainable development (Porter *et al.*, 2019). Discussions in Chapter 4 revealed that most respondents viewed mobility or transport as a matter of concern as there is no transport reserved for children and youth, leaving them vulnerable to rape and child trafficking. Children and youth (especially girls) noted feeling insecure when walking to school past taverns going to and coming from school.

Children and youth reported that they use taxis when possible as a main mode of transport, but there were challenges. Taxi fares are expensive and the roads are in poor condition, with many potholes which damage vehicles and cause accidents. The gravel roads are dusty, make the scholars dirty on the way to school; and during rainy weather, the roads make them muddy. Some youth suggested that there were also benefits to walking, such as fitness and exercise, if the weather

was fine. This issue included a number of systemic complexities, and the children and youth were unable to come up with any ideas to improve their well-being. Because of the systemic obstacles, transportation was one of the issues they felt they could not handle individually or as a group of eco-club members.

Leisure time, the next theme explored in this study, provides youth with countless opportunities to practice different social roles and activities (Sinisa, 2014), and the lack of entertainment and youth friendly places affect the well-being of children and youth, as supported by McGillivray (2007-Section 2.5). The children and youth reported unavailability or vandalism of secure leisure infrastructure in Makhanda. (Section 4.3.5). The findings for leisure and communication revealed that the children and youth are excluded from the gym due to limited equipment as the older people simply take the equipment from them. The other issue raised by girls was discomfort when going to gym because of the way they were treated by older men (Section 4.3.5).

This means that the youth prefer to stay at home watching television or spending time on their cell phones and the internet (Mason, 2017) (see Section 4.2.6). Some reported playing in open spaces, on the streets nearby or walking around the street close to their homes after school. However, some said that the sports grounds were not safe to go to with their phones. Safety at the recreational facilities was a primary concern among girls and younger children in the group.

Leisure and communication was another theme that was not seriously considered to taking forward as the children and youth felt disempowered and unheard when they raised issues of inequality in access to facilities (such as the equipment in the gymnasium). Future exploration of this theme could include consideration of alternative venues and self-made equipment by club members.

According to LEAP (2005), the Makana municipality identified illegal dumping as one of the priority issues in the city. This relates to the theme of waste, as explored in this study. Some participants expressed embarrassment at the current state in their communities, which were full of “rubbish”, “litter”, “garbage”, and “waste”. Several responses from the youth on waste as an environmental matter of concern were noted. Some of the children and youth were explicit in group discussions that they are to blame as they also participate in the creation of illegal dumping sites. In addition, some burn their litter during the night (see Section 4.3.6). However, they also noted structural difficulties, as the municipal collection system is not fully functional, thus contributing towards illegal dumping. According to Latour (2004 - Section 2.3) waste can exist as a matter of fact but due to people either caring or not caring about the issues, the desires, morals

and ethics added to the issue make it a matter of concern. Some youth who stay close to the dumping sites reported being directly affected by the stench of decomposition and flies and reported human health and environmental concerns (see Section 4.3.6).

Section 4.2.8 reported that South Africa is experiencing severe pressure with respect to water security due to an increased water demand and rising population. According to Weaver *et al.* (2017-Section 4.2.8) the degradation of water resources and services often affects the poor people without the option of alternative water sources for domestic use. This relates to the next theme explored in the study. In Section 4.3.7 the children and youth reported that they no longer drink water from the tap, which is dirty and carries health risks, but instead use it for bathing and washing dishes. Others shared memories of a time when tap water was clean and they could trust it to drink. From my observation, as a teacher, when there has been no water for 2-3 days there will be a lot of absenteeism.

According to Weaver *et al.* (2017 - Section 4.2.8) residents have completely lost faith in the Makana municipality due to poor service delivery. It was highlighted by children and youth in their discussion that water has been a problem since time immemorial and has been coming out of the tap dirty. This resulted in them not being able to drink it, and having to resort to buying bottled water, using rain harvested water or going to collect water from the spring (see Section 4.2.8). However, some participants reported that they are forced to use tap water due to a lack of money and transport to fetch water from the spring.

In discussing the next theme of interest to this study, food, the participants indicated that, due to poverty in their homes, they prepare simple traditional meals which need only a staple starch such as rice, potatoes, dumplings or samp or inexpensive proteins such as beans. Some eat only inexpensive bread and water mixed with sugar (see Section 4.2.8). Findings indicated that the school nutrition programme and NGOs' support with meals have contributed to ensuring a healthy diet, as some of the participants' homes experience food shortages.

The findings also indicated that, to alleviate this problem, club members felt that there would be value in supplementing their meals by means of a vegetable garden. However, they noted some sustainability issues with starting a garden, such as the sandy soil needing a lot of manure in order to plant and produce healthy crops. To improve their lifestyle within their households, the youth suggested home gardening as the best potential source of income and nutrition, through growing and selling vegetables. They also reported that home gardens give instant access to fresh produce

and reduce the need for families to go to the market to buy vegetables, thus reducing family expenses and lessening the effect of food price hikes (see Section 4.3.8).

An invited expert introduced sustainability practices at the responsive stage of Wals's social learning cycle. This was explored by analysing the observations from activities done after the first 4 exploratory phases of the intervention (contemplating, orientating, activating and selecting). The invited guest, who is a specialist in worm composting, gave her presentation on 'the wormery as a way of composting to improve the soil fertility', and the motivation was driven by the four learners whom she came with. The learners did a practical demonstration of mixing the fertile soil containing worms (which they brought) with the sandy silt soil at the school (see Section 4.3.8). Findings showed that a new understanding of the value of worms in recycling organic waste and enriching soil emerged amongst club members, as well as providing an alternative to artificial fertilisers. The findings show that the club members at first did not realize that recycling also happens when worms eat kitchen waste. Through deliberations and the presentation from the expert the club members seemed to understand the value of this form of recycling. The findings reveal that a sustainability practice emerged from the presentation by the expert, the activating stage of Wals' social learning. The participants understood and appreciated the sustainability practice that the expert demonstrated to the extent that they suggested making a wormery for the next project related to soil fertility, as the garden would continuously need the fertile soil for plants to grow well.

5.2.3 Potentials and challenges with social learning

The third sub-question was: 'What are the potentials and challenges of the pedagogical intervention at each stage in the process of social learning?'

From the first stage, which is contemplating, no data emerged for analysis as the participants were still deciding whether to be part of the project or not. This was introduced to the members of both eco-clubs, and some opted out. There were 28 participants who were eager to be part of the project.

The second stage is orientation. According to Wals *et al.* (2009 – Section 3.4), in the orientation stage, the change process and the corresponding 'problem area' are carefully and sensitively explored by a selected group, who will then identify the most significant interested parties and players and will find out how much institutional and political leeway and support are available.

This links the themes to real actions (*ibid*). There was potential for the use of videos and newspaper articles. Videos in this stage were used to link the themes to the youth's everyday lives and experiences and to help deepen their understanding of the matters of concern at hand. These videos showed matters of concern which are international and global. Local newspaper articles dealing with matters of concern such as waste and water affecting Makhanda residents were also used. These newspaper articles covered local issues. Videos were used in this stage of the orientation to provide capital for discussing issues of concern and generating suggestions for how and what to investigate. Although the transportation video was not appropriately contextualised, participants were able to engage in discussion about how their mode of transportation compared to the ones depicted on the film. The other video, on energy use, prompted conversation and allowed participants to make links to their own contexts. The use of videos and newspaper articles enabled the pedagogical intervention. The children and youth were able to relate to their own homes with respect to the use of electricity and had ideas that could be applied to their own context. According to Wals *et al.* (2009 – Section 3.4), the use of video clips that relate to own experience and background are useful to orient the activities. The issue of reliability was highlighted by the video on transport. Even though interesting dialogue was raised, and learning occurred, the video was insufficiently useful to act as a springboard for the activity stage which was to follow. The newspaper articles on waste were about the local situation, which prompted the children and youth to comment that their communities are dirty because of human actions such as illegal dumping. The children and youth related how waste affected their lifestyles as they were uncomfortable about inviting friends to relax with them at their homes due to the dumping site next door. The stench coming from the dumping sites was also unpleasant and unwelcoming. It is noticeable that the solutions that the youths were considering seemed to be more focused on more localised actions such as recycling, rather than considering action on systemic changes that could be achieved through collective action.

The children and youth created a photographic record - this was another potential as it allowed the participants to engage in discussions about their lifestyles. Wals *et al.* (2009) state that it is important in this stage to create room for images and imagining, and for scenarios and ways for solutions, or room for divergence. The potentials of this intervention were that the children and youth learned to listen to each other, sharing ideas and teamwork (see Section 4.4.2). The only challenge which was reported by the youth was time management, as the transport would come to collect some of the participants while still in the middle of a discussion. According to Wals *et al.*

(2009 – Section 2.6), in the context of sustainability a social learning process should be approached as new ways of doing things and understanding. However, not all experiences with relationships in this stage were easy. The children and youth indicated that they faced challenges at the beginning of the project, disagreeing about almost everything that they discussed. However, in this stage, youth were challenging their own frames, and this was part of learning (Wals, 2007). As a facilitator I was able to allow them the space for different views and this led initially to experiences of dissonance. However, eventually club members were able to reach a consensus and this enabled collective learning (Wals, 2007).

The next stage is activating. In the activating stage of Wals's social learning cycle, part of the goal is working towards re-imagining more sustainable livelihood practices (O'Donoghue & Fox, 2009). The potential of the pedagogical intervention was the Handprint Series (Section 4.3.6 - 4.3.8). The following Handprint books were used: 'secret of the spring', 'shower and bath', 'waste' and 'grow you own'. According to O'Donoghue and Fox (2009) the Handprints have been produced to help youth work with local cases of learning and change using locally relevant knowledge and practical learning activities that relate to our African context.

The sustainability practices from this series that were discussed were as follows: reusing shower and bath water, while acknowledging the limitations of using soapy water; recycling in order to reduce illegal dumping and litter in their communities; and recycling, upcycling, reuse and water reduction strategies were all ideas inspired by the 'Waste' Handprint booklet. The last Handprint topic to be covered was 'Grow your Greens'. In particular, the idea for planting the kale vegetable for supplementing meals with vegetables emerged from this booklet. This vegetable was appreciated because it produces many 'shooters' (runners). Club members thought it would help them to expand their garden and give them a sustainable harvest with the possibility of selling to the community as well as for their own consumption.

The invited expert, with her four learners who did a presentation on wormery and soil preparation, was a potential pedagogical intervention. The hands-on activities of mixing fertile soil with unfertile helped the participants to understand the importance of having a garden with fertile soil. The presentations helped participants to learn new sustainability practices and acquire new knowledge.

In social learning, the selection stage requires participants to identify with the design or action plan for a project based on a shared vision of how things could look (Wals *et al.*, 2009). In this

intervention, the selecting stage was supported by SWOT analyses. The 4 themes namely, 'energy use', 'waste', 'water' and 'food' were each subjected to a SWOT analysis. The other themes were not chosen for further analysis, as explained in Section 4.3.4. The older youth's contribution to this process (through their experience with projects in their Economic Management Sciences and Business Studies subjects) was that they already understood that when choosing a project to implement, one needs to do a SWOT analysis and then choose the options that are subject to less external influences, because one cannot control them. The SWOT analysis helped to choose the sustainability project to take forward and demonstrated to the youth the potential of using the same strategy for analysing the value of gardens in their homes.

In the implementing stage, the club used a SMART strategy to review the goals for the project this was another potential. The SMART strategy also helped them to monitor whether they were on track with their activities. The youth reported the significance of planning, which contributed to their achievements in running the garden project (see Section 4.3.8). There were signs of growth from this implementing stage. Several responses supported the impression that different skills, such as the care of vegetables, were developed (Section 4.4.4). The collective garden action led to youth being motivated to start vegetable gardens at home.

The youth also experienced challenges during this stage. Some of the younger children could not use the garden tools effectively and had difficulties in digging, but with the help of the older youth, they were able to participate (see Section 4.3.8). There were very few tools and they had to wait for one another and take turns to dig. This problem was solved by some youth bringing their own tools and tending to the garden over the weekend. Youths reported concern about not everyone contributing equally, which they attributed to laziness and also to a lack of discipline and/or attention amongst some.

During the evaluating stage, participants evaluated their roles and looked at their achievements and challenges in relation to the implementation timelines they had envisioned. Challenges to implementing the garden project did exist. The project required a long-term commitment and a supportive team to be involved in the maintenance of the garden, especially during the holidays. Water challenges were faced by the whole of Makhanda, the town going for days at a time without water. This resulted in the collapse of the garden project, as the vegetables dried up before being harvested.

5.2.4 Practice architectures affecting emergent sustainability practices

The fourth sub-question was: 'What are the dynamics of the practice architectures that enable and constrain emergent sustainability practices enacted by youth?' Following the guidelines of practice architectures, the analysis leading to answering sub-question 4 included examining the cultural-discursive arrangements (discourses and language), the material-economic arrangements (activities, resources and materials) and the socio-political arrangements. Kemmis *et al.* (2014- Section 2.7) referred to cultural-discursive arrangements (in the medium of *language*, in the dimension of *semantic space*), which shape and give content to the thinking and sayings that orient and justify practices. Data analysis included triangulation of focus group discussions, photo narratives and the observations.

The findings indicated that the club members had a good command of spoken English, as they all learned at a private school which uses English as the medium of instruction. This enabled them to converse in English without any difficulties. The Handprint Series were mainly written in English, which was also the invited expert's home language. In addition, the participants also used their home language (isiXhosa), which strengthened their understanding of the concepts. The High School participants often switched between English and isiXhosa to help with the explanations of some of the terms during discussions. Mahon *et al.* (2017- Section 2.7) expressed that the *language* and *discourses* used in and about a practice can enable or constrain the *sayings* of this practice. On the other hand, during the discussions and selection of the project, language was initially cited as a barrier by the younger participants, since they struggled to understand the EMS concepts (see Section 4.5.1), but with the help of explanations from the older participants, this ceased to be a problem. From my observations, language was a barrier in some instances where isiXhosa translations of the English words could not be found. I noted that at times it was difficult to communicate concepts in such a way that younger participants could easily understand.

Mahon *et al.* (2017- Section 2.7) mention that material-economic arrangements found in or brought to a site can enable or constrain the doings characteristic of the practice. Findings showed that resources play an essential role in the practice of the club members. The resources available were the Handprint Series and the invited expert. These informed the practice. The Handprint Series has start-up stories and examples of sustainability practices that could be used as a project. The invited expert presented a talk and demonstration on creating a wormery and gardening as sustainability practices (see Section 4.3.8). However, findings revealed that the limited number of

garden tools constrained the practice as there were not enough for all the club members to use, which made the digging and garden preparation take longer than was planned. The club members had to volunteer to come on Sundays to complete the work. The High School participants' timetable also constrained the progress on the garden. They could not all attend always, but some volunteered to come on Sundays.

The findings revealed that the solutions that youth explored were mostly ones that could be achieved through individual actions rather than systemic changes that could be accomplished by collective action. Due to material-economic constraints, the youth did not choose another theme to pursue (for example lack of funds for a recycling station). Certain projects face different constraints due to a lack of infrastructure and resources needed to carry out the projects. While the youths' efforts in this study were limited in scope and time, they can provide hope and help in the understanding of the challenges at hand. Even the chosen project had material constraints and that was the lack of water. Club members overcame this by bringing water to school from their homes, but future work on this problem might involve club members finding ways of collecting rainwater at school.

Social-political arrangements (in the medium of *power* and *solidarity*, in the dimension of *social space*) shape and give content to the relations involved in the practice (Kemmis, 2009). In some cases, power relations negatively impacted on the club members choices, for example, they felt disempowered to respond to the issue of older youth excluding younger youth from using gymnasium equipment. In the case of the chosen project (the food garden), relationships were built with those in authority. For example, the principal and other teachers from the school visited the group to check on progress and make suggestions relating to some of the practical work which was being done. A relationship with the caretaker was also built as he was always available to help whenever needed. Levels of authority were evident in the participants' experiences of practice, as all participants had different roles at specific 'levels' in the club. For example, authority was demonstrated when the principal instructed the club not to use water from the tanks for gardening purposes but to reserve it for drinking and cleaning toilets - an instruction that had to be obeyed by all club members. Power and solidarity arose through the process as the club made decisions and shaped the practices that constituted the focus of their meetings. In some instances, a consensus was reached, and decisions were made without any problems. This demonstrated the empathy and agency evident in the relationships within the group.

These were new relationships forged between the different age groups, the younger participants from the primary school and the older participants from high school. There were also new relationships forged among the primary school participants. This was evident when the primary school participants spoke about how their relationships with the other children in the next grade were created. In Section 4.4 the older participants took ownership of the project by introducing SWOT analysis and SMART goals thus bringing pedagogical ideas themselves, which was a positive step for social learning. This also demonstrated their ownership of the study and is a strong indicator for empowerment.

5.3 Summary of key findings

This study has shown that the small city of Makhandha has a number of matters of concern which affect the children and youth.

In response to sub question one, the desktop document review established the context for understanding the experiences and sustainability initiatives of Makhandha youth. There are key challenges revealed by findings from each theme. With regard to energy use, my findings revealed that the most commonly used energy source is electricity, although other forms of energy such as gas, paraffin and firewood are used mostly for cooking. There is no specific transport for children and youth so public transport is used, although most of the children and youth walk to and from school and around Makhandha. Makana municipality has provided recreational facilities in each and every community, though vandalism and theft are a concern. New facilities have been built, being the Indoor Sports Centre and the Youth Hub for leisure and communication. However, security and safety for youth in these centres is worrisome especially for girls. Makana municipality is failing in service delivery, resulting in challenges such as water shortages and irregular collection of waste. Findings revealed that most of the participants' parents do not live with them as they are working in other towns working or unemployed. Many children stay with their grandparents who depend on social grants for survival. This results in there being insufficient money to buy food, which is exacerbated by price increases. The children and youth benefit from the National School Nutrition programmes and Meals on Wheels which provide food to the under privileged.

In response to research question two, the findings revealed that there were matters of concern in all six themes that affect the children and youth's well-being. The finding for energy use revealed that since most of the club members stay with their grandparents, they do not practice energy saving techniques. Findings indicated that in order for the children and youth to be empowered to save electricity there is a need to educate everyone, including adults, on energy saving practices. On the theme of mobility, it was found the majority of the participants preferred to walk rather than use transport, because it is both cheaper and healthier. The study also revealed the threats to children's and youth's safety, especially that of girls, when walking alone or past taverns. There were also challenges such as taxi price hikes, poor road conditions and potholes causing damage to taxis and causing accidents, threatening the children's safety. With regard to transport, there were relatively few options for young people's mobility that were inclusive, active and offered independence, security and comfort. This view is reinforced by Nissen *et al.* (2020) who observe that globally, the needs of the youth are ignored where transport planning in urban areas is concerned.

Security and vandalism at the leisure centres were a major matter of concern. With regard to the fitness facilities available to the youth, children and youth reported feeling excluded from these spaces, and instead resorted to creative alternatives such as home-made weights, playing soccer and skipping rope in the streets, which they considered to be safer. The youth also spend a lot of time indoors on their phones. Findings revealed that the lack of waste collection has resulted in illegal dumping in open spaces, causing serious environmental and health problems. The children and youth are unhappy with their surroundings because of the illegal dumping sites. Findings revealed children and youth's lifestyles and well-being is adversely affected by the illegal dumping sites close to their homes (see Section 4.3.6). The increased demand on the system caused burst pipes, which are old and have not been maintained. The youth reported an increase in the population putting pressure on a limited supply. To make matters worse, the limited supply of water coming out of taps is always dirty. It has been observed that the scarcity of water in Makhanda has resulted in some of the participants missing school and this affected their well-being. I found that most of the participants do not drink municipal water as they believe that it is not safe.

Poverty is a social harm affecting the majority of South Africans. It rears its ugly head in the Makhanda community and surrounding schools. The households of Makhanda employ a variety of survival and adaptive approaches to life. Findings revealed that many households have found a

more sustainable alternatives of preparing simple traditional meals as opposed to contemporary meals. These traditional foods are accompanied by vegetables. Poor households experienced vulnerability due to a loss of income and a lack of food.

The findings for research question three revealed that the use of newspaper articles and videos were the potentials of the orientating stage of the Wals' social learning intervention. The newspaper articles and videos both educated and raised awareness of the matters of concern. They enabled discussion to take place. From my observation, the photographic record created by the youth of their lives enabled them to be able to communicate with each other freely, share their stories on what matters to them and what interests them. Teamwork was created and friendships developed as some of the club members had things in common.

Findings revealed that the use of the Handprint Series helped the club members to focus on practical ideas for working on the themes that have sustainability concerns. This helped them to identify the sustainability practices in the scenarios or the start-up stories from the Handprint Series helped them to choose the project from the ideas and suggestions in the booklet.

The children and youth were able to learn new concepts during SWOT analysis and were able to analyse the different themes. They were also able to set goals using SMART which kick started the implementation of the project. The club members were all eager to take part in the gardening project and some were able to start their own little gardens at their homes.

However, the findings also showed the challenges that were encountered by the club members. The video clip on transport was not relevant to the context of Makhanda and this diverted the discussion, which did not go as planned. Similarly, during the activating stage the club members had disagreements, but through discussion they were able to reach a consensus. Findings revealed that some club members were inexperienced in using garden tools. However, the older participants were able to help them by demonstrating. During implementation there was the challenge of a shortage of garden tools, and this resulted in the planned work not being completed as planned. The main challenge encountered was the water crisis which resulted in having to suspend watering of the garden.

Cultural-discursive arrangements, material-discursive arrangements, and socio-political arrangements can constrain and also enable the emergent sustainability practices. Findings revealed that the medium of instruction used throughout the project was mainly English, although isiXhosa was also used during discussions. The invited expert and the facilitator spoke English

while the participants used both English language and, mainly, isiXhosa as it was their home language. Translation facilitated the understanding of concepts during the selecting stage, as participants indicated that they could explain concepts in isiXhosa. There were few resources available to facilitate the garden project and this constrained the project as it necessitated the participants having to work on the garden on the weekends bringing their own garden tools. In addition, the other constraint was placed on the High School participants, who were unable to attend all meetings due to timetable conflicts, and this delayed the project. On the other hand, the use of the Handprints Series enabled the participants to comprehend sustainability practices and enabled them to choose the garden as a sustainability practice. Relationships were created amongst the participants, with the facilitator, the invited expert, the caretaker and the principal and other teachers. This was demonstrated during the project implementation, as they came in to give advice and recommendations. Relationships were also built amongst the participants within and across age groups.

5.4 Social learning recommendations emerging from the study

The following suggestions emerging from the study are aimed at eco-clubs coordinators, facilitators and environmental teachers to support them in developing social learning processes in schools.

Recommendation (1): Wals' social learning framework can be used as an educational intervention as it can facilitate the building of new relationships and learning within and across different age groups around different matters of concern. The framework provided a useful guide for me as a facilitator, with detailed expectations for each learning stage and identifying the resources needed for each stage.

Recommendation (2): One problem that we encountered in every stage of the project was coordinating with school timetables and the fact that we were working at different locations. This made it difficult to find times and venues that suited everyone. As discussed in Recommendation 1, there are advantages to working across age groups, so alternative meeting times such as weekends should be considered.

Recommendation (3): The club members were covering six themes in the project. The theme chosen for project implementation was water, which became a challenge because of the drought.

Facilitators need to also play a role in project selection to ensure that participants take forward a theme which is within their reach.

Recommendation (4): Facilitators of social learning should motivate participants and help them draw out knowledge and insight from other participants by keeping the group discussions moving towards the desired outcomes and directing the participants throughout the experience. Facilitators should also take responsibility by following the participants' progress and guiding them as a group towards group learning outcomes.

Recommendation (5): Facilitators should ensure that when children and youth are communicating, they use the opportunity to strengthen the language of teaching and learning wherever possible so that they can engage with outside facilitators and texts. At the same time, facilitators need to be flexible and, where necessary, encourage participants to use their home language. Using more familiar language can facilitate the understanding of complex concepts that are integral to matters of concern.

Recommendation (6): The project faced challenges with respect to the resources needed for the implementation. The paucity of garden tools hindered progress as most of the participants had to wait for their turn to use the limited number of tools. To ensure that the success of the chosen project facilitators should ensure that the required tools for gardening are available in adequate numbers before implementation. The facilitator should determine how much equipment is needed by estimating how many participants will be working in the garden at any one time. Participants may also be encouraged to bring their own tools from home.

Recommendation (7): In the social-political dimension of the gardening project a temporary and subtle shift in relations between principal and participants occurred. This was caused by the water shortage, when club members were banned from using the water tanks for watering the garden, causing the vegetables to die. Social facilitators should ensure that the club introduces water harvesting techniques so that they can address the water issues at school. This innovative and creative idea will provide a vehicle for more immediate social-political empowerment through the creation of new sustainable resources for future gardening practice.

Recommendation (8): A thriving school garden is made up of more than simply seeds and soil. School gardens are environmentally friendly and an integral component of the school community. They rely on the collaborative efforts of teachers, administrators, caretakers, learners, and parents.

Creating a solid team from the start will establish a sense of ownership in the project, which will strengthen support when challenges arise.

Recommendation (9): School gardens cannot solve food and nutrition security on their own, but when planned and implemented with the help of parents, teachers, and the community, they can complement school feeding programs and increase their long-term influence on children's nutritional status and academic ability. The water shortage in the school garden raised the issue of regular water shortages in the town, often with days without municipal water. A possible extension of the social learning process would be for the club to participate in public awareness campaigns urging the municipality to invest in new infrastructure to meet the needs of an expanding population while encouraging residents to save water. This is also a potential sustainability practice that could address the impact of water shortages on activities like the garden project.

Recommendation (10): The theme of waste raised the issue of illegal dumping sites forming within the community. This is a potential social learning activity in which youth could find ways to set up an initiative for the community to collect and sort the waste and generate an income in the process. Other sustainability practices could be suggested on energy use and water saving practices which could inspire responses to environmental matters of concern amongst Makhandia youth.

5.5 Suggestions for Future Research

This research study was done with two schools' eco-clubs, of different age groups, without making comparisons. The study could also be formulated as a comparison study with other schools, either in the same town or in other towns in the same province, using the same themes.

An area for further research would be to introduce this Wals's social learning framework to environmental teachers or facilitators to ensure how sustainability practices can improve the lifestyle of youth in different contexts and for the teaching and learning of environmental topics, applying it in different subjects in order to get a broader understanding of its use.

When youth are engaged, especially when chances for empowerment and growth are provided, community benefits in a variety of ways. Nonetheless, despite their contribution, youth are increasingly excluded from decision-making.

All the themes raised important issues that are worth following up. The question of energy raised issues about saving electricity at home. There is a lack of information and education, especially for adults, on how to save electricity. To address this issue, I would recommend taking the study further by involving the families of participants in learning about and implementing energy saving techniques at home.

Future research could focus on understanding the relationships between schools and communities and could highlight initiatives in which youth work together with the community in which their school is located. In my view it will also be very interesting to compare the challenges that constrain and enable the matters of concern the orientation needed to support sustainability practices.

In addition, questions about infrastructural and systematic challenges within social learning processes can be explored in order to do justice to matters of concern as being complex entanglements of humans, non-humans, socio- economic and political contexts.

5.6 Conclusion

The aim of the study was to explore the use of Wals's social learning framework as an educational intervention. The intervention was conducted in order to gain a better understanding of the key sustainability challenges that Makhanda's youth face, as well as the conditions and initiatives required to enable more sustainable urban lifestyles, across eight themes namely: education, energy, home life, mobility, leisure and communication, waste, water use, and food. This study was important for me to gain insight into the ways in which sustainability practices emerged from an eco-club through a social learning intervention, and how club members responded to environmental matters of concern and contributed to their well-being through their activities. Discussion of these matters of concern in a social learning framework helped the children and youth to understand their origin and persistence. The study was able to answer the central question of how a pedagogical intervention may promote sustainability practices, as well as how these practices respond to environmental concerns and contribute to the well-being of Makhanda youths.

Wals's social learning framework was used as a pedagogical intervention to help club members respond to environmental matters of concern in Makhanda. The framework helped them to change their way of thinking. The intervention supported the development of important skills such as how

to relate to one another and collaborate on a project. New relationships and solidarity were formed within and across age groups. They interacted with one another, made use of diversity within the group, and created synergy among different actors in the group (Wals et al., 2009).

Collective agency was established by means of the vegetable garden project, which led to some members starting their own vegetable gardens at their homes. The eco-club garden project supplied the environment for both school engagement and new practices for learning. The project was designed to be a learning space which enabled participants to experience different kinds of practical learning.

Social learning as a pedagogical intervention enabled important opportunities for learning. Club members learned about new concepts, such as sustainability practices, the SWOT analysis, and SMART goals, which are not only academic subjects but also have practical application when doing projects.

The garden project created a social and physical environment for children and youth to learn life skills as well as opportunities for life skills training through practical experiential and hands on activities. For example, participants were involved in choosing crops, designing the garden, assessing, and improving soil fertility and determining the best practices to water the garden. Water saving practices were also learned by the participants.

Furthermore, the project improved youth well-being through enhancing social contact, culturally valued activities, and a possibility of lowering malnutrition. These skills could also impact on their home lives. Youth, for example, may be able to improve their diets by developing more favorable attitudes towards eating vegetables through participating in vegetable production.

The study was able to analyse the life experiences of urban youth in relation to healthy lifestyles and well-being through a learning process that involved working with eco-club members in the city. It also looked into the elements that promote or impede the development of youth-led sustainable practices as they progressed through the learning process.

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Appendix A: Document log

Title	Date of issue	Authors/s	Main Focus
Statistics South Africa	2017	Department of Statistics	Statistics
Africa Institute of South Africa	2012	Research organisation	Annual report
Department of Education	2012	Department of Education	Policy
National School Nutrition Programme	2012	Department of Education	to enhance the educational experience of needy learners through the provision of a healthy meal at school.
Makana Integrated Development Plan 2019-2020	2020	Makana Municipality	Strategic document that guides planning and budget
Ideas and Education: Level or growth Effects	2003	Steve Dowrick	Contribution of economic growth on Education
Handling Cultural Diversity in Education	2009	C Meier & Hartell	Issues and problems in handling of diversity in education
Demographic implications of transiting from segregation to integration: a focus on education issues in Buffalo City, South Africa	2020	Siyongwana & Chanza,	Transformation of education systems and integration in townships
Household fuelwood use in small Africa	2007	Shackleton, Gambiza & Jones	Use of firewood in Eastern Cape
Meeting Young People's Mobility and Transport Needs: Review and Prospect	2019	Gina Porter & Jeff Turner	Report
Factors Affecting Caregivers' Perceptions of the Mode of Transport for School going Children in Rural Areas	2005	Mbatha	Report
National Waste Management	2011	Department of Environmental Affairs	Strategy
Eastern Cape: Informal settlements status	2007	The Housing Development Agency (HDA)	Report

A community-based rainwater monitoring and treatment programme in Grahamstown, South Africa.	2014	Tandlich, R., Luyt, C. D., & Ngqwala, N. P.	Awareness about minimum treatment and regular monitoring of microbial quality of rainwater
Attitudes to Food Gardening from a Generational Perspectives	2005	Valerie Moller	Food gardening as a tool health and well being
Children's access to education.	2014	Hall, K., & De Lannoy, A.	Report
Children's Rights and Habitat	1997	UNICEF	Recognising the child as an active agent in the exercise of his or her rights
Sustainable Development Goals and Smart Settlements	2018	Bagoury, S.M.E and Yousef, P.H.A	Identification of smart cities smart network that provides an adequate environment for human living
The State of South Africa's schools	2005 - 2005	Linda Chisholm	A discussion over the state of South Africa's schools ten years after the transition to Democracy
Studying together, living apart: Emerging geographies of school attendance in post-apartheid Cape Town.	2011	Lemon, Antony, and Jane Battersby-Lennard	Using the lens of metropolitan Cape Town to explore ways in which desegregation of the South African school system has created new social and spatial geographies of Education
'Community Survey 2007, Basic Results: Municipalities.'	2007	Statistics South Africa	Survey
Africa Institute of South Africa	2012	Research organisation	Annual report
Household fuelwood use in small electrified towns of Makana District, Eastern Cape, South Africa	2007	Shackleton, C.M, Gambiza, J and Jones, R.	Journal
Factors Affecting Caregivers' Perceptions of the Mode of Transport for School going Children in Rural Areas	2005	Mbatha, T.	Case Study
Management of municipal solid wastes: A case study in Limpopo Province, South Africa	2011	JS Ogola, L Chimuka, S Tshivhase	Case Study
Meeting young people's mobility and transport needs: Review and prospect	2019	G Porter, J Turner	Young people's daily transport and mobility experiences and potential

Report on the Implementation Evaluation of the National School Nutrition Programme	2015	Department of Basic Education	Enhancing learning capacity and improve access to education by providing a nutritious meal daily to learners at school
	2011	South African Human Rights Commission	

Appendix B: Interview questions

1. What have you been doing today regarding the implementation of the project?
2. What was useful about today's activity?
3. What have you learnt from the activity? How have the different activities in the club help you understand and select the issue for the project?
4. How have the different activities in the club helped you understand the issues that affect you?
5. What strategy have you put in place to help make a change in your life and in the community?
6. How if at all have the eco-club activities help you make any changes in your community or life?
7. What concerns or challenges did you encounter during club activities among yourselves as you were discussing and among group members when you were involved in meetings?
8. What have you learnt regarding better ways of communication and relating yourself to your friends and environment?

Appendix C: An example of a transcribed Individual Interview

Transcription 1: Participant 1

Interviewer: Good afternoon.

Participant: Good afternoon ma'am

Interviewer: What have you been doing today regarding the implementation of the project.

Interviewer: What was useful about today's activity?

Participant: It was digging the ground as this was my first time to do this kind of work. It was a real experience and I really learned a new skill which I did not have.

Interviewer: Oh really, why was it was useful?

Participant: We do not have a garden at home so starting a garden was so important to me that we can grow our own vegetables to reduce poverty in our community. Instead of buying vegetable we can always collect from the garden.

Interviewer: What have you learnt from the activity?

Participant: I learned working as a team and how to be cautious when using these garden tools. If we work as a team there is a lot, we can achieve and there is less workload as we will all be hands on. It is not only in the classroom that we can learn but from one another. My colleagues demonstrated how to use garden spade and fork and I managed to use them though at first, I had some difficulties but eventually I managed to use them. (ethos of implementation) I also learned that there is need to measure the bed as this will help in the planting and spacing of crops.

Interviewer: How have the different activities in the club helped you to understand and select the issue for the project?

Participant: The workshop where we invited people from another school with their teacher was so helpful to me. I managed to see them doing practical work and this gave me the will power to want to work with the soil and have food on the table. The SWOT analysis was also helpful as never thought that when selecting a project, a SWOT analysis can be used. I learnt this in EMS and thought it only applied to businesses.

Interviewer: How have the activities in the club helped you understand the issues that affect you?

Participant: This helped a lot, firstly I didn't have any idea of gardening and I have just realised that there is a lot I can do with the soil. The newspaper articles helped me to understand that these issues we experience are real and the video also taught me that the issues we experience here in Grahamstown are all over and we just need to be responsible citizens and use what we have sustainably.

Interviewer: What strategy have you put in place to help you make a change in your life and in the community?

Participant: I will mobilise my friends for us to start a gardening project for economic growth and sustainability. I will also use the small space at home to start a vegetable garden.

Interviewer: How if at all have the eco-club activities help you make any changes in your community or life?

Participant: Before the research we didn't have any idea of gardening and now we have a garden within the school will make some changes in my life as after school I will have to do gardening and take care of it which I never did in my life. I also learnt that that we should not always buy but produce our own which is fresh.

Interviewer: What concerns or challenges did you encounter during club activities among yourselves as you were discussing and among group members when you were involved in meetings?

Participant: In the beginning we were disorganised, and we didn't agree on almost everything we discussed about. On the selection of the themes were a lot of disagreements as other members had their own opinion towards some themes, but I liked our group leaders who were leading, managed to talk to us so that we put our disagreements aside and accept each other. The high school group was attending late and at time when they come, we would start all over again and due to time we would continue the activity the following week. (Insight into social leaning)

Interviewer: What have you learnt regarding better ways of communication and relating yourself to your friends and environment?

Participant: If we give each other a chance we can achieve more and if we don't discourage one another, we can do a lot better. We need to accept each other's weaknesses as we are not all the same. (insight into social leaning)

Interviewer: What about relating to the environment?

Participant: We can make use of gardens in areas which are lying idle such as in schools and most if not, all schools are secure. Taking care of the environment is our responsibility. (imagining the next cycle evaluation)

Interviewer: Thank you so much for your time.

Appendix D: An example of a transcribed Introductory Focus

Group Discussion Gr. 1a

Age 12-14

Number of participants 7

Date 06/06/2018 Moderator: Phumza Facilitator: Lorna

Introductions started by and led by moderator

Exploring current understandings of their community and of their city through the five themes.

Facilitator: What do you like most about living here and why? Yes Participant 5.

Participant 5: What I like most is that no children are left not going to school most of the children have education and go to school.

Facilitator: Ok how do they go to school are they paid for or what is happening

Participant 5: There are some public schools

Facilitator: Ok yes participant 2

Participant 2: What I like about Grahamstown is that it is small you can travel anywhere without using transport you can travel by foot to go to town it's small that's what I like about it.

Facilitator: Ok wow so you can go at times you can go to town on foot

Participant 2: Yes

Participant 1: I like Grahamstown small because the residents are nice to each other and can help each other in times of need.

Participant 4: I like Grahamstown because there are shops in locations so that you don't have to go to town if you don't have money for a taxi.

Facilitator: Ok. Yes?

Participant 6: I like living in Grahamstown because we have the national arts and science festivals, so we do not need to spend money attending these events in other towns.

Participant 7: What I like about Grahamstown is that some parents don't have work, but they get money they can buy things to eat.

Facilitator: How do they get money?

Participant 7: The government pays them money the money that they are given

Facilitator: The social grant. Is it that all parents get grant?

Participant 7: No

Facilitator: Ok so what happens who gets the social grant

Participant 7: Those who get social grant are the ones who pay less than R5 000

Facilitator: Ok Musa

Participant 3: Those who pay social grants are those who don't work for the government but those who don't get grant are those who work for the government.

Facilitator: Do some of you receive social grant so it's unfortunate for you guys you don't receive any social grant. Ok. **Question number 2 - How do you usually get around?**

Participant 4: I walk around Grahamstown.

Facilitator: Ok

Participant 4: Sometimes I use a taxi to move around

Facilitator: You use a transport

Participant 7: I can use a bicycle or a motorbike

Facilitator: Do you have one? Can you

cycle? **Participant 7:** I have one a

bicycle **Facilitator:** Do you like cycling?

Participant 7: Yes

Facilitator: Ok. Or you use your feet?

Facilitator: Usually when you are coming to school what mode of transport do you use to move around

Participant 6: I walk to school

Facilitator: You walk to school

Participant 7: I walk to and from school when going to town I use taxi.

Participant 5: I use transport.

Facilitator: You use transport

Participant 4: Sometimes I use transport and sometimes I walk. **Facilitator:** Sometimes you walk sometimes you use transport **Participant 3:** I use transport to come to school and going to town. **Facilitator:** Transport

Participant 2: I use transport **Facilitator:** Transport Participant 1: I use transport

Facilitator: You also use transport so most of us. Is it because you stay far or because you can your parents can afford it.

Participant 7: Sometimes if your parents afford transport it's just because they want safety

Facilitator: Is there a lot of crime in Grahamstown?

Participant 3: Yes

Facilitator: Give us an incident where there was a time maybe

Participant 3: Where I stay there is a lot of gangsterism a break in?

Participant 3: Yes

Facilitator: Ok sorry. What about you? Are you safe when moving around?

Participant 7: I don't feel safe because when I come to school there is a tavern where I pass

Participant 3: Most of the time I am not scared because in my family we believe in God and when I walk even at night, I just have that thing that nothing will happen because I believe in my own God.

Facilitator: Alright that's good. **What do you like about how you travel around?**

Participant 3: I like that when I travel around there are some things that I see things that I did not know.

Facilitator: Yes

Participant 2: I like that when I am using a taxi or car its cheap. The taxi only pays R10 and in other towns or cities you pay more than R10.

Participant 5: I see new places.

Facilitator: What don't you like about moving around? Yes

Participant

Participant 3: What I don't like moving around is that now in these days there are things that are happening such as crime when you are walking some people come with a car and steal you.

Facilitator: Yes, there are stories about child trafficking? Yes, Participant 2.

Participant 2: What I don't like about transport is that there are no small rides like if you are at Shoprite you cannot get a taxi that you can use which is cheap from Shoprite to Checkers or from Checkers to Pick 'n' Pay. You have to walk.

Facilitator: So, you have to walk

Participant 2: You have to walk with heavy stuff.

Facilitator: Yes

Participant 7: [Xa uhamba edleleni uhamba kakhubi moto iyabalekiswa, bekusiza imoto ungakwazi]. There are a lot of potholes when travelling on these roads and the cars are damaged as they move in full speed.

Participant 2: Here in Grahamstown, there are places which have gravel roads, so taxis do not like to go there such as if you are going as far as extension 9 far inside the taxi can only allow to drop you as far as aMawethu on the main road and then you walk

Facilitator: Ok, how would you describe your home?

Participant 1: I can describe my home by saying that in my home personally I like drama, so we are all happy with drama. I have a new sister and she is all coming with the drama things. In my home area we live in a place where people describe us as if we are people who hurt other people if something has gone bad all of the people will be blamed for that, and that is what I hate about my area. What I like about my area is that we all treat each other friendly and we all help each other in the times of need.

Facilitator: Ok. Participant 2

Participant 2: I would say that my home is a home that is very strict, my mother does not like me to come home late especially in winter. Yesterday it was like ten to 6 and it was already dark then she asked me why I had come home late so I had to explain. My parents are strict they are not allowing me to have Facebook or WhatsApp. They like to go to church and they force us to go to church if we don't want to especially because our church is close. They do not like it when we say that another person is going to another church in the family, we must all go to the same church. In my family we are not slow at school I could say that my parents like if they are children, they are clever they are passing at school and are passing.

Facilitator: How many people are living with you? Participant 2: They are 7.

Facilitator: What is their relationship to you?

Participant 2: What do you mean I don't understand

Facilitator: How are you related to them?

Participant 2: Oh, it's My mother, my father, my three sisters and my nephew.

Facilitator: Participant 1, you did not tell us how many people are living with you and what is their relationship to you?

Participant 1: We are 5, it's my mother, my father, my brother and my little sister. We all related to the same mother but different fathers.

Facilitator: Participant 3

Participant 3: Firstly, in my home we are 5. My father, my mother my sister my elder brother and I am the last one. In my home we are Christians. In my home my parents do not have a problem about where you attend church, but they want everyone to go to church. Like my sister was once attending Adventist church. My parents do not have a problem, but you must go to church whatever church they want is for us to attend to church services. You don't need to go to church with them My parents love education but because of the old days my father did not get the chance to go to university as well as my mother.

Facilitator: Because of apartheid.

Participant 3: Yes

Participant 4: In my home we are 7. I live with my mother, my father, my little sister my grandmother, my grandfather and my cousin. My father likes to shout at others if someone does something wrong and cry, then my grandmother would tell him not to do that as children will be scared of him.

Facilitator: Are you not scared of him?

Participant 4: I am at times when he is drunk. But when not drunk I am not scared of him.

Facilitator: Yes Participant 5.

Participant 5: In my home we are 5. It's my mother, my uncle, me, my brother and my grandfather. My mother is strict so is my grandfather so is my grandfather he may be blind but does not want us not to go to church and wants us to come home early like 5 p.m. He doesn't like naughty children he wants us to know and do good things.

Facilitator: Is your mother working

Participant 5: Yes, she works at Fort England

Participant 7: In my home we 7. I live with my grandfather, my grandmother, my aunt, and my two brothers. We are sharing the same mother but different fathers. My relationship with my grandparent is that they love me and treat me like their own child. When people ask me who my mother is, I just say it's my grandmother.

I treat my mother like my sister. My grandmother wants me to go to school, do well in school and she wants me to pass.

Facilitator: Yes, the last one.

Participant 6: In my home they are 5 of us, it's me, my grandmother, my father, my aunt and my cousin. In my home they are very strict we don't go to play during the week, we study, they don't want us to fail. We play during the weekend. Every Sunday we go to church, after church and we come and eat and play.

Facilitator: OK. How do you get food? What do you usually eat? Who with? Where? How do you get water? What do you do with your waste? Anyone can start.

Participant 2: I will start, the way we get food through my mother and father, they are working so they buy food all the time. The food we usually eat is [umphokoqo] African salad it's my favourite dish. For waste goes to the dogs. The water we get is my mother used to drink tap water, but she stopped as it has some infection, so she buys bottled water.

Facilitator: Do you buy bottled water every time for what, drinking and bathing?

Participant 2: No for drinking only not for bathing. For bathing and cooking we use tap water. We don't just want water to get into our system, it ruins our system that's why we buy.

Participant 3: We get food through my mother and father. My father is a solder and my mother had catering business and now she closed it. We don't drink tap water and we don't buy. We go to [emthonjeni] (the spring) we use my aunt's car to collect water. We use tap water for bathing and other household chores.

Participant 4: My grandfather, mother and my father all buy food as they are all working. We eat umphokoqo, umqhuthu and African food which my grandmother prepares. Special meals three course meal we eat during the weekend when everyone is at home. We don't eat out, but food is bought, and we eat at home.

Facilitator: What do you usually eat? Who with?

Participant 3: Mostly I usually eat brown rice; my mother is very particular with healthy food. We eat brown rice brown bread and brown sugar. Mondays we eat vegetables, Tuesday

we eat rice and anything and Wednesdays we eat no meat like dumplings until it's the 15th. My father gets paid on the 15th. We choose to go to KFC or Spurs.

Facilitator: Waal, so you go out the whole family?

Participant 3: Some time ago we bought Triple Deck pizza takeaway and it was very bad, so we no longer eat pizza again though my sister loves pizza.

Participant 1: And also, to add, the food we usually eat is meat.

Facilitator: Who likes meat?

Participant 1: The whole family like meat, I told myself that I would not eat meat anymore but it's too attractive to let it go.

Participant 2: In my home only, my father and my sister work so they are the ones who provide food for the family. We buy our food from shops like Shoprite, Checkers and Pick 'n' Pay. What we usually eat [eeh] yes, we have a very balanced diet we don't eat anything, if we ate meat, we must eat meat with vegetables throughout the week from Monday to Saturday we eat regular meals rice. Every Sunday we must eat meat chicken or beef full meal, seven colours and we also have desert on Sundays. We eat in our lounge our house is very small in pour kitchen is where we cook. We get our water from the tap for bathing, cooking and washing clothes. Drinking water my father has a 5-litre bottle, so he fetches water from his work from the tank. We drink only that water

Facilitator: So, it's rainwater

Participant 2: It is rain harvested water we drink and bath with tap water. Our waste, the municipality used to provide us with black plastic bags but not anymore. We buy plastic bags and put our waste outside the yard every Tuesdays and the truck comes and collects it.

Facilitator: (repeats the question) Let's hear from those who have not yet told us how they get their food.

Participant 5: My mother works so she buys food for us. Mondays I would say during the week we like eating traditional foods like [unmqusho] samp, [umphokoqo] African salad, [idombolo] dumplings we do eat those. The on the 15th we go to Spurs or Debonairs with my mother and my brother. Since my grandfather stroked does not eat meat so my mother buys vegetables and all those types of healthy foods. Our waste goes to the dogs then our leftovers or extra food we give to the neighbours who live in front of us.

Facilitator: Ok. Don't you have waste around you?

Participant 6: Yes, next to my home there is a dumping site where people dump waste. It is not legal to dump but they dump and run away and other dump during the night.

Facilitator: How do you feel living?

Participant 6: It's not very comfortable there are a lot of rats, it's scary to see very big rats running across and in front of you. There are lots of mosquitos and flies during summer.

Facilitator: Repeats the question

Participant 6: We usually eat rice and meat with vegetables. I eat with my family. We get the food from my father my mother and my aunt.

Facilitator: Are they all working?

Participant 6: Yes, and the drinking water we get it from the tank. And for washing we use tap water

Facilitator: So, most of you don't drink tap water?

Participant 6: When I drink tap water, I get stomach-ache.

Participant 5: In our location it usually come brownish it's dirty, so we buy it.

Participant 1: We don't drink tap water cause the water is infected with diseases that can make a human life die.

Participant 2: Long ago, when I was still a toddler tap water used to be clean but now since there is water shortage, it comes with whitish and brownish in colour like it has mud, so we don't drink it anymore.

Participant 7: We usually we use eat rice and meat our food comes from my grandmother, my grandfather and aunt. Our waste use black plastics and there is truck that comes to fetch it I don't know here it throws it.

Facilitator: Are you provided with the black plastic? Chorus answers: We buy for ourselves.

Participant 2: They used to give us but now it doesn't happen anymore? The municipality does not have money anymore.

Facilitator: What if you don't have money to buy black plastic what happens with the waste?

Participant 1: We usually burn the trash at the back of the house.

Participant 7: We live close to the dam, so we throw at the back of the dam.

Facilitator: Why isn't water pollution?

Chorus answers: (*laughing*) It's water pollution!!

Participant 7: No not in the dam but at the back of the dam.

Participant 2: In some cases, there are places called *iteeth* and it's where there are lots of papers and people throw their waste there. Nothing happens they just throw, throw every day. It's so big.

Facilitator: Is it legal?

Participant 1: It is illegal because the trash gets bigger and bigger and smell is horrible, these children like to play next to the dump site all the time. They may eat things from the site and fall sick.

Participant 2: What they do with the waste is like there is a special truck called *Uganda- ganda*. It's like a fork is connected on to the front and it removes the

garbage and put into a big truck I don't know where they take it to. But people continue to throw litter despite the place being cleaned.

Participant 3: But in my area, they municipality people came and told the residents not to throw on that place, but people continued to throw litter. So, they put the big container and people use the container and when it is full, they replaced it.

Participant 7: In my area there is a dumping site and the municipality man came to the area and announced that people should come and clean, but they did not come so there is still litter and its growing bigger and almost getting into people's houses.

Facilitator: Okay. In Grahamstown there is shortage of water most of the time. How do you do when there is no water at home or at school? Yes, Musa.

Participant 3: At home if we don't have water, we use the spring water and we have big containers stored with water.

Participant 4: At home if don't have water we go and get spring water. Waste we put in the black plastic bags and if they are full, we tie them and keep them in the garage until its Wednesday when we put outside for collection.

Facilitator: Yes

Participant 5: When we don't have water my mother goes and gets water from her work.

Participant 7: When we don't have water my grandfather goes and gets spring water.

Participant 6: We fetch it from our tank at home

Facilitator: Do you have a tank at home?

Participant 6: Yes, we have a tank and we collect rainwater.

Facilitator 1: When don't have water at my home we store water in 25 litre bottles and then when we don't have water we use those bottle.

Participant 2: At my house we have 20 litre containers and when we have water we store the water and then when there is water shortage we use the stored water

Facilitator: What about if you are at school how do you feel when there is no water around and what do you use at school

Participant 7: We usually when we are at home you bring your own juice or water.

Facilitator: Anyone else

Participant 6: When we don't have water sometimes, I bring my own bottles filled with water for drinking like last week I brought it.

Facilitator: What do you use at school, do you use tank or tap?

Participant 4: At school we usually use tank

Facilitator: Usually use rain harvested water. What about the toilets how do you do it when at school when there is no water?

Participant 1: If there is no water in the tank or water in the toilet it usually feels disgusting but it is the only the only way I can get water so I have no option.

Participant 4: If there is no water I can't get water from the toilet because it's very disgusting.

Participant 2: It feels unhygienic and I don't use the toilets when there is no water as the smell is horrible. I don't drink water so as not to visit the toilet.

Facilitator: So, you don't drink water for the whole day so that you don't go to the toilet.

Participant 2: Yes ma'am

Facilitator: What do you spend most of your day doing when you are at school?

Participant 3: When I go to school I just stay with my friends, read my books and when I get home I.....

Facilitator: If we look at the question it is saying most of the day, where do you spend your day?

Participant 6: I spend most of my day at school learning.

Facilitator: I want to know what you do if you are at school because if we look at three quarters a day we would be at school. The question is saying what do you spend most of your time doing?

Participant 6: We usually write and play in class.

Facilitator: You play in the class?

Participant 6: Yes, ma'am sometimes.

Participant 4: We usually learn from 7:30 to 2:30p.m. and we play during break time. We have one break at 11 o'clock for 30minutes.

Participant 7: We spent most of the day learning, we have 9 subjects to learn in grade 7. I like having debates and cultural days where we take our minds form learning and do performances on dance it refreshes my mind. I had to be taught without from subject after subject and teachers using the same teaching methods.

Participant 2: We learn and when we have a free period we just play and chat.

Participant 1: Where I usually spent my time is at home and also on weekends and weekdays at home. What I usually do at home is watch TV or find something to do.

Facilitator: Our focus is on education? The theme that we are looking at is education because We are not employed as it is education or work. So, I need to know what you do when you are at school.

Participant 1: In the morning I greet my friends and we all play. Then when the bell rings at 7:30 we go for prayers. After prayers we learn from 8:30 a.m. for half of the day then weplay and play and play (that is during break time at 11:00 a.m. – 11:30 a.m.) until we go back to the classrooms to learn until knock off time 14:30p.m. We play again after school waiting for transport those without transport go home.

Facilitator: What do you like about the activities you do at school and what don't you like?

Participant 3: I love Life Skills because it's all about fun.

Facilitator: Ok Life Skills as a subject.

Participant 1: I like Maths it has those patterns that you always have to discover and what I don't like is when I can't find an answer.

Participant 6: My favourite subject is Social Sciences – History and what I don't like is when I am behind with my work it becomes difficult.

Participant 5: My favourite subject is Creative art we learn how to act drama and dance.

Participant 2: My favourite subject is social sciences the part I like is history we get to know about the heroes of the world and talents of the people.

Participant 4: I like playing soccer and what I don't like is not having enough sports grounds.

Facilitator: Beside learning what else do you do at school that you like or that you don't like?

Participant 3: I like reading not writing.

Facilitator: Do you have enough books?

Participant 3: We do have enough books we have a library.

Participant 5: In our class we have shortage of textbooks as some of the learners tear the books.

Facilitator: So how many books do you use per subject?

Participant 6: 12, 10 it depends as some are very few for us to use. I don't like learning without textbooks and having work photocopied.

Facilitator: How do you learn?

Participant 7: When we have few books, we share; we sit three per desk and I don't like it as you sit uncomfortably as other learners will be pushing you.

Participant 2: When we don't have enough books, the subject teacher would photocopy some pages and give those without textbooks.

Participant 1: I don't like it as it will be in black and white and you won't see the coloured pictures. I hate that.

Facilitator: What do you enjoy doing on your own time? (leisure) With whom and where?

Participant 3: I enjoy playing video games.

Facilitator: With who and where?

Participant 3: On my cell phone, alone.

Participant 2: I like watching TV

Facilitator: With who and where?

Participant 2: With my brother sometimes but mostly alone at home.

Participant 1: I like watching TV by myself at home watching all the channels I want.

Participant 7: I like going to the gym with my friends

Facilitator: Do you have gyms around your community?

Chorus answers: Yes

Facilitator: How do you join if you want to attend?

Participant 7: You just go to the gym and talk to the coach and that it.

Participant 2: I like roaming the streets with my friends at where I stay.

Facilitator 1: I also like listening to music and dancing alone at home.

Facilitator: Anyone with a different answer.

Participant 6: I play videogames with my friends at home

Facilitator: At home

Participant 3: I like playing music when I am alone, and I would turn the volume up until it is at top then I song along

Participant 4: I like watching TV by myself

Facilitator: Yes

Participant 5: I also like reading and shopping with my mother

Facilitator: Oh ok. Do we have any recreational places here around Grahamstown where meet as young people and do different activities during your leisure time.

Participant 6: There is a place called the Youth Hub it has a computer lab mam there are some people who go to the computers they have excess to the internet

Facilitator: Can you go there any time?

Participant 6: Yes, any time ma'am

Facilitator: Even during the weekend

Participant 6: Yes, even during the weekend they only close on Saturday afternoon and do not open on Sundays.

Facilitator: Oh, so you spend most of your time at the Youth Hub. Others besides being at home what other what do you do with your own time

Participant 3: There is another place that is called Bluetooth, it's somewhere close to extension three. It has free Wi-Fi, textbooks and reading books.

Facilitator: Is it for everyone. Don't you have stadiums around?

Participant 4: We do I usually go after school I go to the gym for soccer and rugby

Facilitator: Ok it seems as if you don't have much so on this, I thought you were going to say a lot because it's your time no one is controlling your time you are just doing. , yes?

Participant 3: We do have a soccer field in front of the school just after the road but the toilets and shed have been vandalised.

Facilitator: Ok Who can make changes in your community whom do you think can make changes?

Participant 2: Personally, I think the one who can make these changes is me. I believe I can make these changes and make the world better.

Facilitator: How?

Participant 1: I can start an organization we can start by cleaning first in my community and then people will start following me. The more we get bigger we go

to other places and people will be inspired and will start doing good things than dumping trash anywhere.

Facilitator: Yes, it starts by you, someone else? What would you like to change about where or how you live and why? Lisa why would you like to change?

Participant 1: It is because in the place I live in its not really clean it's not really safe for children because a lot of children in my area like to play a lot of things if you can go throughout the place, you can see side by side there is littering everywhere and it's not really nice and I would also like to change by educating my community.

Facilitator: Participant 2 can you tell?

Participant 2: [Mna] I believe that people can make changes by not doing violence like this year taxi striked saying that the roads are damaging their taxis by the potholes and roads should be fixed. So, they striked and this ended with the community joining by looting shops which were owned by foreigners. That is the only way in Grahamstown that people get what they want through striking and which end in the whole community being violent and doing nasty stuff.

Facilitator: So you like that?

Participant 2: I don't like that.

Facilitator: If you want to change that how can you change the people's mindset as a youth of today?

Participant 2: Within our youth I don't think there is unity, so I don't know how to change because we are not united. People are working as individuals only grown-up people can work together and request what they want but as children I don't think that we can do it.

Facilitator: What would you like to change where or how you live?

Participant 3: When they are doing those [toyi toyi] strikes they should stop looting shops because that person did not do anything.

Participant 1: I would like to change the way people think about foreigner. If you call a person a foreigner and treat them unkind. There is no need for us to treat them like

they are junk because they belong to another country. We are all united as one world so that's what I would like to change how we feel about foreigners I think last of last year there were some women who were killed by a foreigner and all the foreigners that were in the Eastern Cape were blamed for that I believe that was wrong they couldn't find evidence to blame one but blamed them all.

Facilitator: Ok so you want that to change that.

Participant 1: Yes, we should treat people the same because we all have the same looks.

Participant 2: I want the police to start working hard because I remember when the people with shops were looted the police did not do anything they just stood there and allowed people to take things. And it just happened now in March no in April [bekuthwe masingayi esikolweni] they told us not to go to school for like a week because taxi drivers were striking and they were looting the foreigners shops so I would like the police to do something about it because they are not doing their job like they are supposed to.

Facilitator: So, you didn't like it when you were not coming to school?

Participant 2: No, I did not like that

Facilitator: Were you not given a long holiday

Participant 2: We were but I did not like it [awuyazi kubhora njani kulandlu] you have no idea how boring it is at home when you know that you are supposed to be at school.

Participant 7: I would like to change the policemen because now it seems like there is policeman maybe in your house there is someone who is also like your big brother who is a [tsotsi] thief who always steals things and the policeman always covers up for him and I would like to change that.

Facilitator: is there a lot of crime here in Grahamstown

Participant 7: Yes, there is a lot of crime

Facilitator: Can you elaborate?

Participant 7: There is a lot of crime, but police do not find the people that commit the crime. They don't do their work very well. We can change the community by starting neighbourhood watch. This can be done through creating awareness of stopping crime and then delegate the older youth to take turns patrolling the community during the night.

Participant 6: I don't think there is justice in Grahamstown because somebody steals your things then you report to the police. They say that they will look for the culprit then they didn't find the culprit, when you find the person and bit the person, they will want to arrest you, but he stole from you. They don't want the person who stole they want you who the one who has beaten the thief, so I don't think it's fair.

Participant 1: [Into mam endifuna ukuyitshintsha apha eMzantsi] what I want to change here in South Africa and the whole world is how [abantu] people treat [abafazi] women how people treat mean people think that women are very weak people they are not strong they will never be strong they treat us

facilitator: Treat us?

Participant 1: Not [mna] ma'am me but they treat them like slaves and they are not treated like they can be leaders, but we need women to be leaders, but they don't want us to exercise their rights and power by being leaders and changed this world and they still need men to be leaders.

Participant 3: I want something to change firstly it's the police. The police in my own way the police are not doing their work because something might happen in a community maybe someone has been killed and you report it will take years and years and years for them to find the person.

Participant 7: Men should stop abusing women because they treat them like their own property.

Facilitator: Women or girls because you are talking about us girls, young children

Participant 1: Women and girls, females

Facilitator: Are you talking about what is happening in your homes?

Participant 2: We what is happening in Grahamstown. It affects us if you are staying in an abusive home.

Participant 3: I want to change where I live is that there should have activities or projects for the unemployed youth as they are committing crime and stealing and selling the things that have been built for recreational purposes at very low price. Some young children are smoking drinking alcohol and they start doing bad things under the influence of alcohol.

Participant 1: The other thing that I would like to change in Grahamstown is us young to stop doing all these bad things I don't blame them for smoking and doing all these bad things in somehow, they are influenced to do this in their homes due to the situation at home. Most of the young people are living in abusive homes.

Participant 4: I want to change shop owners in Grahamstown must stop selling cigarettes to young children and taverns must be closed so that young people must stop drinking.

Participant 7: I don't have problems with the taverns, but shop owners and taverns are not supposed to sell cigarette and alcohol to young people even if they are sent.

Facilitator: Explains the next step.

Appendix E: An example of a transcribed Follow-up Focus Group Discussion

Gr. 2c

Age 15 - 17

Number of participants 7

Date 21/06/2018

Moderator: Phumza Facilitator: Lona

Phumza: Explains the purpose of the meeting. Reminds the group on the task of taking photographs that illustrate the five themes.

Facilitator: Let's look at the pictures that we have taken. Why did we take this photograph? What was happening tell us a story



Participant 1: I took a picture of us students showing commitment. We are focused on our goal which is to pass. If it's exam time we don't sleep studying from 3 a.m. preparing for exams which will be written at 09:00 hours every day, and after school we must study for exams. I for one we are pressurized by top 10 system, so everyone wants to be in the top 10 and once you are in top ten, you don't want to be miss out or not to be part of the top 10 achievers.

Participant 3: Other reason which motivates a person to want to read is the background. We are coming from different backgrounds which motivate us to improve through education.

Participant 6: This helps us to study and aim for better future because we need to be independent and not to try to depend on social grant or on our parents. It helps to be able to do our own things.

Participant 1: The picture that I took shows the grade 12s having night classes where we are studying without teachers. It shows hard working because we are not pushed to study up to 8

p.m. at night, but we are studying in order to have a better future. This shows hard work as we are not forced to attend night classes. This other photo shows students using colours to wrap around a tree, the colours represent the school values. These are dedication, commitment can you help me guys.



Participant 4: Responsibility, cooperation, humanity. This teaches us that we need to work hard. It shows hard work as we are not forced to attend night classes.

Facilitator: Zandile tell us your story on the photo that you took, why did you take the photo? Mobility.



Participant 3: This photo shows the mode of transport that most of the us use to come to school that is my friends and I are not worried about our destination because our focus is on future and we know what we want. In rainy days, we wear raincoats when coming to school. About safety we don't walk alone to and from school.



This other photo is the mode of transport that I and other people use when we are going to town. Most of us we use public transport or private transport and because it's quite a distance it is also cheap to move around using public transport as the taxi fare is R10.

Participant 7: I also use taxi when going to town but when I am travelling out of town I use family car because it's safer.

Facilitator: Ok thank you and then we look food /water /waste.



Participant 6: I took the tank as the source of water that we use at both at school and home. Even at school we use tank water for drinking both teachers and students because tap water is no longer safe to drink. Tank water is clean as compared to tap water. At home we use tap water for cooking, washing and bathing. At home we they don't have tank but we boil the tap water at least remove the dirtiness. Food we don't usually cook most of the days, we prepare sandwiches for supper. When we cook, we prepare the traditional food which is African salad when it's hot, samp with dried beans cooked

together or rice with potatoes and cabbage cooked together. The photo shows mqha rice (rice with cabbage and potatoes). This type of food is affordable, and you don't buy a lot of ingredients. We depend on our social grant, that is for my grandmother, my two siblings and myself.



Participant 4: This picture that what most of us do, I love music and during my free time I listen to music, compose music and most of my friends come home to listen to music. I do have a studio at the back yard at home some of my friends come but they pay in order to get into the studio. If I am tired of studying, I play with an old keyboard I just open and change the keys soprano to bass just to confuse people. I sometimes go for rugby practice where I spent time watching people playing until late. It helps me to keep my body fit and mingle with friends.

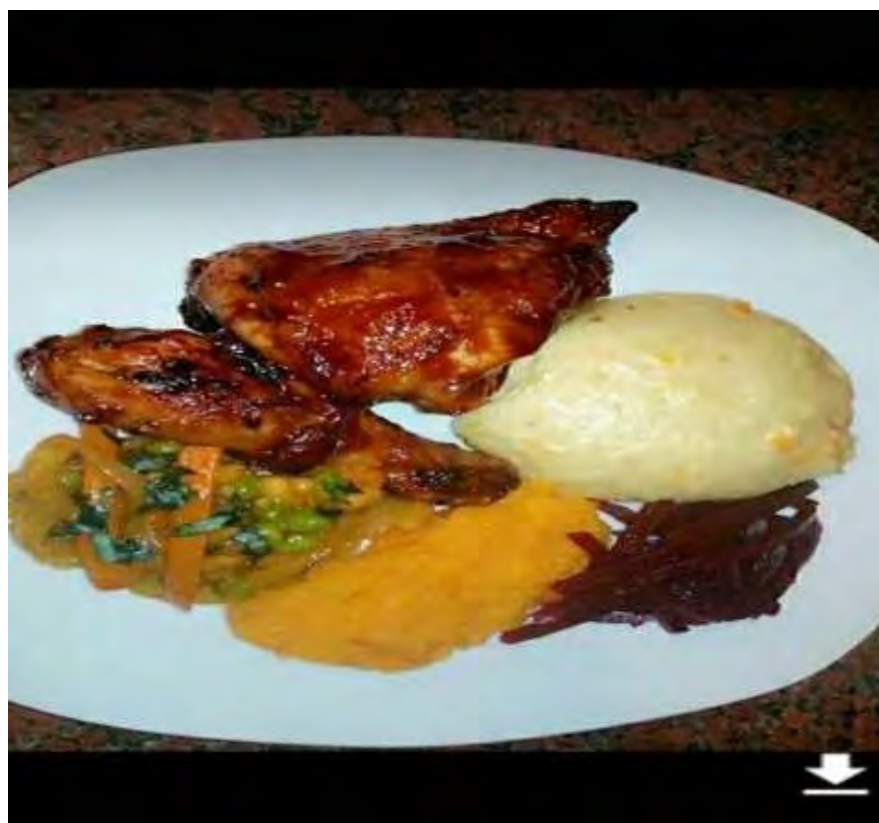


Facilitator: So, what do you during your leisure?

Participant 3: I spend time on my phone.

Participant 5: I attend choir practice. I love music so most of the time I am singing with my quartet group.

Participant 4: I communicate through phone thus social media mostly Whatsapp and Facebook. Phoning is quite expensive so would rather buy data bundles and when I want to phone I use whatsapp calling which is the cheapest.



Participant 7: This is dumplings, fried chicken, mashed butternut, mixed vegetables and beetroot, it's some of what we eat on Saturdays after church. That is a full meal with seven colours church. The food prepared on Friday. This is a metal dish where we put our waste and used to burn the rubbish. Mum burns the rubbish when it's too full as dogs drop the dish and results in litter everywhere.



Facilitator: So, you also burn the rubbish, don't you consider your neighbours?

Participant 7: My neighbours they also burn smelly things when they are doing their traditional ceremonies. If we don't burn the rubbish, we may end up suffering from malaria, the is one then burn burning the rubbish help those mosquitoes go away. We usually burn during the night when everyone is indoors, and they are no clothes on the lines. The reason we burn if the municipality truck does not come to collect waste, so we are forced to burn in order to reduce waste or to throw at the illegal dumping sites.

Facilitator: What do you think might be the best way of living in this community?
How could _____ changes to
how we live to achieve these changes around here - who might be able to help?

Participant 7: People need to work together if someone want to do something he/she needs to think of someone else before acting just as when we want to burn waste you

need to consider their well-being as some would have put the clothes outside, so you need to respect them as the clothes will end up smelling smoke.

Facilitator: How could changes be made to how we live to achieve these changes around here.

Participant 1: The community should be educated on how we should do things call the community.

Facilitator: Who should educate the community?

Participant 1: It's us youth who have seen the challenge and together with Makana municipal leaders. if the youth would be united and stand up to stand what is right and do the right thing the community will fool. If there is crisis of water as in Grahamstown, people need to be educated that there is crisis of water and then people will start using less than they were using before water. It's us as youth who could do that. We are the future leaders of tomorrow, so responsibility starts now.

Participant 3: We should inform people about short, or people should stop water the activities that they do should use less water or recycle. For example, if you finish washing clothes that water can be used for washing the car.

Participant 6: We should inform people of the shortage of water and they will start saving water.

Facilitator: How should we inform them?

Participant 6: We could put posters around, schools and all the places that people visit. People love TV and there be programs on TV of creating awareness of advertise on water shortage and how to save water. We can do that way.

Participant 4: Another way of doing it is creating programs and adverts on importance of water, how to save water and how to use it efficiently. Just like the program in Cape Town of Day Zero and we can do likewise and update people on the water remaining and the amount used a day. They can get this information on tv every day.

Facilitator: Okay that's how we could make changes then who might be able to help us?

Participant 4: The government can play an important role to support us. We might get assistance from the government like it can give us back up by pushing feeding scheme if we see KFC the R2 donation for foundation to support [abantwana abaneedy] kids in need kids in

need. And the funds from like Nelson Mandela foundation and other non-governmental organisations can support our community.

Participant 7: Ma'am are we only focusing on water?

Facilitator: No, on all the themes.

Participant 1: When you cook for 3 people and you are 1 then the rest of the food you throw in the bin. We need to save the food we cook.

Facilitator: Waste that is another challenge. How can we make changes on waste? **Participant 6:** We can recycle all that plastic and all the glasses lying around by making objects out of them. We can sell and get money.

Participant 7: Like doing papier-mâché like what Miss Jairos (pseudonym) did in primary school making objects out of paper.

Facilitator: Making objects from waste.

Participant 6: All those dumping sites be covered and written a notice to show that this is an illegal dumping site if seen throwing paper you will pay a fine.

Participant 3: In those areas with dumping sites, we can build recreational centres. **Participant 4:** The municipality when they were constructing road, they left the big stone and its now an ugly place. So, in another way they participate in creating dumping sites which means we need to educate even the officials to clean up their areas after finishing a project in order to keep the community free or have its own place away from residential areas to put its stones.

Facilitator: These big stones were left by Municipality. **Ok let's identify aspects of sustainability drivers or obstacles for sustainability.**

Participant 1: Save energy may by introducing cars which use less fuel which does not produce greenhouse gases.

Participant 4: Poverty, people are doing whatever they can get hold of in order to survive. Like illegal connection of electricity.

Participant 7: Drive less and walk or cycle more.

Participant 6: Save water and improve the water quality. The obstacles is that there is no many.

Facilitator: How was the project in general, what did you enjoy or not enjoy about this project?

Participant 4: We ate nice and delicious food. (Laughter from all) They were new solutions about to improve our city and the other thing is that they were more problems with limited solutions.

Participant 7: We got the opportunity to talk about our problems in our community and find solutions. At first, I thought they will be tension and it will be difficult to talk but as the project progresses, we were like one.

Participant 6: I got to learn about how other young people live and be able to appreciate it. **Participant 3:** What I liked about this project is that we had a chance to voice our opinion and no one to judge.

Participant 1: I enjoyed everything.

Facilitator: What do you hope will happen next with these ideas that we have raised?

Participant 1: We are good at talking but not able to implement the ideas.

Participant 4: We hope to do some small project for sustainability practices to happen.

Participant 7: Poverty results in crime so we could do community vegetable garden and help people.

Participant 3: We have a centre where it helps maybe after school classes to help to meet up with challenges, they have at school it can be in homework or computer classes. To prevent them being exposed to the bad things that happen in the community like crime, vandalism and illegal actions.

Participant 6: We can set a date once a quarter to create awareness in the community on educating them to save our resources.

Facilitator: Imagine you were designing a brand-new city, with an unlimited budget, what would it look like? What would you include, what would you leave out?

Participant 4: It will have a university which will cater for the rich, poor, black and white people. It should have places of interest which will attract tourist and bring money. I will build a city with efficient road and rail transport system., with movie house.

Participant 7: I will build a multi-racial city with equal housing where all the locations have same housing plans.

Participant 6: It will be a litter free environment which does not experience electricity load shedding, with clean water and good wide roads. I will build a city with youth hub for both educational and entertainment.

Participant 1: The city I will build will be a city with youth friendly corners and crime free. **Participant 3:** It should be a green city with more trees, which will use more public transport system and fully resourced public libraries. I will build city with free Wi-Fi available at every corner.

Facilitator: Waal I would love to be a resident in those cities. Thank you very much for your time, I enjoyed all the discussions. Would you be available for follow up outreach (e.g. voice over narration for film making etc)?

Chorus answers: Yes, will be available.

Appendix F: Transcribed Focus Group Discussion After Project Implementation (FGDE)

Number of participants 12

Date 28/09/2018

Facilitator: What were the problems and or opportunities that you encountered in the 6

stages of project implementation?

Participant 7: The main problem which was beyond our control was on water. We started the project knowing that there is water scarcity in Makhanda, but we thought we could be able to make a small garden which could not use too much water. they are schools with gardens which are flourishing despite the challenge. We hoped that we would be able to harvest our crops as this is becoming a problem each and every day.

Participant 3: I am glad that despite the municipal water being closed we still have the harvested water we are using to take us till harvesting time

Facilitator: How are you saving the water with this crisis at hand?

Participant 7: We are not using the municipal water most often as we may be able to get to school without water and we use the tank water to water our vegetables. Those who stay close by have opted to bring 2 litres of water every day. We are close to harvesting spinach, by next week we will be starting to give club members vegetables to take home. We are not sure of the beetroot and carrots if we will harvest soon.

Participant 4: The main problem that we encountered during all the stages of the project was time was not managed properly and we could not finish what we had planned for the day.

Facilitator: What was the real problem in time management?

Participant 4: Those from the primary school we finish lessons at 2:30p.m. and would start the discussions immediately. Those from high school they knock off at 2:45p.m.

and would arrive here at around 3:05p.m. we could then explain to them what we have done then by the time we are in the middle of the discussions that is when we are supposed to leave.

Participant 6: I also agree with the previous speaker time was really a challenge even when we were implementing the project, we also agreed to use Sundays and the same problem on arriving on time was a challenge to these attending on Sundays.

Participant 1: The good part of it is that we were able to work together during group discussions. The videos were the most part that I enjoyed as I learned that whatever we see has a positive or negative impact in our lives. The videos had a lesson that we can learn from and be able to apply in our own context. I liked the fact that were able to select a project to carry out as a sustainability practice. On the implementation stage at first all of us were attending as some of us were learning new things of starting a vegetable garden. As we progressed some of the group members did not attend to practical lessons on gardening, but some came. So, the work was too much for us who were attending.

Facilitator: Why were they not coming?

Participant 2: They are lazy, they do not want to work but we were able to accommodate them and let them do the task which they were comfortable to do.

Participant 3: Some of the meetings were held on Sundays and it was difficult for some of us to attend since we had to go to church – which is a disadvantage. Those who were coming had suggested that because the time was too little for us to complete our planned task for the day.

Facilitator: What about during school days?

Participant 4: Some of us use contract transport, if it is not club days our transport comes early to pick us up. So, we miss out on the meetings, but we were able to work even during break time to cover up for the time lost.

Participant 11: The attendance was poor for the learners coming from the high school as we could not find a day to accommodate all of them, but we agreed that the project should be done with those who managed to avail themselves.

Facilitator: That was commendable as we would not have done the project due to failing to get a day to accommodate all of you.

Participant 10: The high school students really had a problem on attendance as some of the days we were having afternoon lessons and others ended up not attending due to not having a free afternoon that is why we had opted for the Sundays to accommodate other students who wanted to be part of the project.

Participant 11: We managed to do the project up to the end and strong relationships were build. The primary school kids were able to work without looking at who attended and who did not.

Facilitator: Are there any opportunities? What about the good part of it?

Participant 6: I got an opportunity to learn more about gardening because at home we are not involved in gardening. So, I had no idea and people who had so many ideas showed me how to do gardening. Now I have been encouraged to start my own gardening. working together has taught me that we can make a change if we are united and share responsibilities. If we speak with one voice we can be heard by the principal, teachers and other learners.

Facilitator: Someone else? Remember it's not only about gardening we also had other themes we looked at.

Participant 7: I learnt about the group dynamics.

Facilitator: Can you say more about group dynamics?

Participant 7: There was full participation and interaction from the members. Though some would not agree as were selecting a theme to carry forward but after discussing at length we were able to agree on one thing. People were urging but before the end of the meeting they would make up and be able to have one thing to agree on.

Facilitator: No 4, what did you learn?

Participant 4: I learnt that illegal dumping is wrong. I also used to litter papers and staff at the dumping site. I am supposed to stand up and tell people in my community to stop dumping litre everywhere and try to keep our community clean as this is the healthy way to go.

Participant 2: I learnt that pollution could affect our environment and can also affect our future generation.

Participant 3: When we were doing the theme on waste, we found that there are things that we cannot change. There are times the municipality takes long to come and remove the litter, we are unable to tell them, so people end up throwing litter on the dumping site.

Participant 8: I learnt how we can recycle things that are recyclable.

Participant 5: Every theme that we covered had a learning component different from the other. What I learned is that when doing these project learning is not only done in the classroom, but as we are engaging on different projects, we can integrate what we learn from different subject into the project. I have learned that we need to space our beds and also space our plants as we are planting them. This is done through measuring. I also learned how to do a SWOT analysis as a means of choosing the theme to carry forward as them and to do SMART goals.

Participant 1: You can say that again, I won't have a problem when I get to grade 7 next year as I already learnt about SWOT analysis and SMART goals in this project which means I won't have difficulties in grasping the concepts.

Participant 7: SMART goals enabled the project to take shape as we were aware of what we wanted to achieve also the plan of action helped to always go back to see if we were on track with our activities.

Facilitator: How about water?

Participant 5: Musa: Our local water is not clean it makes people sick. We have learned not to use hosepipe when watering as this discouraged by the municipality. We are using buckets to water the garden and we are only watering the plants only. By that we are saving water. we are using more tank water to water the garden and less municipal water.

Participant 7: People travel with different modes of transport.

Participant 3: I learnt that in Grahamstown there is a lot of water shortages, so we need to use our water wisely and educate everyone.

Participant 5: I learnt that some of us we use hired transport are left out because in our areas there is portholes and our transport to not go there.

Facilitator: (comment) So there is need for the municipality to intervene so that the roads are fixed. What did you benefit from the discussions and activities during the project implementation?

Participant 1: I benefited from acquiring knowledge in gardening which I did not have.

Facilitator: How were you working with others? What was the relationship like?

Participant 8: At home I am the only child staying with my parents and am not good at communicating even before the project I have only two friends whom I play with. My communication skills have greatly improved, and I now know how to work with others well.

Participant 5: By being involved in gardening and teaching each other how to plant and maintain gardening. Before the project I was someone who communicates mostly with boys and did not have time for communicating with girls as they used to say that I am a shy person. I am able to communicate with anyone without any problems.

Participant 10: This has improved our relationship in a positive way. Now we can get together and discuss on issues about gardening and other issues.

Facilitator: Anyone else?

Participant: I enjoy discussions within the group, and I learnt that I should have good listening skills and listen very carefully to the person who is talking. Sometimes we miss out on important points and it will be a disaster having everyone talking and nobody wants to listen to each other and respecting each other's views.

Facilitator: What have you learnt from working together?

Participant 10: Oku. It makes a lot of difference working together as a group unlike working as individuals. It's more productive as a group this can only be achieved if we create mutual trust and unity.

Participant 3: It's very important to give chances to everyone as we are working together since we have different talents.

Participants 11: By working together you get to know more about how people work and get a clear understanding on how people act as they do.

Participant 9: I have learnt that each one of us are different from each other. If we put our talents together, we are able to achieve a lot in everything we do as a team.

Facilitator: What were the main things that you learnt and how are they helping you to make any changes in your life?

Participant 12: There has been great changes in my life when it comes to communication skills. I was so reserved as we started the project. I did not want to communicate with the other members from high school and the grade 7s. I was afraid of the unknown but through our meetings I was able to communicate with everyone in the group.

Participant 7: We should not only buy things but to learn to recycle, do vegetable gardens. At home my grandmother has a small garden which she has been tending to it alone, but through this project have been helped to be able to work even at home. I have taken a responsibility to extent the garden at home and looking after it without my grandmother asking or begging me to help her. This has strengthened the bond between us, and she is proud of this school project as she has seen the change it has done in my life.

Participant 9: At home we used to buy vegetables from shops. Now that we have a garden at home we are no longer buying apparently, we are even selling vegetables to the local community, making use of the fertile soil and the knowledge we acquire.

Participant 10: If you work together as a group, we can work a lot by acquiring a lot of knowledge and skills something you are unable to do when working alone.

Participant 5: I learnt that illegal dumping does not only affect us as human beings but animals and the environment which we are in is also affected in a big way. We need to take care of these animals and the environment.

Participant 6: I have learnt that pollution of our environment is wrong, at home we used to burn the rubbish when the municipal truck did not come to collect the bags. That's air pollution. We need to take care of our environment.

Facilitator: What else have you learnt from other themes that you looked at?

Participant 10: I learnt that a nation is not built by one person but when we help each other we can build a better nation. This can only be done when we have trust in each other and learning from one another through our weaknesses and strengths as we are not all the same.

Participant 5: I also learn that we need to build relationships with people and nature for the project to be successful.

Participant 6: I learned that it is of great advantage if you have your own garden at home unlike buying vegetables from shops. You eat fresh vegetables which are straight from the garden and it can sustain us financially by selling the vegetables to other people.

Participant 9: Health food comes from our home gardens unlike food from shops. Most of the food from shops are expired.

Participant 12: Fresh foods comes direct from the gardens. We grow our own foods which is cheap, affordable and sustainable.

Facilitator: How was work distributed among members according to different skills? Did you feel this distribution worked well?

Participant 9: The work was fairly distributed because a person usually was actually using his or her own skills what s/he is able to do what s/he can't do or just doing it because he was told to and some would volunteer according to what they are capable of doing.

Participant 6: The work was distributed fairly as they were boys or girls. Like when girls tried to dig so that there could put manure, we did a disaster as we were unable to dig deep, and the boys had to dig for us. For planting it was our work, even the caretaker commanded us on doing the work well.

Participant 8: Yes, because we did not only do it as primary learners, but the high school learners were there to participate in the implementation. If was only the primary kids, we were going to be tired easily and take long time to finish.

Facilitator: How were the relationship amongst the members within the group?

Participant 5: It was very tricky because at first, we did not know each other well but as time went by, we even became friends.

Participant 3: It helped us as some of us were not close before we started the project, but as time progressed, we became close. At breaktime we used to sit together and talk even if it was not time for project we would sit and discuss what we learned during the project. We know more about each other and the project.

Participant 10: At first, we had many differences we could not understand each other as we could not agree on almost everything. By time went by we there was mutual understanding we made difference aside and through this process we are now friends. This project has brought us close together not only at school but even in the communities we live, we are able to visit each other and help each other in our little gardens and in social interactions.

Facilitator: Anyone who want to say something.

Participant: 8: Ma'am, I am grateful of being part of the project and I learned something that no one can take away from me. A gardening skill and I have started my own garden and we hope to harvest the vegetables. Thank you so much for the opportunity to be part of this amazing people.

Appendix G: An example of a transcribed Observation

F: Good afternoon today we are looking at home and energy use. We are going to watch a video on Home and energy use challenges. You must take note of all the challenges highlighted in the video.

(Participants watched the video, and these are the discussion that came after watching the video)

P10: The challenges highlighted in the video are mostly the challenges that we face at home and it is because we do not know how to use energy sustainably due to not knowing and being ignorant.

P1: I stay with my grandparents and these matters of concern highlighted in the video are similar to what is happening at home. We end the month without electricity having to ask money from my mother and aunts. We switch on all the lights, do all the cooking, the geyser will be switched on for my siblings and cousins to bath, so, energy consumption is too high.

P4: The video shows also a person boiling a jug full of water for making one cup of tea (laughing). It means there is no saving of electricity as all the water will not be used so more minutes are spent in boiling the whole jug than when boiling just enough to fill a cup.

P2: Geysers should be switched off when not needed as it shows that they consume 31% of electricity.

P5: I have also learned that we need to switch off lights from other rooms when not needed or when there is no one using the room to reduce high usage of energy.

Observation 1b

The second video was on looking at Transport in South Africa these were the discussions that came from the discussions:

P17: This video shows the need for everyone in South Africa, women, children, and disabled people too have access to cheap and safe transport.

P19: The South African government has failed to address this important post-apartheid transport issue in a sustainable way. If we look at the roads in most of the towns are very bad.

P23: There has been a lot of accidents involved in public transport due to poor roads with many fatal casualties. We are even afraid to board the taxis around as they travel at a fast speeding the bad road.

P5: The transport also used on the roads are too old and can cause accidents.

P2: The trains that we have just watched on the video are not here in Makhanda. Why don't we have trains to take people to work because they seem to be cheap and use less fuel?

P8: Ja we need trains so that we can see them and have a chance to board them. I have never been in a train only see them on televisions and pictures.

P1: How many people can a train carry at once. In the video they were so many, and this can be the best way to save fuel and also to have cheap transport in our town which can be afforded by almost everyone. It shows that this is not educative the way I had planned, this resulted in most of the discussion not from the video.

The next video clip used was, understanding challenges facing South African education

P3: The video is showing what is really happening in our schools it has raised matters of concern which is, inequality in schools as most of the township schools where we learn are too crowded in one classroom, not fully resourced but poorly resourced and the infrastructure is not so good as compared to schools in town. The environment in our schools is far different from that of schools in town.

P18: There is a lot of absenteeism and late coming to work from teachers. I am glad that last year I was learning at a school different from this current school and we would learn one subject per day at times teachers were not coming into our classroom at all. I had to transfer to my current school, and it is far much better now.

P15: There is crime and violence in schools, we are not safe when we are at school because a lot of crime cases are reported every day and I am always afraid that this can also happen in my school. The police must do something.

P14: Yes, crime and violence are issues happening even at our school we have older boys who are violent and one of them hit the teacher and nothing was done, only suspended.

P11: At times they steal our bags which have names like Adidas and Nike. One of my classmates, after break came into the classroom and found the books on the desk and the bag was stolen.

P22: The space in our schools is so small that there are no sporting grounds in the school for co-curricular. That is one of the problems that we end up not doing sports and it's one of the important parts of curriculum. This may also result in poor pass rate and this is the major difference from the white schools.

P21: In the video it stated that South Africa change the curriculum without fully training the teachers. I am not sure how long were our teachers trained for the curriculum that was last introduced. This may cause the lack of knowledge from teachers on the curriculum be one of the reasons why our schools are not performing well.

P6: In our school we have classes which are overcrowded due to subject choices in grade 10-

12. Most of the students do art subjects and few are doing science subjects, and this is a challenge when it comes to supervision on our work as the ratio will not be balancing.

On leisure and communication there was no video, newspaper article or hand print the following discussion on the theme:

P2: In this town, it's so boring because there is no form of entertainment or friendly places for young people to go to.

P5: This is caused by a lot of crime and vandalism which us youth are involved in.

P6: I do agree because in my area there was a recreation centre for all age groups, but all the toys and the equipment were vandalised, so these are the effects of crime.

P9: What I like is that at least we have the public libraries with internet and the youth hub where we can go and do our assignment.

Appendix H: An example of document analysis (photo narrative)



The picture is when I was filling the Land for vegetable garden. I took the picture - the first seedlings that we planted. These seedlings are here to plant them on the prepared bed for vegetables. This project taught me valuable gardening and agriculture concepts on which I did not know and have. This also helped me to gain self-confidence and a capability. I also learnt that you need to first plant the seeds so as to have seedlings. Thus the knowledge of food growing I am not very good academically in class but found out that when it comes to working with my hands I am a ~~star~~ ^(skilled) star at that. Thus the new skill I did not know that I have. I also learned that gardening is a sustainability practice if well done with all the resources and water we can use on the food that we grow in the garden especially when sustainable vegetables are

Appendix I: Analytic Memo A

ENVIRONMENTAL MATTERS OF CONCERN

Sub-categories	Comment	Source
Energy Emoc	We end the month without electricity having to ask money from my mother and aunts. We switch on all the lights, do all the cooking, the geyser will be switched on for my siblings and cousins to bath, so, energy consumption is too high.	OB 1b, P4
	... no saving of electricity as all the water will not be used so more minutes are spent in boiling the whole jug than when boiling just enough to fill a cup.	OB 1b, P4
	In our house electricity is most consumed during family time as most the gadgets that use electricity will be on as we will be cooking, some of my siblings will be ironing uniforms, others will be bathing while my grandparents will be watching television.	OB 1b, P1
	We use electricity but most of the time we finish the month asking money for electricity from my sister.	IFGD 1d, P1
	Our grandparents at times would not want to listen to what we tell them but instead we need to be innovative. For example, I make tea for them so that I can monitor the amount of water in the jug. To make sure we save electricity.	OB 1b, P13
	We need to switch off lights in the room with no people using them. Geysers should be off every time and be switched on 30 minutes before people bath to allow water to be hot. All the people in the house need to bath at the same time.	OB 1b, P10
	We need to tell our grandparents/parents and our relatives to save electricity through simple ways of writing small artistic papers to stick on all the switches to remind them to switch off electricity when not needed.	OB 1b, P9
	The best place to conduct this project is at our homes as we have a lot of appliances that use electricity. However, it will be difficult to partake in the project as we need to work as a group not individually.	OB 5, P16

	We can also leave boiling jug with water which covers the element for those who love tea so that we add water no more. Stickers can be placed close to the jug.	OB 1b, P11
	We can save energy by using electricity less when you are in the lounge make sure the lights in the kitchen are switched off. And then when we are using the kettle to make tea, we must only use the amount that is needed and not more. By doing this we are saving water and electricity.	OB 1b, P12
	Our house registered for free electricity because of my grandparents who are not working so we get R50 free every month, but this does not last for the whole month we end up asking for money from my aunt.	IFGD 1c, P4
	We need to be educated on energy use so that we can teach our parents, grandparents and siblings as we lack clear understanding between science and our everyday knowledge on electricity.	OB 1b, P5
Mobility/ Transport Mmoc	I always use my feet but when I am going to town, I use taxis. Sometimes I don't like going on foot to gym or school because sometimes it will be raining like today and then I will be get there soaking wet and muddy.	FGDI 1b, P2
	What I don't like moving around is that now in these days there are things that are happening such as crime when you are walking some people come with a car and steal you.	
	When I am going to town, I use taxi. Most of the time like when you are coming back from town you have to wait a long time for the taxi to be full. They don't want to leave if it's not full all the seats need to be full before they leave.	IFGD 1b, P7
	I would like to change the roads, I and think there are many potholes in Grahamstown that need to be fixed because we struggle in the morning to travel on the road because of potholes and they can cause accident with other cars or they can damage cars. Some of the taxi are very old but are still on the road and these may also cause accidents.	FFGD 2b, P6.
	I don't usually use taxi because when I am going to town I go with my mom and she has a car. So, what I don't like is that there are a lot of potholes. They can damage cars. Then sometimes my mother and I don't use the car we use taxi because my mother's car once had a problem because of the potholes so it costed a lot of money.	IFGD 1b, P4
	I walk to school. What I like is that you can actually exercise as I will be walking to and from, what I don't like is that when it's hot there is dust on my shoes and when it's raining there will be mud every time I arrive at school.	IFGD 1c, P 4

	Then on transport people should be encouraged to use public transport than using their own transport. We should also walk more than using transport on short distances. It's also a way of exercising.	IFGD 1b, P6
	I walk when I'm going to school then when I want to get to town, I use a taxi what I like about taxis is that you quickly get to your destination and what I don't like is when the fuel price goes up the taxi fare also goes up and I am still a student so I won't always have the means to use a taxi.	IFGD 1c, P2
	The needs for everyone in an independent South Africa of women, children, and disabled people for cheap and safe transport are very vital.	OB 1b, P17
	When I am coming to school it depends on if I have someone to go with if there are there, I will walk but if I do not have anyone I will use taxi since I am afraid to walk alone.	IFGD 1d, P
	I will be walking to and from, what I don't like is that when it's hot there is dust on my shoes and when it's rainy there will be mud and every time, I arrive at school dirty.	IFGD 1d, P
	The South African government has failed to address this important post-apartheid transport issue in a sustainable way	OB 1b, P19
Leisure and communication LCmoc	We love having the facilities for us to go out and spend time with friend where it is safe to be. But here in Makhanda there is no such places which are youth lovely places.	OB 1b, P3
	We do have a soccer field in front of the school just after the road but the toilets and shed have been vandalised	IFGD 1a, P5
	... Every time I arrive from school my friends will be waiting for me so that we can play cricket. In my community there is an empty field where there is nothing, so we play there.	IFGD 1a, P3
	If we can have youth friendly places to go and enjoy ourselves where they are swimming pools, Luna parks and outdoor games for every age. These changes can be made if people are willing to work together in looking after these things.	OB 1b, P8
	I only know that the stadiums are the facilities that are there so it's only for sport people. There are no theatres and swimming pools.	OB 1b, P1
	The other thing ma'am is that the facilities are very old, I think they were used with our parents when they were our age and we are also using them, and they have not been upgraded. They are really very old.	OB 1b, P8
	Even if we go to the built-up infrastructures the old and not	OB 1b, P7

	safe to be in. There is no security. You can go with your phone and you can come back without it. So, it's not safe to be in these places especially us girls.	
	I like roaming the streets with my friends, where I stay. As this is the safest place I can be. During the weekends I wake up early because I go to church on Saturdays, it's a Sunday school programme. Sometimes when I do not go to church, I play skipping rope and sometimes we go and sit on the grass at my friend's house and play cards or walk around the streets.	FFGD 2a, P2
	Since we do not have recreational centres nearby, we play soccer on our street until dark. It me and my friends playing soccer though at times we are distracted by the cars moving About	FFGD 2b, P
	In Makhandia we don't have places where we can go and enjoy ourselves. The stadium around is mainly the men and boys who go and exercise play soccer. We once went to the In-Door Sports Centre for gym and the men who are responsible there were laughing at us when we were lifting weights, this made us feel uncomfortable, so we stopped going there. Since it's not safe to walk around the location.	FFGD 2d, P3
	At Indoor Sports Centre the equipment for gym is limited only the older ones have access to them because they just come and take it from us because we are young.	FFGD 2c, P3
	I took these pictures because here in Grahamstown children are not allowed to lift weights. At Indoor Sports Centre the equipment for gym is limited, only the older ones have access to them because they just come and take them from us because we are young. So, my brother and myself thought that we should make our own weight lifts and do the exercise at home as it is safer to play at home	FFGD 2b, P1
Waste Wsmoc	...in my location waste is collected every Wednesday and I think it is the whole of Joza. At times the truck does not come due to unforeseen reasons and residents are not notified in time. This affects our location as the black bags will be out all day. So, some residents will be bored by this and would not want the waste back in their homes instead they will take the bags to the dumping sites.	OB 2a, P18
	They are helping in managing waste especially the fact that they have scheduled days every week for collecting waste. Challenges are there but they always assist even the cleaning and clearing of the illegal dumping sites once in a while.	OB 2a, P10
	We do participate at times my grandmother will send me to go and throw things even if I tell her that we should not do that, but she does not listen to me.	OB 2a, P7
	The problem is about the residents creating these illegal dumping.	OB 2a, P10
	No, the problem is not the residents but the municipality not	OB 2a, P2

	delivering their service to the residents.	
	Next to my home there is a dumping site where people dump waste. It is not legal to dump but they dump and run away and other dump during the night. It's not very comfortable there are a lot of rats, it's scary to see very big rats running across and in front of you. There are lots of mosquitos and flies during summer.	IFGD P6
	There is a drum at the back where we put rubbish but then the dogs like going and making the drum fall which makes the yard dirty. At times we burn our waste to avoid dirt.	IFGD 1c, P5
	Our waste, the municipality used to provide us with black plastic bags but not anymore. We buy plastic bags and put our waste outside the yard every Tuesdays and the truck comes and collects it. They used to give us but now it doesn't happen anymore. The municipality does not have money anymore.	IFGD 1a, P2
	We have two bins at home, we have one in the house and one outside, so we throw our waste in the bin inside the house and then when it is full, we put in in the one outside. When its full outside we go to the dumping site and throw it there. It's because of the municipality trucks does not come to take our rubbish so we don't have place to keep waste.	IFGD 1b, P1
	If we have more waste and the truck does not come, we are forced to throw the waste at the dumping site.	FFGD 2b, P2
	I hate the way they throw their rubbish there. They don't care about other people who live next to the dump sites that they will get diseases and infection from the waste	FFGD 1a, P1
	We live close to the dam, so we throw litter at the back of The	IFGD 1b,6
	house close to the dam. In my area there is a dumping site and the municipality man came to the area and announced that people should go and clean, but they did not go so there is still litter and its growing bigger and almost getting into people's houses.	
	There's a drum at the back where we put rubbish but then the dogs like going and making the drum fall which makes the yard dirty. At times we burn our waste to avoid dirt.	IFGD 1a, P4
	This waste which is all over does not give us pride and sense of ownership if our area is dirty, it affects us as we end up not happy with our hometown"	OB 2a, P6
	We usually burn the trash at the back of the house.	IFGD 1a, P1
	In my area there is a dumping site and the municipality man came to the area and announced that people should come and clean, but they did not come so there is still litter and its growing bigger and almost getting into people's houses.	IFGD 1a, P7
	...for waste if we don't take it out, we burn	IFGD 1, P4

	for waste our municipality provides black plastics then the truck comes on Wednesday and if it doesn't come, we burn the waste.	IFGD 1c, P2
	... the truck comes on Wednesday and if it doesn't come, we burn the waste.	
	With no help from the municipality some residents have resorted to burning litter while others through the litter on their closest dumping site.	OB 1b, P5
	The residents are the ones who are building up these illegal dumping sites wherever there is an open space.	OB 1b, P10
	On the part of waste maybe if we remove dumping sites and start community gardens if we do that slowly the dumping place will be a thing forgotten.	OB 2a, P3
	I would like to change the dumping sites because they are ruining our community because people throw away anything there and then we are the ones who have to deal with the stench of dead dogs and then other dogs die because of eating things that are at the dumping site.	OB 2a, P6
	We can take all the rubbles from the dumping sites and sort them so that we can recycle. The rotten ones are manure for the community gardens. It is also a way of starting an income generating project.	OB 2a, P7
	We can start a recycling project at school looking at the case study and how they started their recycling project. This is from a dumping ground to a recycling project.	OB 2a, P10
Water Wamoc	We drink tap water because we don't have transport to take us to the spring, so we take tap water and boil it and then we drink.	IFGD 1d, P6
	The municipality provides water trucks with water but the challenge is that at times the truck comes and those close to the main road get the water if you do not have someone to call you it leaves without other residents getting the water	OB 2a, P2
	We usually use tap water and we use water that we buy. We drink the water we buy and then we wash cloths clean the house with the tap water we don't cook with tap water.	IFGD 1a, P
	If tank water is there I will drink and if it's not there I drink tap water for me water is water. I just drink any type of water. Tank or tap water it doesn't make a difference.	IFGD 1c, P4
	The water we get is my mother used to drink tap water, but she stopped as it has some infection, so she buys bottled water from town we use tap water for washing dishes, washing clothes and watering the garden.	IFGD 1a, P1

	We no longer drink the tap water we buy from town we use tap water for washing dishes, washing clothes and watering the garden	IFGD 1c, P7
	We use tape water for everything. There is nothing we can do there is no money.	IFGD 1d, P5
	We drink tap water because we do not have transport to take us to the spring, so we take tap water and boil it and then we drink.	IFGD 1c, P6
	Makhanda is experiencing an ever-growing population with limited supply of water.	OB 2a, P7
	I think that we may blame each other of not saving water but maybe residents do not know to save water. So, what need to be done is to educate our community members on the water saving practices.	OB 2a, P2
	Some of the actions and practices the residents do is maybe out of ignorant. at times you see some of the residents using hose pipes for watering their gardens.	OB 2a, P6
	If Makhanda does not have water to drink and bath to take that limited water to the ground will be a waste. But we need to not to lose hope if ever we are to choose the garden, we need to have a small one which we will be able to maintain.	OB 2a, P16
	At home we have 10 by 25litre bottles and buckets that we have to make sure that they are full before we use them just in case water is gone so we say 25 litres is for the toilet and the 55 litres is for uses inside the house.	IFGD 1c, P4
	We get our water from the tap for bathing, cooking and washing clothes. Drinking water my father has a 5-litre bottle, so he fetches water from his work from the tank. We drink only that water. It is rain harvested water that we drink and bath with tap water. Long ago, when I was still a toddler tap water used to be clean but now since there is water shortage, it comes with whitish and brownish in colour like it has mud, so we don't drink it anymore.	IFGD 1a, P2
	At times it goes for the whole weekend without water coming out and come Monday there will be no water. At times we are forced to go to school without bathing, we just wipe, or we would not attend school.	IFDG 2d, P1
	Ok in Makhanda sometimes we have water shortages and when it comes out its brown and dirty, so some people get sick from tap water	FFGD 2c, P4

	We do not use the spring water as it is in the outskirts of Makhanda so only those with cars are the ones benefiting. Not all with cars go to the spring. Some people always expressed their disappointment of walking 2-4 km carrying buckets and bottles and waiting in long queues.	OB 2b, P5
	Even those who have cars do not have patience as during the days when there is water, there are very long queue at the spring.	OB 2b, P1
	If we see that there is no water and we go to the spring and fetch some water. We get there and there are long queues and my parents would leave us there and go back home. We have to wait for more than 3 hours because it's always full.	OB 2b, P2
	Spring is a sustainable practice as the water is clean and by taking water from using other sources, we will be saving municipal water.	OB 2b, P6
	The spring is a clean area as residents make sure that they do not litter around the spring.	OB 2b, P8
Food Fmoc	We like eating my mom likes cooking steam bread and then we eat with water with sugar or drink 'o' pop. We always have to beg my uncle for him to give us money so that we buy nice things some time he gives us R200 to buy stuff.	IFGD 1d, P5
	My grandmother uses our social grant and hers to buy food. My mother stays in Port Elizabeth and seldomly sends money. We eat African salads, rice mixed with cabbage and potatoes, dumplings with cabbage and samp mixed with dried beans.	IFGD 1d, P6
	We buy food we don't have a garden at home we eat stiff pap, African salad and dumpling with meat	IFGD 1c, P4
	The food we mainly eat is mostly starch food, which is cheap to buy, rice, samp, dumplings and African salad	IFGD 2a, P5
	My grandmother cooks white samp I don't like it, but she cooks it.	IFGD 1a, P2
	Here at school we get good in the morning. At 10 a.m. they give us food from Monday to Friday. They vary the food that they give us. Monday we might get rice with pilchard, Tuesday we get chicken livers and samp. And then Thursday we get African salad.	FFGD 2d, P2

	We call the stem that grow on the vegetable shooters so when you want to grow or share with others you just cut off the suckers. The same vegetable can be used for more than 8 months depending on how you use it. This type of vegetable will be good for us to have one bed of it so that we can also have the stems.	OB 2b, P1
	I think this type of vegetable if it produces many shooters, it means it will help even to expand our garden and sustain us from harvesting vegetables but having them for quite a long time. Growing our own vegetable like this type will save a lot of money as we will even have vegetables to sell to the community and for our own consumption. This will greatly help in growing our own vegetables and aspiring for sustainable livelihood.	OB 2b, P15
	We can grow different types of vegetables and will have a variety of them to sell and prepare soup for ourselves.	OB 2b, P8
	We can re-use water that we have bathed with and use it to wash a car instead of throwing the water away or you can use it to flush the toilet.	OB 3C, P4
	After rinsing the clothes during laundry, water can be used also used on washing of car.	OB 2b, P3
	Working together has taught me that we can make a change if we are united and share responsibilities	FGDE P6
	We managed to do the project up to the end and strong relationships were built.	FGDE P1
	I am happy that as an eco-club we managed to do most of the things that we had planned. Having a garden in place was our main thing.	OB 5 P7
	We were able to design the garden and agree on the crops that we were to plant. The soil was also prepared by putting manure and were able to plant.	OB 5 P2
	I am not very good academically in class but found out that when it comes to working with my hands, I am a star and good at it. I am not very good academically in class but found out that when it comes to working with my hands, I am a star and good at it.	DA 7
	All in all, we were able to follow our action except that the maintenance and harvesting were a challenge.	OB 5 P9
	I took this photo to show the seedlings that have grown. I am happy with the progress shown. The seedlings will be transplanted though I do not know how this is done but with the help of the other members will be able to plant them.	DA 3
	I learned to prepare a garden from scratch and that if I want to have a garden, I need to first prepare the soil by digging before planting. What I was doing on the picture is digging. I had to come during the weekend because during the club meeting day I will be having a lesson.	DA 1

	The digging that I was doing was difficult for me as the soil was dry and hard. What I liked is that they were other club members who helped me. It was my first time to do that and I learned how to use garden tools and working with the soil to prepare the beds.	DA 5
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Appendix J: Analytic Memo B

POTENTIALS AND CHALLENGES OF THE PEDAGOGICAL INTERVENTIONS

Sub-categories	Comment	Source
Potentials in Orientation PO	The newspaper articles helped me to understand that these issues we experience are real.	IP 1
	The group work also helped through brainstorming as everyone came up with different ideas on how to solve issues and were able to ask questions for further explanations.	IP 6
	...learned that whatever we see has a positive or negative impact in our lives. The videos had a lesson that we can learn from and be able to apply in our own context	IFGDE P1
	I enjoyed watching the video on energy use as it made the discussions easier and we were able to relate to what is happening in our own homes when it comes to the use of Electricity	IP 5
	Through discussions we have been able to learn from each other, It is very important to listen attentively to others that how you get ideas and new things. I also learned that we need not look down on one other as we all learn from one another regardless of age.	IP 5
	I liked the videos as I was able to hear the simple language used without any difficulties	OB 1a P3
	I wish the school could allocate two tanks at the garden site for easy access to water	OB P6
Potentials in Activating PA	This helped a lot, firstly I didn't have any idea of gardening and I have just realised that there is a lot I can do with the soil...the video also taught me that the issues we experience here in Makhanda are all over and we just need to be responsible citizens and use what we have sustainably. I also learnt that that we should not always buy but produce our own which is fresh.	IP 1
	I think this type of vegetable if it produces many shooters it means it will help even to expand our garden and sustain us from harvesting vegetables but having them for quite a long time. Growing our own vegetable like this type will save a lot of money as we will even have vegetables to sell to the community and for our own consumption. This will greatly help in growing our own vegetables and aspiring for sustainable livelihood.	OB 2b, P15

	It is a skill that I have acquired with the help of the bigger teammates who have the knowledge of digging using the different garden tools.	IP 2
	... I have started my own gardening and invite other youth to see what I am doing. I used to spend my pastime on the streets with friends but now I will be busy working on the garden with my friends. Listening to each other, giving each other time to talk, sharing ideas and teamwork. We need to take care of the resources that we have and stop misusing them.	
	Every single day I share with them what I would have learned about gardening. How to raise plants. With the knowledge I have acquired now I can share my ideas of gardening with them and friends. I have learnt that for a garden to have fertile soil worms should be there as they help to decompose and production of manure. I also learnt that for work to be done in time and to perfection the group needs to work in harmony and together. We need to listen to each other and give others turn to talk. Everyone's contribution is important and may be constructive, so we need to respect one another. When working everyone needs to participate in the work.	IP4
	This is helpful if ever we are going to have wormery or garden as a project. New terms have been learned. I did not know that mulching is a way of conserving water and should be done when the plants still small to prevent from Sunlight	OB 2c, P4
	We young people are the members of the community can make changes within our community. We are the voice of the voiceless as we are seeing all these challenges. We need to stand up and make our voices heard. We also need to ask the community to have youth representatives in the policy decision making. I believe we are the agents of change and leaders of tomorrow, so this is the right time to start building a better community. We need to improve the quality of water as most of the people are forced to buy water when they do not have money. Even boiling drinking water will be using electricity which is costly to the poor people. We need to find the root causes of having water which is not suitable for drinking and the case be rectified.	IFGD 1c, P2
	With the knowledge we have if all of the group members can initiate this in their different areas it would help to eradicate poverty and unemployment.	IP 5

	I have learnt about mulching which improves the quality of the soil, protect the roots and retain moisture. I have learnt about mulching which improves the quality of the soil, protect the roots and retain moisture.	IP 6
Potentials in Selecting PS	The workshop where we invited people from another school with their teacher was so helpful to me. I managed to see them doing practical work and this gave me the will power to want to work with the soil and have food on the table. The SWOT analysis was also helpful as never thought that when selecting a project, a SWOT analysis can be used. I learnt this in EMS and thought it only applied to businesses.	IP 1
	The action plan helped us to pave the way to start our first activity of choosing an area to do our gardening. I liked the SWOT analysis as it was my first time to hear the words. At first, I did not understand how the SWOT analysis was related to matters of concern, but I later got a clear understanding. Thanks to the older group members who explained for us. By analysing each theme, it gave the opportunity of choosing the project with less external forces and internal forces which we can control. This helped to choose the issue we are able to work on.	IP 2
	When you are choosing a project to implement you need to do a SWOT analysis and then choose the ones with less external forces because you cannot control them. If your strengths and weaknesses are many you can choose that theme as you can change your weaknesses to be your strengths on the other hand maintaining your strengths. I never used to enjoy gardening now I have my own.	IP 4
	I have learnt how to recycle since I live in a dirty street, there is illegal dumping everywhere and there is air pollution as well. This is from the newspaper article activity. I have learnt to pick up litter and keep it in a garbage bin. Even at school we are teaching people to keep our environment safe.	IP 5

	...for example, when we watched different videos, we were able to relate to our own lives and experiences and see if there was a need to select the issue for the project. Some of the issues needed different stakeholders to be involved so it would take a long time to be implemented and some needed a lot of money. As we were discussing, this helped us to select the issue which we were able to work on without involving a lot of money and other stakeholders. ...Through discussions we have been able to learn from each other that we need to educate our neighbours to stop littering and burning waste. By introducing environmentally friendly practices which we learned in the different themes in homes and the communities and taking on leadership roles.	IP 6
	I learned the SWOT analysis and was able to look at the strengths weakness opportunities and threats and be able to choose the most appropriate theme to work on.	DA 2
	I liked the SWOT analysis as it was my first time to hear the words. At first, I did not understand how the SWOT analysis was related to matters of concern, but I later got a clear understanding. Thanks to the older group members who explained for us. By analysing each theme, it gave the opportunity of choosing the project with less external forces and internal forces which we can control. This helped to choose the issue we are able to work on.	IP 2
	We do not have a garden at home so starting a garden was so important to me that we can grow our own vegetables to reduce poverty in our community. Instead of buying vegetable we can always collect from the garden.	IP 6
Potentials in Implementation PI	I learned working as a team and how to be cautious when using these garden tools. If we work as a team there is a lot, we can achieve and there is less workload as we will all be hands on. It is not only in the classroom that we can learn but from one another. My colleagues demonstrated how to use garden spade and fork and I managed to use them though at first, I had some difficulties but eventually I managed to use them.	IP 1

	Today's activity we were tilting the land. What was useful was to do the practical work of digging as to me it was my first time to do that. We have learnt that actually we can together and be able to accomplish what we have set aside. I have learned that a skill is acquired through seeing how other people do the work. When we work together in unison, we can achieve more as we managed to clear the weeds and grass in a short time. Coming together and work in the garden and produce food without going to buy from shops.	IP 2
	I have learned to clean the garden tools after use and store them in the storeroom for safe keeping.	IP 4
	I enjoyed watching the video on energy use as it made the discussions easier and we were able to relate to what is happening in our own homes when it comes to the use of electricity. Digging the land for vegetable garden.	IP 5
	I was putting dry grass on the container which we used to plant the seedlings. Today was so hot so after watering the seedling we thought if we put grass it will help to retain moisture. Today we were planting spinach, what was useful is that after we planted our vegetables, we covered them with	IP 6
	dry grass and the older participants explained that it is mulching.	
	I am glad that despite the municipal water being closed we still have the harvested water we are using to take us till harvesting time I am glad that despite the municipal water being closed we still have the harvested water we are using to take us till harvesting time I am glad that despite the municipal water being closed we still have the harvested water we are using to take us till harvesting Time	IFGDE P3
	SMART goals enabled the project to take shape as we were aware of what we wanted to achieve also the plan of action helped to always go back to see if we were on track with our activities	IFGDE P7
	Every theme that we covered had a learning component different from the other. What I learned is that when doing these project learning is not only done in the classroom, but as we are engaging on different projects, we can integrate what we learn from different subject into the project. I have learned that we need to space our beds and also space our plants as we are planting them. This is done through measuring. I also learned how to do a SWOT analysis as a means of choosing the theme to carry forward as them and to do SMART goals.	FGDE P5

	You can say that again, I will not have a problem when I get to grade 7 next year as I already learnt about SWOT analysis and SMART goals in this project which means I won't have difficulties in grasping the concepts.	FGDE P1
Potentials in Evaluation PE	We can make use of gardens in areas which are lying idle such as in schools and most if not, all schools are secure. Taking care of the environment is our responsibility (imagining the next cycle evaluation). I will mobilise my friends for us to start a gardening project for economic growth and sustainability. I will also use the small space at home to start a vegetable garden.	IP 1
	I did not know that the dumpsites in my area were illegal, but this discussion helped me to realise that they are illegal, so I will not throw rubbish there and would always educate my friends on the awareness.	IP 2
	I am thinking of starting my own gardening club within the community that can involve the community. I am still looking for space with the help of friends.	IP 4
	We need to have campaigns within the community to create awareness on littering and saving water. I also have mobilised my siblings to start a vegetable garden at home and teach them all that I have acquired in the project.	IP 6
	Ma'am, I am grateful of being part of the project and I learned something that no one can take away from me. A	IFGDE P11
	gardening skill and I have started my own garden and we hope to harvest the vegetables. Thank you so much for the opportunity to be part of this amazing people.	
	I got an opportunity to learn more about gardening because at home we are not involved in gardening. So, I had no idea and people who had so much ideas showed me how to do gardening. Now I have been encouraged to start my own gardening. working together has taught me that we can make a change if we are united and share responsibilities. If we speak with one voice we can be heard by the principal, teachers and other learners	IFGDE P6
	We managed to do the project up to the end and strong relationships were build. The primary school kids were able to work without looking at who attended and who did not.	IFGDE P11

	We are going to save food and money, so we are going to make our own food gardening. I am thinking of starting my own gardening club within the community that can involve the community. I am still looking for space with the help of friends. In my community there are a lot of open space which can be used to start community gardening. There are a lot of youth who are doing nothing within my community. If we can have workshop on how to start and maintain a vegetable garden it would help a lot youth in my community and reduce crime.	IP 5
	My grandfather tried to plant vegetables, but they could not grow properly due to lack of manure and the poor soil type which is not for planting crops.	IFGD 1b P3
	We do not have a garden at home so starting a garden was so important to me that we can grow our own vegetables to reduce poverty in our community. Instead of buying vegetable we can always collect from the garden.	IP 1
Challenges in Orientation CO	The trains that we have just watched on the video are not here in Makhanda. Why don't we have trains to take people to work because they seem to be cheap and use less fuel?	OB 1b, P2
	Ja, we need trains so that we can see them and have a chance to board them. I have never been in a train only see them on televisions and pictures.	OB 1b, P8
	How many people can a train carry at once? In the video they were so many, and this can be the best way to save fuel and also to have cheap transport in our town which can be afforded by almost everyone.	OB 1b, P1
	...I could not understand the part where it was explained about measuring instrument for energy	IP 4
	We have challenges of listening to one another in the first stage as others thought they know it all	IP 5
	Time was limited we could not discuss an issue at length during discussions. CO	IP 6
Challenges in Activating CA	I had a challenge in the first-place cause everything I planted died because I did not know how to prepare the beds and how to plant.	IP 2
	In the beginning we were disorganised, and we did not agree on almost everything we discussed about. On the selection of the themes were a lot of disagreements as other members had their own opinion towards some themes	IP 1
	..We had challenges of listening skills within club members and some of us lack seriousness and are lazy to participate in the project	IP 4

Challenges in Selecting CS	I have learnt a lot these two days. I didn't know that gardening was hard I always thought it was easy but now I know.	IP 4
Challenges in Implementation CI	Digging deeper and scary worms in the ground.	IP 4
	The main problem which was beyond our control was on water. We started the project knowing that there is water scarcity in Makhanda, but we thought we could be able to make a small garden which could not use too much water.	FGDE 7
	...time was really a challenge even when we were implementing the project, we also agreed to use Sundays and the same problem on arriving on time was a challenge to these attending on Sundays	IFGDE P6
	As we progressed some of the group members did not attend to practical lessons on gardening, but some came. So, the work was too much for us who were attending	IFGDE P1
	Some of the meetings were held on Sundays and it was difficult for some of us to attend since we had to go to church – which is a disadvantage. Those who were coming had suggested that because the time was too little for us to complete our planned task for the day	IFGDE P3
Challenges in Evaluation CE	The main problem that we encountered during all the stages of the project was time was not managed properly and we could not finish what we had planned for the day.	IFGDE P4
	Those from the primary school we finish lessons at 2:30p.m. and would start the discussions immediately. Those from high school they knock off at 2:45p.m. and would arrive here at around 3:05p.m. we could then explain to them what we have done then by the time we are in the middle of the discussions that is when we are supposed to leave.	IFGDE P4
	The attendance was poor for the learners coming from the	IFGDE
	high school as we could not find a day to accommodate all of them, but we agreed that the project should be done with those who managed to avail themselves.	P11
	The high school students really had a problem on attendance as some of the days we were having afternoon lessons and others ended up not attending due to not having a free afternoon that is why we had opted for the Sundays to accommodate other students who wanted to be part of the project	IFGDE P10

Appendix K: Letter to the Department of Education Provincial Offices seeking consent

227A Joza Location

Grahamstown

6139

21/11/2017

The Director

EC Education Department Private Bag X0032

Bisho 5605

Dear Sir/Madam

REQUEST FOR PERMISSION TO CARRY OUT AN EDUCATIONAL INTERVENTIONIST RESEARCH WITH LEARNERS IN TWO SCHOOLS

I am a part-time Master of Education student in the field of Environmental Education at Rhodes University, Grahamstown, South Africa. I am undertaking an educational interventionist research at two schools in Grahamstown (a primary and a high school). The schools have eco -clubs, and the eco club learners will be used in the research. I am requesting permission to conduct this research.

The purpose my research is to explore sustainability practices stimulated through an educational intervention responding to environmental matters of concern. This will be done through interviews, observations, a desktop study and photo narratives.

If you require further information regarding this research you are welcome to contact my supervisor Dr Ingrid Schudel at Rhodes University, Environmental Learning Research Centre, or email on i.schudel@ru.ac.za.

I undertake to work ethically with the learners. I will obtain the written consent of all participating learners as well as that of their parents. I will ensure the anonymity of the school and the participants when I report on the intervention. In addition, learners will be free to withdraw from the eco-club or the research activities at any time without negative or I hope my request for permission will receive a favourable response

Yours sincerely

Musiyiwa Lona F. Student Number: 11m5489

Appendix L: Letter to schools

PERMISSION LETTER TO HEAD OF [name withheld] HIGH SCHOOL

227A Joza Location Grahamstown

6139

21 November 2017

The Principal [Name and address withheld]

Dear Sir/Madam

REQUEST FOR PERMISSION TO CONDUCT RESEARCH AT [name withheld] SCHOOL

My name is Lona Fungayi Musiyiwa, and I am a Masters student at Rhodes University (RU) in Grahamstown, South Africa. The research I wish to conduct requires the facilitation of an educational intervention whereby the club members will choose a sustainability project, which they will be engaged in. The intervention will include the use of photographs, but no faces will be shown in photographs. The research will entail interviews and observation of their project implementation. This research will be conducted under the supervision of Dr Ingrid Schudel.

This letter serves to seek formal consent to approach the learners in the eco club and the parents of the learners in the club as participants for this research. For this reason, I request your permission to visit your school between February and May 2018 to conduct my research as outlined in my research proposal.

I attach a copy of my research proposal which includes copies of the consent and assent forms to be used in the research process. Once I have received ethical clearance from Rhodes University, I will provide you with the ethical clearance letter. As part of this, I undertake to ensure that the name of the school and all participants will be replaced with pseudonyms and that all the material I collect as part of the research will be accessible only to myself and my supervisor.

Upon completion of the study, I undertake to provide you with access to the research findings. If you require any further information, please do not hesitate to contact me on 074 474 3388 or on my email lornafmu@yahoo.com.

Thank you for your time and consideration in this matter.

Yours sincerely

Lona F. Musiyiwa (Student number: 11m548) Rhodes University

Appendix M: Consent letter for the parents / guardians

227A Joza Location Grahamstown

6139

15 May 2018

Dear Parent/ Guardian

REQUEST FOR PERMISSION FOR YOUR CHILD TO PARTICIPATE IN A RESEARCH STUDY

I am a Masters student currently studying at Rhodes University and I have permission from the principal of the school to carry out a research study. My name is Lona Musiyiwa and my cell phone number is 074 474 3388.

Your child is invited to participate in a research study entitled “A sustainability practice educational intervention in response to environmental concern amongst Grahamstown youth”. The aim of this research is to develop social learning in an intervention to empower young people as active participants within their communities. Your child’s participation can help him/her as a young person in finding ways of living a sustainable lifestyle. The group of students will be meeting once a week during their eco-club meetings.

The research will require your child to take photographs around the home and community. These will be used only for research purposes or promotion of the research. I undertake to work ethically with your child and she/he will be free to withdraw from the study anytime.

If you give me permission for your child to participate in the research study, please complete the declaration below and return to me. Please do not hesitate to contact me if you need any further information.

Yours sincerely Musiyiwa L.F

.....

DECLARATION

I..... (Parent/Guardian) hereby confirm that I understand the content of this letter and the nature of the research study. I give permission for my child to participate in the research study.

.....

.....

Signature of Parent/Guardian

Date

Appendix N: Informed consent form for participant

Research Project Title:	A sustainability practice educational intervention in response to environmental concern amongst Grahamstown youth.
Principal Investigator:	Lona F. Musiyiwa

Participation Information	
• I understand the purpose of the research study and my involvement in it. • I understand the risks and benefits of participating in this research study. • I understand that I may withdraw from the research study at any stage without any penalty. • I understand that participation in this research study is done on a voluntary basis. • I understand that while information gained during the study may be published, I will remain anonymous, and no reference will be made to me by name or student number. • I understand that personal information, photos from home or community and video recording may be used. • I understand and agree that the interviews will be recorded electronically. • I understand that I will be given the opportunity to read and comment on the transcribed interview notes • I confirm that I am not participating in this study for financial gain	
Information Explanation	
The above information was explained to me by:	
The above information was explained to me in English and I am in command of this language:	
Voluntary Consent	
I, _____ hereby voluntarily consent to participate in the above-mentioned research.	
Investigator Declaration I, Fungayi Lona Musiyiwa, declare that I have explained all the parts of the study to the participant and have truthfully answered all questions asked me by the participant. Signature: FL Musiyiwa Signature:	Date: / / Date:

Appendix O: Consent letter to parents/guardians (for anonymity)

227 Joza Location

Grahamstown

26 September 2018

Dear parent/guardian

CONSENT FOR PERMISSION TO SHOW FACES IN THE RESEACH

I am currently doing my Masters research at Rhodes University. The research focuses on the sustainability practices emerging from an eco-club social learning intervention, respond to environmental matters of concern, and contribute to the well-being of Makhanda youth. Your child is in the eco-club. I am kindly seeking permission to allow the photographs with your child's face to be shown on my research. These photographs form part of my data presentation, and as such would need your approval for the faces not to be blurred. If you do agree to allow your child's photograph to be used as it is.

I would be grateful if you would sign the tear off slip below and return to me as soon as possible.

Do not hesitate to contact me for clarity.

Yours Sincerely

Ms F.L. Musiyiwa

074 474 3388

..... I
_____ (name of parent/guardian) do not give/ give permission for my
child's face _____ (name of the child) to be shown in your research.

Signed: _____

Date: _____