



**PERCEPTIONS OF YOUTH ON WASTE MANAGEMENT IN KHAYELITSHA, CAPE TOWN,
SOUTH AFRICA**

by

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Dissertation submitted in fulfilment of the requirements for the degree

Master of Technology: Business Administration

in the Faculty of Business and Management Sciences (name of Faculty)

at the Cape Peninsula University of Technology

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**District Six, Cape Town
October 2022**

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Signed: _____

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Date _____

ACKNOWLEDGEMENTS

First and foremost, I would like to thank the Almighty for giving me the strength, good health and mental fortitude to remain focused on my studies to undertake this research study and to persevere towards goal attainment amidst the Covid-19 pandemic. "My success is only by Allah. My heart is filled with gratitude as today my Insha'Allah turned into an Alhamdulillah".

I wish to thank:

- Dr Andre de la Harpe, my research supervisor, I am indebted to him for his guidance, mentorship, invaluable advice, insightful comments and for always being supportive of my work and believing in me from day one at my proposal presentation and accepting me into his masters group without hesitation. I am grateful that I was assigned to a supervisor that maintains a professional and friendly disposition and who genuinely cares about the well-being and success of all his students, his knowledge and experience encouraged me to remain positive and complete my Masters.
- Prof Retha de la Harpe, for her professional guidance, patience, data contribution, sourcing relevant academic journals and coding assistance.
- The CPUT library staff (Nathan Kalam and Zulaiga Davids) who sourced academic journals relevant to my research study. Thank you for all your tireless efforts.
- The Youth of Khayelitsha who participated in the study, heartfelt thanks. This dissertation could not have been possible without your active participation and valued contribution.
- Help Up organisation for extending their invite to me to join the waste clean-up within the Khayelitsha Wetlands area and providing safe and reliable transport to and from home. This experience allowed me, as the researcher, to get my hands dirty and gain first-hand knowledge of the various types of littering in the area, as well as help lead the way in changing the youth's perception on proper waste disposal. It was truly an experience of learning through the art of doing, as it is critical to be the change you want to see.
- Jazakallah Khair to my sister, Fatima Abarder, who has been my support system throughout my Master's study, thank you for encouraging me in all my pursuits. I appreciate the unyielding support, unwavering commitment and tireless efforts to keep me highly motivated and for walking the journey with me with belief in my capabilities.
- Jazakallah Khair to my parents (Mogamat Faiz Abarder and Wasiela Ferhelst), my success has been a direct result of the work ethic, high moral fibre and values you have instilled in me at a young age. There are no words that can truly express the level of gratitude and appreciation I have for you. Shukraan for the sincere heartfelt dua, sacrifices, support and for encouraging independence. My success is a testament to my upbringing, your hard work, sacrifice and love.

ABSTRACT

Due to the catastrophic effects on people and the biophysical environment as a whole, waste is a subject that sparks lively discussions. Global waste management (WM) is a problem, as landfills are running out of room to store waste. This is made worse by the fact that many people view landfilling as an economical and environmentally responsible and cost-effective solution to waste disposal. South African municipalities are mandated by the country's constitution to provide waste management as a basic service to their citizens.

The gap in environmental knowledge among the youth and the old within developing countries contribute to ecological issues or waste management problems, resulting in unsustainable development, with important consequences in low-income countries. It is unclear what the factors are that influence the youth's perceptions on WM. The research question was formulated as follows: What factors influence the youth's perceptions on waste management in an underserved community? The aim of the study was to explore the influences that affect the youth's perceptions on waste management in Khayelitsha, Cape Town, South Africa. As research strategy, a qualitative online survey as well as photovoicing was used. The case was the township Khayelitsha in Cape Town. The unit of analysis was the perceptions of the youth of Khayelitsha on waste management. The unit of analysis was 14 young people (18–35 years of age) of the Khayelitsha community. Non-random and conveniently selected sampling techniques were followed. For the data collection, an online semi-structured questionnaire as well as photovoicing was used. Qualitative data analysis was done on the collected data. The data were coded and summarised, and categories and themes were developed. The results show that the youth of Khayelitsha have a poor perception on waste management and that the youth has a lower than anticipated perception of their need to protect the environment. The majority of the youth who took part in this study think that the City of Cape Town and their community leaders have the primary duty of protecting their environment. There was poor WM characterised by illegal dumping and very little separation of waste for recycling. The results further showed the absence and lack of WM awareness campaigns, recycling initiatives, enforcement of waste legislation, adequate waste management services and community participation. This study contributes towards the understanding of the youth's perceptions and could assist in reducing waste management. Increasing waste awareness among the youth has a positive impact on attitude as well as perception towards the environment. Waste awareness and education should be implemented to help inform the youth of the urgency and need to better cognize the importance of MSW disposal and its proper management for Khayelitsha residents and as global citizens. Research ethics were strictly adhered to.

Keywords: Waste management, youth, waste awareness and education, community dynamics.

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ABBREVIATIONS

| Abbreviation | Full Word / Term |
|--------------|---|
| CBD | Central Business District |
| DEAT | Department of Environmental Affairs and Tourism |
| EE | Environmental Education |
| IDP | Integrated Development Plan |
| IWMP | Integrated Waste Management Plan |
| MSW | Municipal Solid Waste |
| MSWM | Municipal Solid Waste Management |
| NEMA | National Environmental Management Act |
| NEMWA | National Environmental Management Waste Act |
| NWMS | National Waste Management Strategy |
| SWM | Solid Waste Management |
| WM | Waste Management |

GLOSSARY AND DEFINITIONS OF TERMS

| Terms | Definition/Explanation |
|---|--|
| Waste | Waste refers to “any unwanted material, which may consist of materials left over from a community and household activities. The material may be discarded or accumulated, stored, or treated (physically, chemically, or biologically), prior to being discarded or recycled. It is also used to describe something we use inefficiently or inappropriately” (Oelofse & Godfrey, 2008:12). |
| Waste collection | Waste collection is the “collection and transport of waste to the place of treatment or discharge by municipal services or similar institutions, or by public or private corporations, specialised enterprises or general government. Collection of municipal waste may be selective, that is to say, carried out for a specific type of product, or undifferentiated, in other words, covering all kinds of waste at the same time” (Glossary of Environment Statistics, 1997). |
| Waste generation | Refers to “the production of waste.” (City of Cape Town, 2009:5). |
| Waste management practices | Waste management practices are defined “as any techniques, innovations and/or methods used to reduce, handle and manage any streams of waste. These are often referred to as waste innovations used to turn waste materials into usable products” (Godura et al., 2012:20). |
| Solid waste | Solid waste is “a known as material no longer in use that is thrown away, whether by human beings or animals, and the abandoned material can be recyclable materials or non-recyclable materials” (Lodhia & Hess, 2014:45) |
| The sustainable solid waste management system | The sustainable solid waste management system is defined “as the combination of a management programme and the economic, political and environmental, social-cultural and technical components” (Sobotka & Sagan, 2016:390). |
| Local municipality | A local municipality means “a municipality that has municipal executive and has the authority to operate within a particular area, which may include rural areas or small towns or cities. A local municipality is described as a category Municipality as per the Constitution of South Africa” (Pasquini et al., 2013:225). |
| Waste collection and transportation | Waste collection and transportation are “the actions of removing waste from the household, by the department’s waste collection service or private collection with the intention of final disposal” (Banga, 2011:28). |
| Waste final disposal | Waste disposal refers to “the final placement of treated waste; this refers to the methods used by households to get rid of their wastes such as burning, burying, landfill and others” (Banga, 2011:28). |

CHAPTER 1: INTRODUCTION

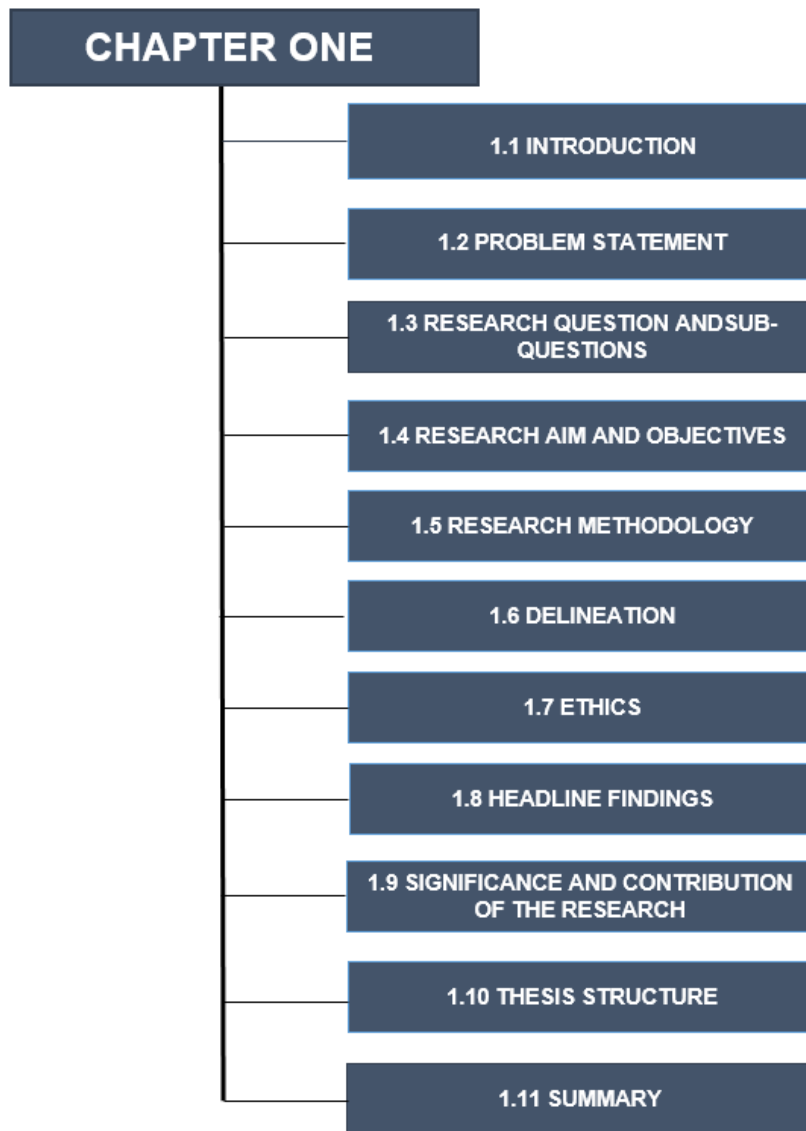


Figure 1.1: Layout of Chapter 1

1.1 Introduction

The development of the world's economy has become a fault line for the increase in greenhouse gases. At the same time the youth could be left with a world which has become unsafe as a result of greenhouse gases. Today's youth will face the full force of the greenhouse effect. The youth are an excellent source of human capital as they are the world's future leaders. One of many the factors that contribute to the greenhouse effect, is the management of waste. Waste and its management are global phenomena associated with practically all human activities and it is inseparable from life (Adeniran et al., 2018:185).

As a developing country, South Africa experiences fast urban population development, which creates significant issues (Department of Environmental Affairs, 2018). Dealing with the

rising amounts of solid waste from human activities is one of the most difficult environmental management issues worldwide. With few resources available, nations need to maintain high standards of service. Government depends on tax revenue to fill the gap left by these few resources. Agencies and government departments in charge of waste management (WM) need to explain to citizens how incorrect garbage disposal affects the environment and how this can be avoided (Ciura et al., 2017).

The management of illegal dumping is one of the most urgent issues facing the globe today (Ferronato & Torretta, 2019). This is partially due to the rapid economic and demographic growth, which is caused by an excessive amount of waste produced every day. This waste creation often exceeds to what many WM systems can manage. The world produces about 2.01 billion tonnes of waste yearly. By 2050 the number is “expected to rise to 3.40 billion tonnes” (Jiang et al., 2020:285).

The youth is an important stakeholder in the wellbeing of many communities’ and needs to take responsibility of the daily affairs of the community they live in. Waste touches all aspects of life and needs to be managed. This leads to study’s aim which is to explore the youth’s perception on WM in Khayelitsha, Cape Town, South Africa. Khayelitsha is a township in Cape Town in the Western Cape Province of South Africa, and is characterized by illegal waste dumping, just like many other high-density residential areas.

Communities in developing countries frequently choose waste disposal techniques that have been shown to be harmful to both human health and the environment, such as open dumping and burning (or unregulated landfills) (Hilburn, 2015). As required by Section 24 of the South African Constitution, the goal of waste collection is to remove harmful substances from neighbourhood’s in order to safeguard the environment and prevent adverse effects on public health. For all tasks, municipal solid waste management (MSWM) needs the appropriate infrastructure and upkeep. In South Africa, separation at the source is frequently insufficient, hence municipal solid waste (MSW) is collected in a mixed state (Godfrey & Oelofse, 2017). In certain communities, illegal dumping occurs because of factors such as distance and difficulty to access waste facilities are challenges (Brandt, 2017; Sotamenou et al., 2019). According to Guerrero et al. (2013), a greater distance to the collection location increases the likelihood of waste being dumped along roads and in open spaces. According to Seng et al. (2010), locations with bad road access rarely get a good waste collection service. This illustrates the connection between convenience, waste dumping, and the location of WM infrastructure.

With the already over-populated and polluted world, the need for the youth to learn the correct methods of handling the generated waste has become essential (Marello & Helwege, 2014). All of the methods of waste prevention and WM require public participation.

To develop sustainable WMS and to encourage environmental citizenship among community members, it is commonly acknowledged that there is a need to increase public awareness of and community involvement in WM. People's attitudes toward waste may change as a result of SWM awareness. These factors and concerns remain, and research on the youth, specifically their perceptions towards MSWM, is needed to fully understand the youth's involvement in this failing ecosystem.

1.2 Problem statement

Protecting the environment and its citizens' health remains one of the key policy priorities of governments of many developing and emerging countries. MSWM is a complex issue with political, economic, institutional, and environmental dimensions. It has become one of the most critical concerns confronting urban spaces in emerging countries as a result of exponential urban growth.

WM is one of the areas where COVID-19 environmental effects are most noticeable (Kleme et al., 2020; Nzediegwu & Chang, 2020). The treatment or focus placed on municipal WM in developing countries seems to have suffered in the short term since the introduction of COVID-19 (Nzediegwu & Chang, 2020). This is because of the increase in demand for and usage of plastic syringes, protective gear, personal protective equipment (PPE), disposable life support equipment, and other plastic supplies (Kampf et al., 2020; Kleme et al., 2020; Nzediegwu & Chang, 2020) resulting in a serious environmental risk. The COVID-19 epidemic and its aftermath have had a disproportionately negative impact on informal settlements, which now pose unique hazards. This is due to the large concentration of socio-economically disadvantaged people, unstable and overcrowded housing conditions, and absence of essential services and infrastructure (Tampe, 2020). It's important to guarantee everyone has access to fundamental services like sanitation, garbage collection, energy, water, and digital services. Vulnerable people should also receive specialized assistance (United Nations, 2020). Many cities have come to realize how crucial access to basic services, equity, and green public places are for the well-being of their residents (C40 Cities Climate Leadership Group, 2020). SWM has proved extremely difficult to execute because of the dearth of public services in many cities, particularly in the slum areas of many developing countries (Mukama et al., 2016).

One of the key stakeholders in WM is the youth. However, it appears that despite many WM strategies, "the youth are not involved or following the strategies." (Leuta et al., 2020:1114). The lack of environmental education among young people in underdeveloped nations contributes to ecological problems or concerns with waste management (Debrah & Vidal, 2021). This leads to unsustainable development and have serious repercussions in low-income countries. The success of waste reduction depends on this as well as how waste

and WM are perceived by the youth therefore investigating the youth's underlying beliefs of problems such as illegal garbage dumping could reveal important information on the causes of illegal dumping in the neighbourhood (Brandt, 2017:32). It is unclear what the youth's perceptions are on WM.

1.3 Research question and sub-questions

1.3.1 The research question (RQ) with research sub-questions (SRQs)

Table 1.1 presents the research question (RQ), research sub-questions (SRQs), research methods, and objectives of the questions.

Table 1.1: Research question, research sub-questions, research methods and objectives of the questions

| Research Question (RQ) 1: | What factors influence the youth's perceptions on waste management in an underserved community? | |
|--|---|--|
| | Research method(s) | Objectives |
| SRQ 1.1: What is the social and community context as perceived by the youth in Khayelitsha? | Survey with semi-structured questionnaire and photovoicing | To determine the role that the community context plays in the youth's perception on WM. |
| SRQ 1.2: What are the factors affecting the perceptions of the youth of Khayelitsha on WM? | Survey with semi-structured questionnaire and photovoicing | To determine what the youth's perceptions on WM are. To examine how the factors affect the youth. |
| SRQ 1.3: What are the concerns of the youth about WM? | Survey with semi-structured questionnaire and photovoicing | To determine the concerns, if any, affecting the youth's perceptions. |

*RQ = Research question; SRQ = Research sub-question

1.4 Research aim and objectives

1.4.1 Aim

This research aimed to explore the influences that affect the youth's perceptions of WM in Khayelitsha, Cape Town, South Africa.

1.4.2 Objectives

- i) To determine the role that the community context plays in the youth's perception on WM.
- ii) To determine what the youth's perceptions on WM are.
- iii) To examine how the factors affect the youth.
- iv) To determine the concerns, if any, affecting the youth's perceptions.

1.5 Research methodology

Chapter 3 presents a detailed discussion of the research design and method employed in this research. The study followed an inductive approach, which has allowed the researcher to understand the phenomenon of interest based on the perspectives of the participants. The phenomenon was researched from an interpretivist perspective, contributing towards the

body of knowledge. Since there are numerous methods for considering and debating experiences, the study's interpretivist epistemological approach was used to construct a case for the truth of the data obtained from respondent perspectives. For the gathering of the qualitative data and information, an online questionnaire survey technique and photovoicing were chosen. Since the research's data collection was unstructured and qualitative in character rather than quantitative, the subjectivist technique was adopted for this particular study.

The unit of analysis was the perceptions of the youth of Khayelitsha, Cape Town. The unit of observation was the youth (14) of Khayelitsha participating in the research.

1.5.1 Research philosophy

Research philosophy involves the ontological, epistemological and axiological stances that a researcher takes while conducting research.

i) Ontology

According to Saunders et al. (2019:133), ontology is "assumptions about the nature of reality." Realists (objective ontology) claim that the "actual world" does not depend on humans and their perception of it to exist, whereas nominalists (subjective ontology) assume that humans have their own view of reality. Neuman (2014) distinguishes between these two ontological positions. The subjectivist approach was chosen for this specific study since the data was unstructured and qualitative. The research was interpretivist, with participant data being interpreted rather than being of an experimentalist type, hence subjectivism was also adopted.

ii) Epistemology

Neuman (2014:95) describes epistemology as "the problem of how we know the world around us or what makes a claim about it true." The three epistemological philosophies recognised by Neuman (2014:95) are i) positivism, which takes a realist stance, ii) interpretivism or phenomenology, which asserts that there are numerous perspectives on reality, and the iii) critical theory tradition, which combines positivism with interpretivism. Since the researcher had to interpret the information gathered from the respondents in order to make claims about the truth, the research adopted an interpretivist epistemological approach.

iii) Axiology

Axiology deals with the researcher's judgement based on value (Bell & Bellon, 2018). A researcher's personal value, beliefs, and experiences can affect the outcome and credibility of research and this explains why different researchers conducting a similar study may arrive at different conclusions.

1.5.2 Research approach

Interpersonal relationships and human interactions are essential for assuring community-based growth in the social sciences. Reasoning can be a challenging process because it involves many different individual thoughts and circumstances (Epley & Gilovich, 2016). The three methods of inferential logic that are frequently employed in research are i) induction, (ii) deduction, and (iii) abduction.

1.5.2.1 The inductive approach

This study followed an inductive approach as the phenomenon was researched from an interpretivist perspective, contributing towards the body of knowledge. The inductive method, sometimes known as the "bottom-up" method, begins with observations of a specific phenomenon where evidence is gathered before moving up to establish a claim or develop a theory (Saunders et al., 2019). Inductive research methods are frequently used in qualitative studies, together with a theoretical framework. Due to the nature of the inductive research approach, the data gathering process was driven by the data rather than the theoretical framework. An inductive analysis is a theme analysis that is data-driven, according to Braun et al. (2018:12).

This study used an inductive approach.

1.5.2.2 The deductive approach

The deductive research method is based on presumptions that apply broadly and uniformly to a given assertion. The "top-down" technique of reasoning is another name for this method (Blaikie & Priest, 2019).

1.5.2.3 The abductive approach

The abduction procedure is applicable in a novel or uncharted circumstance (Richardson & Kramer, 2006). Abductive research proposes a viable explanation by looking for patterns in an uncommon phenomenon. The most likely cause can only be explained through abduction (Wieringa, 2014).

1.5.3 Research strategy

Saunders et al. (2019) cite several strategies that are useful in qualitative research. A research strategy provides the specifics of the application, outlining the justification for the study's purpose as well as the experiments that will be conducted to achieve it. The chosen research plan is described and supported in this section. According to Dresch et al. (2014:980) the following variables affect the decision of the research strategy

- i) The objectives of the research

- ii) The form used by the methods to evaluate the results
- iii) The role of the researcher in conducting the activities
- iv) The potential for generalisation of knowledge
- v) The potential (although not mandatory) collaboration between the researcher and the requirement of an empirical basis for the study

For this research, a qualitative online questionnaire survey strategy (Appendix G) and photovoicing were selected for the collection of qualitative data. The questionnaire is viewed as a measurement tool in survey research since it comprises recorded questions that respondents can directly answer on the questionnaire form themselves without the help of an interviewer.

Through photovoicing, marginalized individuals and groups are encouraged to become positive change agents in their own lives and communities by being empowered, inspired, and uplifted. In order to communicate community concerns, social fairness, and public injustices, the approach of photovoicing employs a visual format. Participants are given the opportunity to speak openly and honestly about problems that affect their life (Sutton-Brown, 2014:170). As a universal form of comprehension, awareness, and a tool for constructive and cooperative social change, images can also be the voice when words are insufficient.

Participants in Photovoice, a participatory action research methodology, use photographic techniques to describe, depict, and improve their lives and/or communities (Wang, 1999). Since it was first introduced in the 1990s by Wang and Burris (1997), photovoice has become more common in the social science literature (Liebenberg, 2018). The photovoice process offers a stage for marginalised and underserved groups to uplift their voices to be heard and allows the participant to become co-researchers in the study by enabling them to elevate and uplift their voices for social change. It is a crucial instrument in “community-based participatory research recognised by researchers to be accurate” (Courtney & Hook, 2017:126).

As strategy, a qualitative survey (Appendix G) as well as photovoicing was used. The case was Khayelitsha in Cape Town, South Africa. Khayelitsha was non-randomly and conveniently selected as solid waste is a major environmental challenge for the community and is conveniently situated for the study.

1.5.3.1 Unit of analysis

The unit of analysis was the perceptions of the youth of Khayelitsha, Cape Town. The source from which a researcher acquires data and information is known as the unit of analysis (Harrison et al., 2017). Monette et al. (2011:58) state that the unit of analysis used in social research includes individuals, groups, social organisations, artefacts, and programmes.

1.5.3.2 Unit of observation

The unit of observation in this research was identified as the youth who reside in Khayelitsha who either choose to interact or ignore good WM practices. Age definitions and categories differ across local, international, and even disciplinary contexts, and the labels "youth" and "children" are contentious and socially created (Canosa & Graham, 2020). The age group for this study was 18–35 years. In South Africa, the National Youth Policy (NYP) defines youth as every person between the ages of 14–35 years (Presidency, 2015). Twenty-eight (28) of the youth initially agreed to be part of the research. However, only 14 youth remained to complete the questionnaire during these unprecedented times as the youth had other personal matters to (Chapter 4).

1.5.3.3 Sampling

The sampling technique to accomplish the aim of the study was determined to be a combination of convenient and purposeful sampling. A set of criteria is used to research participants via purposeful sampling, often known as "subjective" or "selective" sampling (in this case, homes and residents situated closest to illegal dumpsites). Purposive sampling with an emphasis on the youth was utilized in this study to explore how the youth in Khayelitsha perceive WM (Taherdoost, 2016). The selection method used was intentional sampling (Creswell & Creswell, 2018:9). This method of selection made it possible to sample people of different genders and ages (Creswell & Creswell, 2018).

1.5.4 Data collection

For this study, an online semi-structured questionnaire as well as photovoicing was used (Saunders et al., 2019). As a consequence of COVID-19, no face-to-face interviews could take place. Instead of face-to-face interviews, the mobile application WhatsApp by means of a Web link was used for 28 youth participants from Khayelitsha to collect responses from them (Chapter 3, section 3.4.1). To further address the dumping of waste and context of the community under investigation, photovoicing was also used as a data collection technique.

1.5.5 Data analysis

An analyses of qualitative data was carried out for this study (Yang et al., 2018). Dudovskiy (2016) suggests the following methods for analysing qualitative data: Codes should firstly be created and implemented. Data categorization is what is meant by coding. Secondly, themes, patterns and relationships are identified. For this research, data were coded, summarised, categorised and thematic analysis applied. Atlas.ti was used to explore the photovoicing data collection.

1.6 Delineation

The study excluded all other underserved communities in Cape Town. Only the youth as defined was selected as participants and all other role-players were excluded.

1.7 Ethics

According to Bryan and Burstow (2018:109), research ethics are “concerned with preserving the rights and integrity of respondents throughout the course of the study.” What is “deemed proper and wrong when conducting research is referred to as research ethics.” (Brynard et al., 2014:94). Furthermore, ethics requires that the researcher maintain the respondents' confidentiality and treat them with respect throughout the research process. No one may be forced or subjected to coercion in order for them to engage in the process. The ethics and confidentiality issues of research need to be considered from the beginning of the research. Ethical factors such as informed consent, approval by the review board, feedback, confidentiality, inducement and how to handle sensitive results should be considered from the beginning of the research to avoid problems at a later stage during the research. This researcher obtained consent from all participants via sms and a written consent sample is available in Appendix D. The questionnaire questions were submitted together with the ethics clearance application form to the Ethics Committee of CPUT for approval (Appendix A).

The integrity of the study process is the responsibility of the researchers. The ability to create knowledge necessitates accountability for the integrity of that creation (O'Leary, 2004). Every effort was taken to ensure that this study was carried out in a manner that was scholarly, professional, and ethical. Before the study began, permission was secured from the department and possible research participants. Participants' privacy and confidentiality were ensured. Participants were given the option to leave the research at any moment if they felt uncomfortable, and no misleading techniques were utilized. The researcher made sure to adhere to the Cape Peninsula University of Technology's research policies and procedures.

1.8 Headline findings

The headline findings of the research were as follows:

- i) It is shown that the youth has a lower than anticipated perception of their need to protect the environment. The majority of the youth who took part in this study think that the City of Cape Town and their community leaders have the primary duty of protecting their environment.
- ii) There was poor WM characterised by illegal dumping and very little separation of waste for recycling.
- iii) Absence and lack of WM awareness campaigns.

- iv) No recycling initiatives.
- v) The lack of enforcement of waste legislation.
- vi) Incapacity of the local authority in providing adequate waste management services.
- vii) The lack of community participation.
- viii) Crude open dumping.

1.9 Significance and contribution of the research

The production of waste remains a challenge for the ecosystem of the planet. Every effort needs to be made to lessen the effect of this waste on the ecosystem. As the effect of the waste challenge grows, the future of the planet and its inhabitants becomes under threat. The youth will have to live longer with the consequences of current environmental decisions than will their elders. This study contributes towards the understanding of the youth's perceptions and could assist in improving WM. Increasing waste awareness among the youth has a positive impact on attitude as well as perception towards the environment. Waste awareness and education should be implemented to help inform the youth of the urgency and need to better cognize the importance of MSW disposal and its proper management for Khayelitsha residents and as global citizens. Results from the survey did not explicitly focus on trying to understand awareness levels of Khayelitsha youth in terms of potential repercussion of indiscriminate and or illegal dumping of MSW to the environment. However, leading question revealed that their waste management awareness level as low. However, in the same breath some youth revealed they perceived indiscriminate dumping of solid waste as a significant issue, it can be inferred they are likely to improve their waste disposal and management practices as they understood the contributing factors of the waste problem within Khayelitsha.

1.10 Thesis structure

The thesis has six chapters. Each chapter begins with an introduction and ends with a conclusion.

Chapter 1: This chapter gives a descriptive explanation or summary of the thesis. Topics that are covered include the introduction, background to the problem, problem statement, research questions, and research aim.

Chapter 2: This chapter reviews, clarifies, and evaluates literature related to WM that have already been completed by other researchers.

Chapter 3: This chapter elaborates on the methodology appropriate for the development of knowledge in the study. It discusses some of the philosophies from the research onion. The research approach and research strategy are explained.

Chapter 4: This chapter focusses on analysing the raw data collected up to the development of the findings and themes.

Chapter 5: This chapter discusses the themes resulting from the findings. It furthermore answers the research questions based on the findings derived from the questionnaire data.

Chapter 6: The final chapter presents the conclusion of the thesis. It offers recommendations based on the key findings. The researcher provides a reflection on the study, explains the research contribution, and identifies further research.

1.11 Summary

With the challenges of WM, it is becoming more and more important that the youth becomes increasingly involved. The problem statement, RQs, aim of the study and objectives were presented in this chapter. The problem statement was formulated as follows: "It is unclear what the youth's perceptions are on WM". The main RQ asked was: What factors influence the youth's perceptions on waste management in an underserved community? The aim of the study was to explore the youth's perception on WM in Khayelitsha, Cape Town, South Africa.

For the research methodology, the underserved community of Khayelitsha in Cape Town South Africa was chosen. The research strategy was twofold, namely, a qualitative survey and a photo data collection technique (photovoicing). Data were collected by means of online surveys (using WhatsApp) and photovoicing. Data analysis was done by means of thematic analysis using Atlas ti. All ethics as prescribed by The Cape Peninsula University of Technology's ethics committee were adhered to.

Chapter 2 presents the literature review.

CHAPTER 2: LITERATURE REVIEW

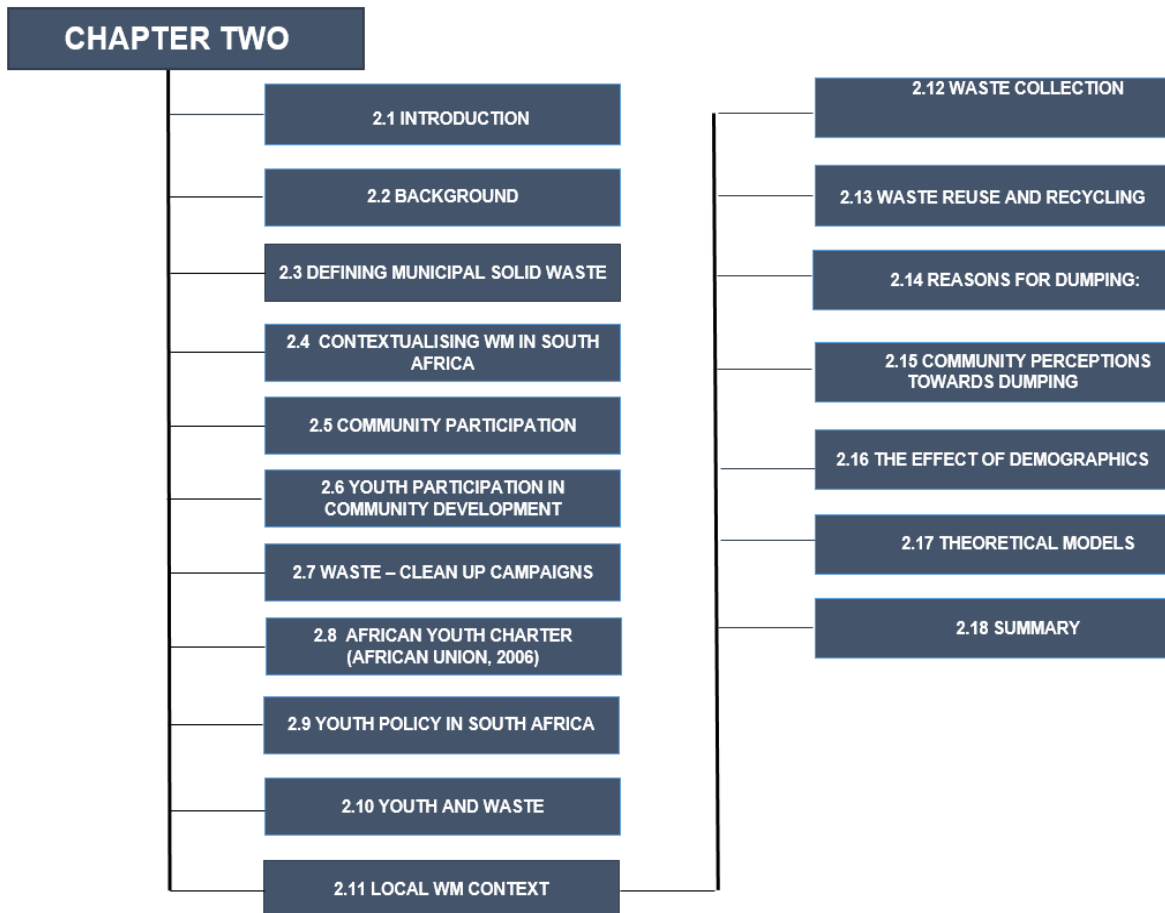


Figure 2.1: Layout of Chapter 2

2.1 Introduction

Despite environmental rules and regulations in South Africa, notably with relation to municipal solid waste management (MSWM), recycling and community involvement have received very little attention (Dlamini et al., 2019). Local governments (municipalities) are currently struggling to maintain basic service levels, and there is little technical or financial capacity outside of metro areas to leverage service delivery to promote garbage beneficiation, according to the National Waste Management Strategy (NWMS) (Department of Environment, Forestry and Fisheries, 2020:18).

Furthermore, it is challenging for smaller, more rural towns to extract value from waste streams due to economies of scale and distance. The lack of provincial intervention made it clear that district and provincial leadership is required for a regional approach to waste management planning and accounting. At the moment, most municipalities struggle to establish an integrated waste management system in accordance with the waste hierarchy and instead choose to use the least expensive collection and disposal methods as a

minimum standard. The youth might be seen as the future environmental stewards since they frequently play key roles in bringing about change (Han & Ahn, 2020).

Keywords and concepts were used to do literature searches using online databases of CPUT, including Google Scholar, Scopus and Emerald, to search for relevant articles. Key words came from the research title, problem statement, research questions and the aim of the study. The literature is reviewed relating to the background and history of MSWM as well as theories relating to behaviour of people. The rest of the chapter is presented as follows: i) background to WM; ii) defining municipal solid waste; iii) community participation; iv) developing a culture of community participation; v) level of willingness to participate; vi) the effect of demographics; vii) youth and waste; viii) local WM context; ix) waste collection; x) waste re-use; xi) reasons for dumping; xii) youth perceptions; and xiii) summary.

2.2 Background

The youth stand to gain the most by contributing to a sustainable future (Ballew et al., 2020). Hogan (2019) claims that the future of democracy is in the hands of today's youth. The youth need to become environmentally responsible leaders or decision makers and should therefore be motivated to be environmentally aware (Van Den Berg et al., 2015). Knowing what makes the youth more aware or affects their participation in particular waste management (WM) activities, such as recycling, will lead to more appropriate programme design and implementation (Mtutu & Thondhlana, 2015).

Given the many urban and sub-urban developments, the increase in migration of people from rural to urban areas has resulted in a rise in the number of people living in formal and informal communities (Celhay & Gil, 2020). The more people, the more waste and the more important WM becomes. The youth can play an important role in the management of waste. Therefore, this research sought to explore the youth's perception of WM in Khayelitsha, Cape Town, South Africa. Khayelitsha is an under-serviced, informal settlement, resulting in inadequate sanitation, heavy emissions and hazardous WM.

2.3 Defining municipal solid waste

Municipal solid waste (MSW) is defined differently by nations (UN-Habitat, 2012). This variance is seen in the majority of the international literature analysed for the review. MSW is defined as "wastes generated by households, and wastes of a similar nature generated by commercial and industrial premises, by institutions such as schools, hospitals, care homes, and prisons, and from public spaces such as streets, markets, slaughterhouses, public toilets, bus stops, parks, and gardens" in the UN-Habitat report (2012:6).

2.4 Contextualising WM in South Africa

Since most current waste collection systems are not built to sort recyclables, changing these systems may come at a large expense (Department of Environment, Forestry and Fisheries, 2020:72). As a result, local government frequently views the expense of adopting separation at source programs as a major obstacle. To promote markets for recyclables that have been source segregated, government involvement are needed. Municipalities must provide a favourable environment for collaborations with the business sector on source separation. The primary component of South Africa's WM policy is the landfilling of mixed waste (Godfrey & Oelofse, 2017). Waste collection services separate and remove waste from neighbourhood's in the interest of community health and welfare (Managa, 2012).

For instance, a typical household's life cycle can become continuous and harmful to healthy living in an environment where regular domestic waste collection services are provided less frequently than once per week. Metropolitan districts and local governments play a crucial role in the NWMS' implementation because they are in charge of organizing and implementing the infrastructure and services for waste collection and disposal. District municipalities' main responsibilities in terms of waste management are to support smaller municipalities technically and to help with regional planning and coordination. Local governments and Metropolitan Districts normally handle garbage collection and disposal to landfills, although in some situations, notably for Metropolitan Districts, these services may be provided by subcontracting waste services businesses (Department of Environment, Forestry and Fisheries, 2020).

2.5 Community participation

Political, administrative, and community-based activities have for long actively debated the topic of community engagement. Participation in the community can be seen as an action that takes into account the needs and values of the people. In order to reach recycling targets, local municipal authorities typically promote a decrease in domestic solid waste generation and encourage citizens to take responsibility for their actions rather than relying on local municipal waste services (Dlamini et al., 2019). Despite environmental rules and regulations in South Africa, notably with relation to municipal solid waste management (MSWM), recycling and community involvement have received very little attention (Dlamini et al., 2019).

Community participation in MSWM has become an integral part of SWM in South African cities. For example, in the City of Johannesburg, informal waste pickers are now playing an important role in recycling and SWM (Kubanza & Simatele, 2016). The Khayelitsha community should also be able to express their views at meetings without fear, regardless of presence municipal authorities.

2.5.1 Participation by the community

Heydenrych (2008:701) posits that a “foundational election that encourages citizen engagement in governmental administrations is how South Africa, like many other nations in the Northern Hemisphere, transitioned from authoritarian control to democracy.” According to Mathebula (2016), among other policy frameworks, South Africa's post-apartheid administration introduced the integrated development plan (IDP). This promotes and strengthens community involvement in several aspects of local government, including the creation of policies and decision-making.

The IDP is an expression of participatory government, which is encouraged by Chapter 4 of the Local Government: Municipal Systems Act (No. 32 of 2000). According to the IDP, participatory democracy should recognise the variety of South African society and the reality that there are several socio-economic and cultural interest groups, giving them the ability to participate in decisions that have an impact on their everyday lives (Modise, 2017:2). According to Modise (2017), South Africa's democratic system faces difficulties with participatory democracy. The citizens' inadequate understanding of local and global political processes is the reason behind this. The service delivery marches and protests are an obvious symptom and indication that participatory democracy in democratic South Africa is a major challenge.

Quick and Bryson (2016) opine that community participation provides the opportunity for communication between decision-makers and community members; citizens may contribute to decision making by suggesting different ideas for solving a concern and the motivation to address problems.

2.5.2 Developing a culture of community participation

A municipality's local community is considered part of the municipality's legislative framework and collaborates with its political and administrative entities to promote community involvement. A municipality must establish a culture of municipal governance that combines formal representative democracy with a system of participatory governance, according to Section 16(1) of Act 32 of 2000. Because of this, the municipality must encourage and provide the necessary framework for community involvement in the development, implementation, and evaluation of its IDP. The municipality should do more to help its residents, authorities, and council members develop their capacity to encourage involvement. To achieve this, municipality must use its resources and allocated budget effectively and efficiently. Environmental attitudes are influenced by environmental awareness and risk perception and also by personal and social values. Although elements such as environmental attitudes may not necessarily ‘motivate’ individuals to make pro-

environmental choices, they may be an underlying/subconscious factor that individuals use to make decisions.

The following sections emphasise the duties of the municipality and the right of citizens to engage in community development programmes:

2.5.2.1 The rights and duties of the members of the community

According to Section 5(1)(a) of the Act, every member of the local community has the right to participate in municipal decision-making through mechanisms and in accordance with processes and procedures specified by this Act or other legislation. They can exercise this right by making written or oral recommendations, representations, or complaints to municipal authorities. Section 5(2) (a) makes it clear that when exercising their rights, members of the community have also a duty to observe the mechanisms, processes and procedures of the municipality.

2.5.2.2 Developing a culture of community participation

A municipality must establish a culture of municipal governance that combines formal representative democracy with a system of participatory governance, according to Section (16)(1). Because of this, the municipality must encourage and provide the necessary framework for community involvement in the development, implementation, and evaluation of its IDP. The municipality should do more to help its residents, authorities, and council members develop their capacity to encourage involvement. Municipality must use its resources and budget wisely and efficiently to accomplish this.

2.5.2.3 Mechanisms, processes and procedures for community participation

Section 17 (2) of the Act states that successful public involvement requires concentration. As a result, the municipality should set up the necessary processes, methods, and procedures to guarantee local community involvement in its operations. According to Section 17(3) of the Act, when designing the mechanisms and procedures, the municipality shall take into account the unique needs of those who are illiterate or have impairments, women, and other underrepresented groups.

2.5.2.4 Communication for and to the community

Section 18(1)(a) of the Act states that the municipality is required to teach its residents about community engagement and development in general and, in particular, about the available tools, methods, and procedures to promote and support communication and participation.

2.5.2.5 Notice and admission to meetings

Section 19 of the Act states that the municipal manager must notify the public of the date, time, and location of every regular meeting of the council as well as any special or urgent meetings, unless time constraints make this impractical.

Section 20 of the Act states that neither the council nor its committees may exclude the public or media from attending meetings of the body or those of their committees. The degrees and methods of community participation in the development process must be understood by City of Cape Town officials.

2.6 Youth participation in community development

According to the 2011 African Youth Report, the youth should have the chance to volunteer and gain life skills, beginning with community involvement. Volunteering in the community can increase youth involvement, harness their vigour and energy, and develop their life and employment-related abilities (United Nations Economic Commission for Africa, 2011). Those who are typically involved in the community are more likely to take part in informal SWM activities than those who are typically not involved (Sinthumule & Mkumbuzi, 2019). Residents' varying levels of acceptance of information concerning waste separation, environmental awareness, and ecological attitudes are thought to be the cause of the low engagement. Other factors could also impact how the community participates (Ruliana et al., 2019).

Transforming paradigms surrounding SWM requires involvement from multiple stakeholders. Participation of youth, as the African Youth Report (United Nations Economic Commission for Africa, 2011) emphasises, also increases young people's awareness of different groups in society while at the same time enhancing their personal efficacy.

2.7 Waste-clean up campaigns

Increased knowledge of the risks to the environment and the effects of waste are urgently needed, as are changes in behaviour and attitudes toward littering and illegal disposal. The variety of situations and difficulties with waste management that exist between and within local government entities must also be acknowledged and addressed (Department of Environment, Forestry and Fisheries, 2020:18). The problems with waste infrastructure and the provision of garbage collection services, as well as the issue of litter and illegal dumping, varied significantly between densely populated rural areas and sparsely populated rural areas, as well as between middle-class suburbs and informal settlements.

Resources must be directed to the areas where they are most needed, and flexible service delivery strategies that take into account the informal sector and cater to local needs must be adopted (Department of Environment, Forestry and Fisheries, 2020:19). Municipalities in

South Africa have started organizing monthly clean-up days where elected leaders join local communities in sprucing up their neighbourhood's in recent years (Stokes, 2020). Executive Mayor Dan Plato kicked started Cape Town's citywide clean-up project in March 2019. He was seen working with his crew to clean up an illegal dumping site at The Range near Elsies River.

He urged residents of Cape Town to take ownership of their environment. Translating as "KeepCapeTownClean", executive mayor Dan Plato invokes environmental hazards, civic duty and community pride in the bid to get residents to do their part, suggesting the City will become cleaner as a result (CityVision, 2021). Through mixed media announcements and by offering bags and gloves to participating communities, the campaign attempts to encourage public participation in community clean-ups. He said that while the City's SWM department and Expanded Public Works Programme (EPWP) worked hard to ensure high levels of cleanliness and clean streets, it was also the responsibility of residents to throw their waste in bins and not illegally dump waste on the side of the road or in open spaces (CityVision, 2021).



Figure 2.2: Mayor Dan Plato of the City of Cape Town cleaning up the streets in Khayelitsha, Cape Town (Source: News24, 2020)

State initiatives go beyond encouraging volunteerism. Other community labour agreements are, in fact, being included into the delivery of WM services. Public employment programs operated by all branches of government specifically target waste in order to create jobs. These programs serve the dual purposes of giving working-age adults social protection and funding essential public projects and services (Stokes, 2020).

2.8 African Youth Charter

According to the NYDA (2012), South Africa ratified the charter in 2009 after signing it in 2008, claims the NYDA (2012). The country's commitment to enhancing the situation of youth in the nation was demonstrated by the ratification of the Charter (NYDA, 2011). The Charter acknowledges that youth are partners, resources, and assets, making them a necessary component of sustainable development with something to offer for both the development of the present and the future (African Union, 2006:7).

The Charter also recognises the growing demands and excitement of young people to actively participate at local, national, regional, and international levels to decide their own development and that of society at large (African Union, 2006:8). Every young person has the right to participate fully in all aspects of society, according to Article 11 of the Charter, which calls on state parties to guarantee equal access for young men and young women to take part in making decisions and performing civic obligations (Africa Union, 2006:6).

The African Youth Charter, which mandates that all of its members establish comprehensive youth policies, has been the driving force for youth policy in Africa (African Union, 2011). The South African government has created numerous youth policy initiatives and activities since 1994. (Gyimah-Bempong & Kimenyi, 2013). The necessity of young participation in the National Development Plan: Vision 2030 is emphasized (National Planning Commission, 2011). The National Youth Policy 2015-2020 is the result of a process to update the National Youth Policy that was started in January 2015. (Government of the Republic of South Africa, 2015).

2.9 Youth Policy in South Africa

The global and regional concerns with the youth bulge and demographic dividend outlined above are also reflected in the South African national context. The population is made up of about 20.4 million people, or 63.3% of the population, who are between the ages of 15 and 34. (Stats SA, 2020). The youth in South Africa bear an unfair share of the burden of the country's economic troubles as a result of the population distribution being biased towards this age group. Across all educational levels, 62.2% of South Africa's young are unemployed, which is made worse by the fact that 58.1% of those between the ages of 15 and 24 and 35.6% of those between the ages of 25 and 34 are living in extreme poverty (Youth Progress Index, 2020). Significant youth policy initiatives have been taken at the national level (NYDA, 2011, 2012; Government of the Republic of South Africa, 2009). The National Youth Policy 2009-2014 (Gov. of the Republic of South Africa, 2009) states that the objectives are to consciously increase the capacities of young people by addressing their needs, encouraging positive outcomes, and providing an integrated coordinated package of services, opportunities, choices, relationships, and support necessary for holistic development of all

young people, particularly those outside the social, political, and economic mainstream (Government of the Republic of South Africa, 2009).

2.10 Youth and waste

In 2019, there were 1.2 billion young people, 16% of the world's population. They range in age from 15 to 24. According to estimates from the United Nations and Arslan et al. (2021:537), the number of youth worldwide is estimated to reach 1.3 billion by 2030, with the highest growth anticipated in less developed nations, particularly in Africa (Arslan et al., 2021:544)

The percentages of reported environmental problems with regard to water quality, air quality, litter, and land degradation are among the highest in the Western Cape Province (Stats SA, 2020). Despite the fact that the international community has vowed to support the need for youth empowerment, a number of studies show that the future is bleak for young people. In light of this, the Global Youth Progress Index, which assesses young people's quality of life, social development, and level of inclusion and participation in society without considering economic indicators, found that for the first time ever, the next generation may not be as well off as their parents (Youth Progress Index, 2017).

At a national level, 62.2% of South Africa's youth live in extreme poverty; this is further compounded by the fact that 58.1% of the youth aged 15–24 and 35.6% for those aged 25–34 are unemployed across all levels of education (Youth Progress Index, 2020; BizCommunity, 2020).

The youth must be recognised as game-changing actors in the climate change and environmental consciousness movements. Young people play important roles in WM because they are influenced by both what has happened in the past and by how people are acting today toward the environment (De Leeuw et al., 2015). South African youth have a history of bringing about change. They made a significant contribution during the apartheid era by demonstrating their right to free speech, as guaranteed by the South African constitution, and by raising their objections to historical injustices. They altered South Africa's status quo and social structure in this way. During the outburst of movements like #FeesMustFall and #RhodesMustFall, the youth displayed this (Booyesen, 2016). O'Brien et al. (2018) claim that disruptive dissent can be seen as a kind of activism, despite the fact that some people may perceive particular youth groups and protest campaigns as disruptive. It occurs when young people who are concerned about the impending climate catastrophe try to convince political and economic authorities to act. Examples of these include institutions, norms, laws, and rules. Disruptive actions are intended to exert pressure on political leaders and the power structures they uphold. Collective demonstrations are a typical method for this to occur.

Therefore, young people's participation in protests and disruption of national or international climate meetings can be categorised as disruptive dissent. They engage in this behaviour to draw attention to hypocrisy and the exclusion of significant individuals or to convey essential concerns through political protests. Even though this is the case, the disruptive opposition raises awareness of the underlying economic, political, and social factors contributing to the climate emergency. Additionally, it highlights the components of equity and justice. Additionally, it recognises the significance of numerous interconnected processes on a global scale. It acknowledges the systemic character of climate issues and solutions (O'Brien et al., 2018).

Among the most dangerous threats to humanity and sustainable development are environmental devastation and climate change. Similarly, climate change threatens South Africa's homes, health, and the natural resources that many people rely on to survive. Africa is anticipated to be one of the regions that would be most severely impacted by climate change, according to Awojobi and Tetteh (2017). This is due to the fact that it is in this sense the most vulnerable continent (Awojobi & Tetteh, 2017). Children and young people will be most impacted as a demographic (Cattell, 2021; Nkrumah, 2021; Han & Ahn, 2020; Chersich et al., 2019).

For a very long time, it was accepted in traditional South African society that children should be seen but not heard (Nel, 2016). However, today's youth find themselves squarely in the center of discussions about ecological (in)justice, environmental consciousness among the generations, and discourses and behaviours related to climate change. The notion that children should be seen but not heard has evolved as a result of the current situation, in which children and youth are most negatively impacted by climate change. This is so that they might inherit the issues and costs associated with greenhouse gas emissions (GHGs), pollution, and other environmental risks (Chersich et al., 2019).

As youth may encourage adults to join them, youth involvement on environmental issues may be uniquely positioned to overcome ideological barriers to adult commitment to environmental solutions. When adults learn from kids, the process is known as intergenerational learning (IGL), or the two-way transmission of knowledge, attitudes, or behaviours from kids to their parents and vice versa (Bottery, 2016:9). Youth can act as tangible reminders of the long-term effects of current policies, making the long-term effects of environmental issues more tangible for adults (Bulc et al., 2019). The youth provide a degree of passion that adults find engaging and may be a more reliable information source than adults (Peterson et al., 2019:290). (Young et al., 2018:327).

The youth may be trusted messengers to adults because of their greater accessibility and approachability than adults, as well as their real empathy and care for the environment and

the challenges affecting it (Young et al., 2018; Peterson et al., 2019). Additionally, wishing for the best for future generations may provide the unifying factor required to combat political polarization (Lawson et al., 2019). For instance, parents' climate change concerns rise when their children discuss climate change education programs with them. This effect is the largest among politically conservative parents, who had the lowest levels of concern about climate change to begin with (Lawson et al., 2019).

Notably, at least two experimental investigations have revealed causal evidence that youth-led talks at home have inspired both energy conservation and climate change awareness among parents (Boudet et al., 2016; Lawson et al., 2019).

The youth's influence over parents' concerns about climate change overcame political polarization, providing a rarely discovered path to political advancement on environmental issues (Lawson et al., 2019). More study is required to determine whether and how young people affect adults outside of their families. Usually, interpersonal ties are where behaviour changes spread (Centola, 2021).

The youth can forge personal connections within and outside of their families by bridging generational gaps (e.g., with teachers, coaches). They might be in a good position to promote widespread acceptance of fresh concepts in local communities. Family ties typically have characteristics of interpersonal interactions that might promote the spread of behaviours and ideas, such as trust and regular communication (Centola, 2021). This may aid in explaining the mounting evidence of teenage influence on parents. Indeed, a number of studies have revealed that the frequency of conversations between young people and their parents is a predictor of rising levels of environmentally friendly behaviour (Valdez et al., 2018; Stevenson et al., 2019).

One of the most significant predictors of the youth's behaviour about climate change, according to studies, is how much they discuss it with their family and friends (Valdez et al., 2018). The frequency of conversations with friends and family, with family having more influence than friends, is the second best indicator of youth's worry about climate change (Stevenson et al., 2019). According to Thew (2018), when the youth have significant political agency, adults in such sectors often welcome their policy recommendations.

2.11 Local WM context

According to Theron and Mubangizi (2014) the current framework for public engagement set forth by local government legislation is mainly insufficient for fostering meaningful and inclusive expressions of voice, particularly for poor and marginalized grassroots beneficiaries. When local government choices are made, poor areas are still disregarded. Participatory local government cannot be emphasized enough. Public policies, programmes, and projects may fail to satisfy the felt needs of local communities if public engagement in

decision making processes on subjects of public interest is not allowed. Poor public engagement also results in the intended beneficiaries' lack of support for governmental programmes and actions. Cloete (2018) agrees that involvement is necessary to legitimize the government's decisions and activities, as well as to educate the government of public perceptions and perspectives.

When local communities are faced with broken promises, declining living standards, and public authorities who lack the political will to protect the interests of the poor, they turn to violent protests as a means of expressing their despair and displeasure. Like other impoverished urban areas in South Africa, the informal township of Khayelitsha struggles with issues related to low levels of citizen involvement in local governance. Poor delivery of essential services and the issue of violent service delivery protests plague Khayelitsha. This project aims to investigate potential approaches for enhancing local participation in governance for better service delivery in Khayelitsha against this backdrop. With community involvement, individuals make decisions, take action, and think back on those activities as aware subjects.

Participating in the process of recognizing issues and taking action on them enables people to engage in the process of reversing the disparities that have developed as a result of colonialism. In the instance of Khayelitsha, the community members should utilize their right to free choice in matters that impact them and should be aware that their participation is guaranteed under the constitution. Communities must pick, for instance, whose committee members will represent them in development programs. Because the growth of their area directly impacts them, the community should have the power to make decisions pertaining to their area of expertise. Khayelitsha community, in particular the youth, should be able to speak up at meetings without being intimidated or restrained by the presence of municipal officials.

2.11.1 Municipal waste generation

Mismanagement of solid waste is the environmental threat that affects fast-growing cities (Gutberlet, 2017). Human actions generate waste and how it is handled, stored, processed and disposed of can present environmental and public health risks (Mohammed & Eyasu, 2017). Kawai and Tasaki (2016) note that the per capita production of MSW ranges from 0,09 kg daily to 5,50 kg per capita daily and an average of 0,94 kg daily. In sub-Saharan Africa, after the Seychelles and Comoros, South Africa has the third highest per capita municipal waste generation of 2 kg per person per day, with 2,98 kg and 2,23 kg per capita per day respectively (Kawai & Tasaki, 2016).

Waste is disposed of on land in an uncontrolled way, and in most cities, waste is openly incinerated, illegally disposed of and sent to landfill sites in large volumes. Waste is

accumulated in the streets and rivers, resulting in runoff, insect and rodent reproduction, disease spreading and anaerobic waste decomposition releasing uncontrolled methane (Mohammed and Eyasu (2017)). The introduction of recycling and separate waste disposal is proposed as part of the municipality's obligations to improve recycling and reduce waste transported to landfill sites. Waste separation at source in households can improve the proportion of waste recycling.

2.11.2 Municipal constraints and challenges

The Department of Environmental Affairs and Development Planning (DEADP, 2022) emphasises that the poor level of services, especially in informal settlements, will have major environmental impacts, especially freshwater resources, into which most of the contaminated streams and flows drain. Source separation of waste takes place in the Western Cape, primarily in middle and high income areas (DEADP, 2022). The City of Cape Town (2016a) highlights the storage limitations of current waste bins as a result of backyarders' extra waste. According to Akpan and Olukanni (2020), the collection and disposal of solid wastes is a significant issue that local governments in African nations deal with. These nations engage in illegal mining, dumping, and burning that endangers the environment and human health (Ferronato & Torretta, 2019). Illegal dumping is a prevalent activity that has significantly contaminated metropolitan areas and been used to dispose of waste on undeveloped property. Additionally, widespread in underdeveloped nations like South Africa, particularly in the Khayelitsha region of the Western Cape, is this pollution and dumping.

Furthermore, numerous diseases are caused by animals that feed on the waste and bite people. Health issues arise when untreated waste is pumped into drainage channels where canisters block the flow of sewerage.

Residents of the area are seen as significant participants in SWM and the decision-making process (Garnett & Cooper, 2014). Community engagement in SWM is based on the behaviours and attitudes of individuals, which are moulded by regional social and cultural settings (Kubanza & Simatele, 2016). The improvement of community engagement, including youth participation, might be considered to be the present issue for SWM in developing nations in light of the aforementioned observations. This can be accomplished by completely incorporating community opinions into the formulation of certain policies and mandating the investigation of elements that enhance community engagement (Diaz & Otoma, 2012).

2.11.3 Khayelitsha' s WM status

Khayelitsha has 28 suburbs, deprived of the spectrum of quality of service standards starting with access to water, sanitation and waste disposal. South Africa has implemented an international WM policy and a commitment to sustainable growth; the waste sector has dedicated itself to balancing resource use as directed by the National Environmental

Management: Waste Act (No. 59 of 2008). The World Bank (2018) affirms that indiscriminately dumped solid wastes at open, frequently poorly managed landfills are a draw for scavengers who frequently look for recyclable materials (often without any form of PPE) for their own use or resale in many developing countries, including South Africa. Therefore, these dumps may expose scavengers (including people and animals) to COVID19, which would aid in the disease's spread (Nzediegwu & Chang, 2020).

Zeng et al. (2016) note that the community should have an awareness of separating or sorting waste because they are told about separating or sorting waste during their participation. SWM research is typically focused on including informal recycling initiatives in developing countries and industrial waste recycling (Zeng et al., 2016).

To establish sustainable, safe, and resilient communities, the concepts of waste reduction, reuse, and recycling are not prioritised by a municipal WM system, which only prioritises the collection and disposal of waste ; because they believe they have no other options for managing their solid waste, underdeveloped communities in developing nations frequently use waste disposal techniques that have been shown to be harmful to both human health and the environment, like open dumping and burning (or unregulated landfills) (Hilburn, 2015). Solid-WM has elevated to a major issue in many emerging nations due to the development of industry, expanding metropolitan areas, and rapid growth.

2.12 Waste collection

Domestic WM services are primarily provided by municipalities, who also ensure that efficient waste collection networks are built within their respective jurisdiction. However, established contractors or new business owners can also handle the collecting. As required by Section 24 of the Constitution, the goal of waste collection is to remove these products from communities in order to safeguard the environment and prevent harmful health effects. For all activities, MSWM calls for appropriate infrastructure and upkeep. Due to South Africa's inadequate source separation, MSW is frequently collected in a mixed state (Godfrey & Oelofse, 2017).

Waste from homes is collected in two different ways: i) communal collection systems and ii) door-to-door collection systems. The former approach, which calls for households to store their waste in community receptacles where it would be collected by refuse vehicles for disposal, is frequently used by municipalities in underdeveloped regions (informal settlements). In formal settings, it is typical for waste collectors to empty private containers into a waste van before returning them to the original location.

2.13 Waste reuse and recycling

In emerging nations, solid waste generation is always rising (Salem et al., 2020; Waste Atlas, 2021). Reusing waste involves using resources for the same function for which they were originally intended. Recycling is the process of turning garbage into new, useful products. Integrated solid waste management (WM) relies heavily on recycling and waste reuse. Recycling has been practiced in South Africa for more than three decades, driven by social and economic requirements (Godfrey & Oelofse, 2017). Anything that the owner no longer wants and wishes to discard or dispose of is considered waste, regardless of whether it may be reused, repurposed, or reclaimed.

Municipal waste management is positively influenced by the proper handling of waste at the household level Birhanu and Berisa (2015:153). Proper waste handling includes re-use, recycling, and composting practices and can only be achieved if households separate and sort their waste. However, separation-at-source programmes in rural communities are usually non-existent due to a lack of facilities (Wang et al., 2018:293).

In South Africa, recycling waste is done in a variety of methods. There are several ways to recycle, including a curbside collection service, shipping recyclables to important buyers such buy-back centres, and letting unofficial recyclers gather recyclables with the intention of using them or selling them to the buy-back centres (WIEGO, 2014). Recycling is one of the tactics that needs to be promoted in the Khayelitsha area. Recycling can help to solve the neighbourhood solid waste problem, which exposes the populace to a number of health problems as well as environmental degradation.

Any recycling program cannot be successful without household participation. Despite this circumstance, household recycling participation is voluntary and not yet required in all South African human settlements. Participants take recyclables to drop-off locations (Strydom, 2018). Only a few families actively recycle their waste, according to studies, and only about 10% of the waste in South Africa is generated there (Strydom, 2018).

The level of awareness about recycling and recycling initiatives also determine household recycling. It has been suggested that the level of education plays a critical role in households' knowledge and awareness of recycling as it improves one's understanding of environmental issues, including the need to recycle. These factors were found to be responsible for low household recycling rates (Strydom, 2018).

2.14 Reasons for dumping

There are many reasons for dumping. In this section the following will be addressed: i) social norms; ii) increased population growth; iii) lack of concern among some members of the community; iv) inadequate education; and v) the influence of the three main dimensions.

2.14.1 Social norms

Social norms are "laws or standards for behaviour that serve as a framework for people's behaviours, contribute to the development of expectations for how others will behave, and encourage greater coordination in social life" (Smith, 2020:647). It is crucial to remember that social norms are dynamic intrapsychic concepts. Instead, they are the result of interactions between groups, thus as groups develop and the social environment shifts, they are constantly discussed, regulated, and enforced (Thomas et al., 2019). It is possible for other group members to challenge a member's ideas or actions when they diverge from the descriptive or injunctive standards of the group.

This 'self-regulation' or 'self-policing' is more likely to be accepted and effective when it comes from within the group rather than from out-group members such as those in authority (Reicher & Stott, 2020).

In many countries, improper solid waste disposal is not considered a serious issue. Many people regard it as a minor issue rather than a criminal offense (Faure & Visser, 2014). Humans are regarded to be highly influenced by the people with whom they frequently interact (Emery & Watson, 2014). This means that when their close friends do not see improper waste disposal as a severe matter or if their close friends purposefully participate in illegal waste disposal, youth are more likely to think of it as an acceptable manner of getting rid of their waste. A person's likelihood to support or oppose inappropriate disposal is heavily influenced by social norms and the behaviour of those closest to them (Shinkuma & Managi, 2018). For a city to remain liveable, sustainable, and resilient, maintaining a high standard of cleanliness in public areas is essential (Ong & Sovacool, 2012:35). Environmental quality is compromised by illegal dumping (Wang et al., 2018). According to Comerford et al. (2018), unlike those who perform many other illegal acts, residents who illegally dump household solid waste may not have been aware that they were breaking the law. Even though they knew it was against the law, several locals believed they had no other option (Comerford et al., 2018).

2.14.2 Increased population growth

The total amount of waste produced is essentially correlated with the number of people living on planet. Population growth is frequently accompanied by an increase in the total amount of waste produced. To dispose of significant amounts of waste, many people might employ authorized waste disposal sites. However, there can be a small but substantial number of people who dispose of their waste in prohibited areas. As the population grows and more waste is produced, it is likely that dumping in open areas will become more prevalent. As a result, improper waste disposal is also anticipated to increase (Brandt, 2017). Additionally, as the population grows, land becomes scarce. By occupying regions intended for waste

disposal, current and future populations will lack facilities for properly disposing of waste, which will significantly increase the likelihood of illegal and careless dumping (Ciura et al., 2017).

2.14.3 Lack of concern among some members of society

The decision-making of individual community members ultimately determines whether dumping occurs, and occasionally those decisions are made at the expense of the rest of the community. There could be a number of problems that the youth is dealing with. The youth may prioritize topics that have a greater immediate impact on their lives and overlook crucial community programs like SWM if they have too many life worries (Environmental Protection Agency, 2017). They then prioritise their concerns so that they prevent errors and actions that have the most negative consequences on themselves. This can lead to a condition where concerns and adverse effects on society are overlooked (Hanuman, 2019). Thus, people's indifference and lack of concern can also add to the issue of improper disposal.

2.14.4 Inadequate education

The sustainability of the environment is significantly impeded by inadequate education. Education facilitates the transfer of knowledge, especially when it comes to environmental responsibility and efficient environmental management. Education is crucial to reducing the issues that different industries face (Environmental Protection Agency, 2017). This relates to the problem of inappropriate waste disposal. Government ministries and organizations in charge of WM should inform the public about the negative environmental effects of improper waste disposal and how to avoid it (Ciura et al., 2017). Since people lack the necessary skills for proper waste management, lack of knowledge is a significant risk factor for waste disposal (Watkins et al., 2015).

2.15 Community perceptions towards dumping

A household's curbside WM practices involve putting mixed household waste and recyclables out for pickup by the municipality or recycling firm. If waste is placed out for curbside pickup but is not picked up, it is likely to be burned or disposed of (Mihai & Taherzadeh, 2017). A number of variables affect how eager families and young people are to participate in waste separation programs. The frequency of recycling collection, according to Ferrara and Missios (2016), has a positive impact on households' recycling behaviour. These factors include awareness, attitude toward pro-environmental behaviour, perceptions of littering and illegal dumping in their neighbourhood, age, household income, education, the availability of waste collection facilities, the geographic location, and environmental health.

Moreover, greater knowledge and enough information about recycling programmes also influence the participation in recycling programmes positively. Age is found to be a significant

predictor of the willingness of a household to participate in waste separation programmes (Zeng et al., 2016).

A person's or a group's perception of something influences how that group or individual may behave. Illegal dumping falls under the same category. More people may dump waste illegally if dumping in a particular location inside a neighbourhood is viewed as acceptable and permitted. Additionally, most people believe that it is the responsibility of the municipality to maintain cleanliness of the neighbourhood, however according to Kubanza and Simatele (2016), many South African communities frequently have apathy regarding illegal dumping.

The community may be held responsible for the persistent uncleanliness and problems like illegal dumping. Pellow (2004:515) points out that it's not necessarily the fault of the entire community because illegal dumping is frequently committed by a single person or a small number of people inside a community.

2.16 The effect of demographics

Household waste behaviour and willingness to participate in recycling programs may be influenced by demographic and socioeconomic factors such as income, gender, level of education, household size, and household composition (Miliute-Plepiene et al., 2016). The age of the youth and their ethnicity rank among the demographic parameters that can affect how much household waste is generated as being the most important. The likelihood that these two factors will be practically significant, or the likelihood that they will have the greatest influence, is the highest of all the components. The majority of household waste is produced by the age group of 15 to 24 years, hence educating the youth about household waste can contribute to more environmentally friendly home WM practices (Quested et al., 2013). The future belongs to the youth, and it is vital to see how they contribute to good family management. The youth must become more informed because they will be our future citizens. In the future, the youth will be able to handle home waste more responsibly, which will lead to less waste being dumped in landfills.

2.17 Theoretical models

2.17.1 Positive Youth Development Approach (PYD)

Research has not looked at the direct connection between adolescents' nature-based experiences and comprehensive indicators of Positive Youth Development (PYD), despite the growing emphasis on youth contact with nature and its advantages.

Youth make up a large population in all communities, and their active participation, with the support of societal actors, can lead to positive and long-term contributions to democracy building in their home countries and around the world. Many traditional civic education

approaches focus on formal programmes and ignore community actors and processes (Crittenden & Levine, 2018).

One-point-eight (1.8) billion people aged 10–24 years make up the global youth population (United Nations, 2018:4). The UN estimates that 90% of this population lives in developing countries (United Nations, 2018:4). Lack of access to formal decision making processes as well as unsupportive actors and systems that prevent this access is of the most significant barriers to young people's political participation. PYD aligns as the use of participatory approaches to connect diverse actors' approach because it brings together young people with their communities, including political and community leaders, to address socio-cultural barriers that prevent young people from participating. These influential personalities can model positive and supportive behaviour and encourage young people to participate, thereby shifting youth participation narratives to positive ones that highlight their contributions to their communities.

Internationally, the PYD approach has gained popularity (good linkages between connection to nature, character, caring, and contribution may indicate associations between connection to nature, environmental responsibility), and pro-environmental behaviour (Jaiswal & Bihari, 2020). Complex interactions between biological, psychological, and social factors are involved in adolescent development (Waid & Urich, 2019). Character represents the youth's regard for the environment and caring entails adopting prosocial norms to conserve it, according to the perspective of connection to nature. There is a change in cultural norms toward taking more environmental responsibility as the youth become more aware of their impact on the environment (Sachs et al., 2020).

The 5 C's of the PYG approach (Geldhof et al., 2019:1) namely: i) competency; ii) confidence; iii) character; iv) caring; and v) context (Table 2.1) of the PYD have been associated with adaptive development among young people. Competence represents an ability to navigate youth contexts effectively to achieve the desired goals (Geldhof et al., 2019). Tyler et al. (2020) argue that PYD consists of five indicators of positive youth development: i) competence: the capacity to effectively navigate school, work, and social interactions; ii) confidence: a sense of self-worth and self-efficacy; iii) connection: positive relationships with individuals in one's environments; iv) character: a set of ethics, a regard for rules, and personal integrity; and v) caring: empathy and sympathy for others. The Five Cs, in turn, leads to a sixth C, namely contribution, which includes citizens' actions to improve their own well-being and that of their community. PYD offers a powerful framework for building developmental assets that lower risk behaviours and boost youth strengths, as shown by the Five C's model. PYD does not take into account how privilege, power, and oppression play a role in the youth's lives, despite its advantages. For varied adolescents, nature serves as a resource for development (Garst, 2018:245), which is consistent with

earlier empirical data showing the advantages of nature for the youth’s physical, cognitive, social, and emotional results (Norwood et al., 2019).

Table 2.1: The 5 C’s of the Positive Youth Development (PYD) approach (Geldhof et al., 2019:1)

| 5 C’s | Definition |
|------------|---|
| Caring | A sense of sympathy and empathy for others. |
| Character | Respect for societal and cultural rules, possession of standards for correct behaviours, a sense of right and wrong (morality), and integrity. |
| Competence | Positive view of one’s actions in domain specific areas, including social, academic, cognitive, and vocational areas. |
| Confidence | An internal sense of overall positive self-worth and self-efficacy; one’s global self-regard, as opposed to domain specific beliefs. |
| Connection | Positive bonds with people and institutions that are reflected in the bidirectional exchanges between the individual and peers, family, school, and community in which both parties contribute to the relationship. |

2.17.2 Critical Youth Empowerment theory

The foundation of environmental education is harmonious interactions between humans and the natural world. People should recognise the necessity of acting more responsibly toward nature, according to Darusi and Makokha (2018:286). Local, national, and international groups and individuals work together and assist one another to safeguard the environment. Youth participation and critical youth empowerment can be advantageous for both communities and youth. Engagement of young people can improve participants’ comprehension of complicated subjects, such as environmental preservation (Ballard et al., 2017). A transformation in the community and in policies can also be facilitated through youth participation (Martinez et al., 2018).

The i) adolescent and empowerment cycle (Chinman & Linney, 1998), ii) youth development and empowerment programme model (Kim, et al., 1998), iii) transactional partnering model and iv) the empowerment education model are the four youth empowerment models from which the Critical Youth Empowerment (CYD) theory was derived, according to Jennings et al. (2006). These models serve as a foundation for the CYD theory, which includes actions and situations that give young people access to organizational, institutional, and societal structures and contribute to youth development and youth empowerment (Jennings et al., 2006).

The authors further state that the theory’s goal is to encourage and promote young people’s involvement in constructive community development initiatives and to help them develop into thoughtful citizens capable of meaningful participation. The study’s online questionnaire survey and the topics for data analysis were built using the theory’s six dimensions (Jennings et al., 2006:32). These factors have been taken into consideration in the study to evaluate

the experiences and effects of engagement on the youth's lives, their roles, and the roles performed by adults in the community.

The dimensions are:

- i) A welcoming and safe environment
- ii) Meaningful participation and engagement
- iii) Equitable power-sharing between adults and youth
- iv) Engagement in critical reflection and interpersonal and socio-political processes
- v) Participation in socio-political processes to effect change
- vi) Integrated individual and community-level empowerment

2.17.3 Welfarist theory and its relevance to this study

John Hicks coined the term "welfarist" in 1981. Because poor garbage collection directly affects people and infringes on their welfare right to live in a safe and clean environment, this study is human-centred. "The view that morality is centrally concerned with the welfare or well-being of individuals", Keller claims, is required by welfarism (Keller, 2009:83). By definition, a welfarist is someone who believes that we should judge the state of a society in general, and just distributions in particular, solely on the basis of the welfare of the people involved. Intrinsically it can be surmised that welfarism promotes for a well-off society far as the socio-economic aspects are concerned. Such a definition is incompatible with Keller's contention that welfarism promotes the advancement of a person's welfare (Keller, 2009:90). The Welfarist theory was chosen for this study because it states that people should be provided with services that maximise their well-being. The Welfarist theory holds various levels of government accountable and responsible for delivering on their promises of providing efficient and safe services to the people. It enables academics and early career researchers in the field of public policy to examine the extent to which citizens and electorates are provided with services.

The provision of refuse bags is part of the MSWM policy in South Africa as a basic service delivery, and it highlights the welfarist nature of this public policy to some extent. This theoretical framework was used to confirm the state's responsibility over its citizens and to examine the challenges that the youth in Khayelitsha face.

2.17.4 Modernisation theory and its relevance to the study

According to the provisions of this theory, public health is no longer a major driver of waste management in many developed countries; instead, the focus is now on optimising waste management practices with a broad goal of resource conservation. Solid waste (SWM) management is a challenge around the world, according to Mmereki et al. (2012), because of

the increasing diversity of waste characteristics and the lack of effective implementation of consistent waste policies, which are accompanied by changing lifestyles, increased production processes, and rapid urbanisation.

The Modernization Theory is developed to show that it is not the magic fix that many people believe it to be and that modernization results in the decentralization of power in relation to the delivery of services. Government communities are in charge of putting in place efficient waste management procedures, including the collection, storage, transportation, and disposal of garbage (Rodseth et al., 2020). In South Africa, there is a lot of littering and illegal dumping in the streets, parks, and vacant land, which has an impact on the soil in unserved regions (Rodseth et al., 2020). As a result, the components of good governance have been undermined and faced public rioting as a result of the absence of accountability.

Public riots are a form of public participation in which the citizens ventilate their anger in relation to their compromised welfare, management incompetency from the side of service delivery and the questioning of resources in pursuit of expected services. People use litter to voice their anger towards the provision of service delivery.

2.18 Summary

The literature review shows that WM behavioural studies have concentrated mainly on recycling and strategies to promote recycling. Litter reduction studies operated similarly to recycling studies by exploring ways and means to eliminate litter. Public participation requires that people be at the center of decision making that concerns their lives. Environmental behaviour change is a function of knowledge and awareness. Most of the studies have been carried out in developed countries with only a few studies in developing countries.

Only a few studies on WM were conducted in South Africa, but no research was undertaken to understand the impact of the social norms and people's expectations of WM. The Modernisation theory contributes to the research problem in the sense that municipal solid waste management is a matter of public policy aimed at meeting the needs of contemporary societies, of which Khayelitsha is a part. The City of Cape Town's distribution and collection of plastic bags is a basic service provided for the benefit of Khayelitsha residents.

This research aimed to use collective behavioural approaches and sociological theory techniques to determine and expose the Khayelitsha people's social expectations and attitudes on WM. This perspective helped to describe the actions as being motivated by the community's transcendent forces.

The next chapter (3) addresses the research methodology used in this research.

CHAPTER 3: RESEARCH DESIGN AND METHODOLOGY

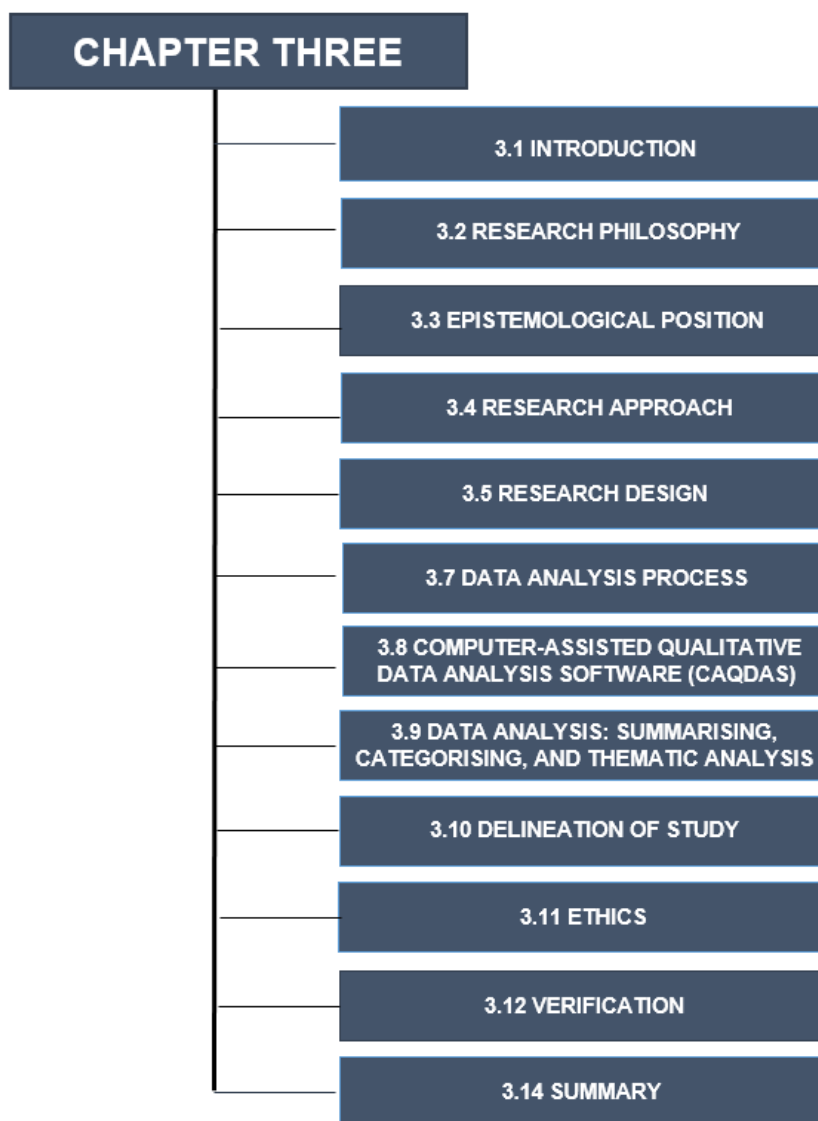


Figure 3.1: Layout of Chapter 3

3.1 Introduction

This chapter identifies the research methodology adopted for the research study (Figure 3.1). It follows the research onion approach of Saunders et al. (2009). The research approach followed was inductive in nature. This chapter furthermore explains the research strategy, which includes the unit of analysis and unit of observation. Sampling and the way data were collected and analysed, is further explained. Ethical considerations follow at the end of the chapter.

3.2 Research philosophy

According to Norman and Kabwe (2015:218), a researcher should be aware of “the philosophical foundations of the research problem, also have an idea of what the nature of

the problem is, the methodology to be used and lastly be able to show the philosophical approach to follow in solving the problem". This study found relevance in the subjectivist ontology and epistemology as an accepted knowledge of study aimed at learning the true meaning of knowledge. Participants were expected to state their perceived facts based on their experiences related to the research topic.

3.2.1 Ontology

Ontology refers to assumptions about the nature of reality. The questions of ontology are concerned with the nature of social entities and it deals with the nature of reality (Bryman, 2012). Ontology determines how you see the world where humans live in (Saunders et al., 2019). It is a system of belief that reflects an interpretation by an individual about what constitutes fact. This leads to whether social entities should be perceived as objective or subjective. The two main concepts of ontology are objectivism and subjectivism.

The viewpoint of objectivism is that "social entities exist in reality apart from the social players who are concerned with their existence" (Saunders et al., 2009:110). According to another definition, objectivism is "an ontological position that holds that social phenomena and their meanings have an existence separate from that of social actors" (Bryman, 2012:32). The research's ontological viewpoint was not objectivism for this "independent" reason.

The subjectivist approach was chosen for this particular research as the nature of the collected data was unstructured and qualitative, and therefore non-numerical by nature, rather than quantitative. The participants had their own view of the phenomenon investigated and as a result, a subjectivist approach was followed (Saunders et al., 2009).

3.2.2 Epistemology

3.2.2.1 Positivism

True knowledge that may allow the prediction of behaviour of some feature of the phenomenon is how positivist research (PR) is defined. This study can be replicated and it might include a set independent and dependent variable. Usually, experiments and gathering quantitative data are used. Studies are quantitatively assessed, and their findings are critically documented and may be generalized (Bhattacharjee, 2012). The approach was not used for this investigation because of its quantitative nature.

3.2.2.2 Interpretivism

The goal of interpretive research is to illuminate how individuals view the world. Several truths are recognized when various groups or civilizations are explored. Interpretive research is not impartial in the research process; it is expected to acknowledge their participation and influence (Gilliland, 2014; Adebessin et al., 2011). Case studies, interviews, observations, and

action research are common instances of qualitative approaches in use, with the goal of comprehending the situation (Bhattacharjee, 2012). According to interpretive researchers, only social creations like language, consciousness, shared meanings, and tools may provide access to reality. According to interpretivists, reality can only be fully grasped by one's personal interpretation of it (Harrison et al., 2017).

This study adopted an interpretivist epistemological stance as the researcher was actively interpreting data collected from an interviewee perspective to make a case about the truth, since there are many ways of examining and discussing experiences (Harrison et al., 2017).

3.3 Research design

A "framework which provides the employment of a research method and the analysis of the subsequent data" is referred to as a research design (Bryman & Bell, 2014:105). A worldview, or broad perspective on the intricacies of the real world, is referred to as a paradigm (Polit & Beck, 2017:9). The design is a detailed justification of how information was gathered for an empirical investigation. It is the section of the study where the research questions or hypotheses that are being tested are answered (Bhattacharjee, 2012). According to Yin (2014), the research design is a decision made by the researcher and is based on the nature and characteristics of the research problem.

3.3.1 Paradigm

According to Bhattacharjee (2012:12), the way research is conducted is framed by "our mental model or frames of references" that one uses to shape one's thinking processes and interpretations. These models or frames are known as the research paradigm. The research paradigm is then "a cluster of beliefs" that voices what should be researched, how the study was conducted, and findings explained (Bryman, 2012:630). The research paradigm enables the researcher to make sense and reconcile different views about the same social phenomenon (Bhattacharjee, 2012).

3.3.2 Research approach

An inductive approach to the research was taken. It involves interpreting the data qualitatively (Saunders et al., 2016). The study contributes towards a better understanding of the theory of waste management (WM) and the involvement of the youth in WM projects.

3.3.2.1 Inductive approach

According to Saunders et al. (2009), the inductive approach draws its insights from observations and only proposes theories towards the end of the research process. This study was therefore guided by inductive reasoning as the research approach.

3.3.2.2 Deductive approach

The deductive approach is the opposite of the inductive approach and involves the development of hypotheses based on an existing theory, followed by the design of a research strategy to prove or disprove the theory (Bryman, 2012).

3.3.2.3 Abductive approach

The abductive approach or reasoning sets out to address weaknesses of the inductive and deductive approaches, is based on a pragmatic perspective, and may include a mixed methods approach (Monette et al., 2011).

3.3.3 Research strategy

Initially, a design research strategy was followed to involve the youth as co-designers in the research. The research had its own difficulties, some of which were out of the researcher's control and as a result, some of the proposed acts could not be carried out. It's crucial to remember, though, that these difficulties did not cause the research design to change from what was initially intended.

The coronavirus (COVID-19) pandemic restricted the researcher's ability to conduct face-to-face interviews and have co-design workshops due to the South African Government's imposed social distancing measures and a period of nationwide lockdown from March 2020; as a result, the research strategy had to be changed. The method selected was a qualitative survey, and in an attempt to avoid suspending the data collection, the researcher changed the research strategy to a multi-qualitative method with i) a survey (qualitative) and ii) photo data collection technique (autophotography / photovoicing). Both these techniques were executed using online and social media platforms, thereby ensuring the safety of the participants during the research.

Khayelitsha is a township south east of Cape Town, which was used as the case. In an effort to explore the factors that affect the youth's perceptions of WM in Khayelitsha, Cape Town, South Africa, a survey questionnaire was generated (Appendix G) and distributed to participants individually via WhatsApp as a data collection tool, which enabled a prompt and high rate of return. The survey was done using a structured questionnaire. Participants were also asked to take photos of waste in their environment to generate data as the participant's experience through their eyes.

3.3.3.1 Factors that influence the research design choice

This research was subjective, interpretivist, and qualitative in design. It was exploratory, as the purpose was to understand the communication processes; hence, inductive reasoning was applied to develop theory from the raw data.

Table 3.1: Summary of factors influencing my choice of design (Adapted from De Vos et al., 2011:311)

| Research Choices | Explanations |
|-------------------------|---|
| Ontology | The real world can be discovered by means of a systematic, interactive methodological approach. |
| Subjective | Research that is based on past experiences and depends on the experience. |
| Epistemology | Knowledge arises from understanding of symbols and meaning as reality is socially constructed and differs for different people. |
| Interpretivism | The truth is reliant on the situation. |
| Result of research | Understanding the meaning in context in a rich and thick description. |
| Axiology | The researchers' values and experiences cannot be separated from the research process. |
| Theoretical | Inductive reasoning, which changes research data into a possible conclusion. |
| Research approach | Qualitative research is oriented towards exploring and understanding the way the social world is constructed. |
| Reporting style | Researcher provides insight into behaviour displayed and meanings and interpretations that subjects give to their real life worlds. |

3.3.3.2 Population

"A group of people, objects, or anything from which a sample can be recruited/selected for the purpose of making judgments about, and drawing conclusions from, a phenomenon" is what is meant by a population (Lumadi, 2015:226). A population is defined by Lumadi (2017:224) as the complete population from whom the sample for the scientific question is drawn. The National Young Policy (2009-2014) classified the demographic for this study as South Africa's youth, with ages ranging from 14 to 35. The study's target audience was a narrow one, ranging in age from 18 to 35.

3.3.3.3 Sampling

A sample, according to Corbin and Strauss (2015), is the subset of the population that is actually included in the study. Sampling is a technique or system for choosing a small portion of a larger group in order to estimate or forecast a fact pertaining to the target group. In other words, a sample can be thought of as a subset of dimensions taken from the population under consideration (Miles et al., 2014). Studying a sample instead of the complete population is done to better understand specific elements of the population or to gain more contextual knowledge about a phenomenon or subject. Salkind (2010:347) points out the significance of participant demographics, saying that they are "essential for determining whether the persons in a specific study are a representative sample of the target community for generalization purposes" and provide data about research participants. Male and female youth living in Khayelitsha between the ages of 18 and 35 were eligible for the sample.

Researchers can choose between two different sampling strategies: probability sampling, also known as random sampling, and nonprobability sampling, also known as purposeful sampling (Lumadi, 2017). Purposeful sampling is "a type of non-probability sampling that enables the researcher to actively sample a group of persons who can best enlighten the researcher about the study problem under inquiry," according to Creswell & Creswell

(2018:148). This study employed non-probability and arbitrarily chosen sampling techniques. The decision to include the youth as a research sample was deliberate and well-founded. The youth are seen as future intellectual leaders and a role-model for others, hence the purposeful sampling approach was thought to be appropriate for this study.

3.3.3.4 Unit of analysis

The study's objects or processes that are being examined for a specific research endeavour can be referred to as the unit of analysis (Cole, 2018). These units can be people, certain groups of people, organizations, things, social interactions, or geographical entities. The unit of analysis for this study was the perceptions of the youth of Khayelitsha, Cape Town.

3.3.3.5 Unit of observation

The unit of observation for this study was the youth (14) of Khayelitsha. A WhatsApp group was established to communicate with the participants. Twenty-eight (28) of the youth (Chapter 1, section 1.5.4) initially agreed to be part of the research. However, only 14 of the youth remained to complete the questionnaire during these unprecedented times as the others attended to other pressing matters during the pandemic.

3.4 Data collection

Kabir (2016:202) defines data collection as “a process in which particular information of interest is gathered and measured”. Gopaldas (2016) asserts that purposive sampling, semi-structured, open-ended questionnaires, and other methods of data collecting and analysis are used in qualitative research.

3.4.1 The survey

Primary data were gathered by means of a survey administered through Survey Monkey (Appendix G) between July 2020 and August 2020, with the youth residing in Khayelitsha and therefore able to identify their challenges and experiences. The purpose of the survey was to see how Khayelitsha's youth perceived WM. A survey was employed in this study as a tool to verify the underlying assumptions of the issue statement rather than as a mechanism for empirical inquiry, despite the fact that surveys are not typically used as a device for data collecting in qualitative research. By conducting this survey, it was possible to learn more about the youth's level of awareness, their perspectives about WM, and whether they acknowledge and recognize themselves as a body capable of inciting change.

The survey was a self-administered online survey distributed to participants via social media using purposive criteria. The advantages of an online survey were its relevance to the target group of the research (youth); it was also cost-effective, could be executed in a short period of time, and data were quickly captured and analysed automatically.

Before data collection could proceed, the participants had to send a SMS or WhatsApp message with their consent and indicate that they would use the one (1) gigabyte data they received for the purpose of the research study. Upon receipt of the messages, the researcher sent an online link to complete informed consent and demographics as well as two online actions, namely: i) WM that consist of 11 questions; and ii) waste photovoicing that involved participants sending environmental waste photos. The decision to "create a questionnaire for data collecting should be the consequence of comprehensive thinking," according to Welman et al. (2006:174). The process of designing the questionnaire must be guided by the concepts, components, and interactions that are being studied. Only inquiries related to the study questions should be included in the questionnaire (Welman et al., 2006:174). The questionnaire is presented in Appendix G. The questionnaires using SurveyMonkey (Figure 4.3) were distributed to the youth using WhatsApp as distribution channel.

All participants had to have a smart phone to participate in the research. One (1) gigabyte of data was provided to all participants as an incentive, but they were only allowed to use this data for research purposes. Due to Covid-19 restrictions the researcher could not go to Khayelitsha and solicit participants. Instead, the researcher opted for a safe and social distancing approach by asking her colleagues who resided in Khayelitsha to refer anyone fitting the sample and keen to participate in the WM survey's voluntarily to provide their WhatsApp details to be contacted by the researcher so that the researcher could engage with them directly and explain the aim and objections of the study.

An online survey has restrictions in that it can only be accessible by people with Internet access. Additionally, there are possible security risks such survey non-completion and data loss risk if the technology fails, which might be detrimental to both survey participants and the researcher. The online survey was only available in English; hence the queries might have been misunderstood by those for whom English is a second language.

3.4.2 Photo data collection/photovoicing

Photovoicing was used as a data collection method to understand the participant's insight into WM and experiences better. According to Meo (2010), the purpose of photo-elicitation is to use a photograph as visual data collection tool to evoke a more in-depth, meaningful picture of the lived experiences being researched. The researcher asked participants to take photographs of their environment and then used the photographs to obtain data. Data organisation included using Atlas.ti for code creation, coding parallels, and finding relationships. The youth were asked to take photos of waste in their environment. These photos were then presented to the researcher via WhatsApp. To achieve a more

comprehensive representation, an individual who was not part of the group went on a separate waste detection excursion and took photos from the larger part of Khayelitsha.

3.5 Data analysis

A challenging part of the research process is the analysis of qualitative data (Tracy, 2019). The information gathered was analysed using a theme analysis methodology. Thematic analysis is described as "a strategy for detecting, analysing, and interpreting patterns of meaning (themes) within qualitative data" by Clarke and Braun (2017:298). The technique of thematic analysis is thought to be "rigorous and inductive predictable, aiming to find and explore themes from word-based data in a clear and reliable manner" (Guest et al., 2011:15).

Researchers can apply thematic analysis across a range of theoretical frameworks epistemologies and research questions, (Clarke & Braun, 2017). Thematic analysis provides "accessible and systematic procedures for generating codes and themes from qualitative data" (Clarke & Braun, 2017:297). They note that codes "are the smallest units of analysis that capture interesting features of the data (potentially) relevant to the research question". The objective is to make connections between various parts of the data and the codes provide the building blocks for themes (Clarke & Braun, 2017). King et al. (2010:150) posit that themes are "recurrent features of participants' accounts, characterising particular perceptions and/or experiences, which the researcher sees as relevant to the research question". Themes provide the framework for the researcher to organise and report the observations from their analysis (Clarke & Braun, 2017).

A thematic analysis methodology was used to analyse the data gathered. The data collected were i) cleaned, ii) organised, iii) coded, iv) grouped, and v) themes were constructed, refined and finalised. The thematic analysis was used to make sense of the data provided by the participants and derive suitable themes aligned to the proposed theoretical framework, aims and the objectives of the study.

3.5.1 Data cleaning process

Questionnaires were sent to the youth of Khayelitsha via SurveyMonkey. The recorded data were converted from SurveyMonkey to an Excel file. The data were converted from the Excel file to Word documents, where each participant's answers were transcribed on a Word document. The transcribed data were then uploaded to NVIVO 12 plus, qualitative data analysis software. The analysis process followed the work of Creswell (2013), where typographical errors and missing words were discarded, and meaningful codes were developed to assist and ease the analysis process.

3.5.2 Coding

Bryman (2012:564) states that data coding entails "reviewing the researcher's memo and transcripts, which will ultimately result in the labelling of areas that will be significant or relevant in terms of the social reality of the participants." According to Neuman (2014), the coding procedure for the field notes and transcripts included three steps: open coding, axial coding, and selective coding.

i) 1st reading and analysis

Open coding (Leedy & Ormrod, 2010) of the data involved the textual naming, coding, management strategies for effective identification, and assigning themes to the different phenomena (management strategies) of meaning as gathered from the field notes and transcripts. The focus of open coding was on wording, phrasing, context, consistency, frequency, extensiveness and specificity of comments (Nieuwenhuis, 2010).

ii) 2nd reading and analysis

Axial coding entails a "review and examination of the initial codes that were identified during the 1st reading and analysis steps" (Leedy & Ormrod, 2005:143). The categories and patterns of the first reading were revisited to relate themes to sub-themes in order to answer the questions "if, when, how, and why", and where necessary altered (Saldaña, 2009:159). They were organised in accordance with causality, context and coherence.

iii) 3rd reading and analysis

Selective coding was the final step in the coding procedure and involved the selective scanning of all the identified codes (Leedy & Ormrod, 2010). This step provided the opportunity to make comparisons, contrasts and linkages to the research topic, the purpose of the research and the central theme or key link. Data were then summarised and categorised, and thematic analysis was carried out. Photos received from the waste challenge was analysed using ATLAS.ti to uncover and systematically analyse complex phenomena hidden in unstructured data (text, multimedia, geospatial data). The questionnaire data collected were analysed using the NVivo version 12 software. All the collected data and photos of dumping waste in Khayelitsha were coded in ATLAS.ti. The qualitative data from waste challenge photos were assessed with the data codes that were developed through the ATLAS.ti program, which is explained in Chapter Four.

3.5.3 Computer-assisted qualitative data analysis software (CAQDAS)

Computer-Assisted Qualitative Data Analysis Software (CAQDAS) NVivo version 12 Plus software was used to code and analyse all the information provided by the participants who took part in the study. NVivo version 12 was preferred as the most useful software for the study because it saves time and organises work clearly and logically rather than manual

coding. The software also aids in the formation of networks and relationships, which results in the development of a graphical representation of the data (Ngalande & Mkwinda, 2014). Although the software enables the organization of transcript data in preparation for analysis, it does not analyse the data as the analytic part remains the responsibility of the researcher.

3.6 Validity and Reliability/Trustworthiness

According to Leavy (2017:113), "reliability relates to the constancy of findings." Even if another researcher wanted to carry out an identical study, qualitative research should nonetheless yield steady, high-quality data that are dependable. Studies that can be replicated in the same way, regardless of who does the investigation, are considered reliable (Tracy, 2019). Since the procedures for determining reliability and validity are different from those employed in quantitative studies, rigor or trustworthiness is favoured in qualitative research (Willig, 2017).

According to Phelan and Wren (2005), validity assesses whether that which was measured, is what was intended to be measured. For data to be of any value, it has to be reliable and valid (Zohrabi, 2013:259). Validity is a matter of trustworthiness and the researcher for this study asked four crucial questions prior to commencement of the research project, as stated by Creswell (2014:10):

- i) Is the research believable and true?
- ii) Will the chosen research instruments be adequate to collect the data needed for the study?
- iii) Can the collected data be validated?
- iv) Are the data reliable in terms of consistency, dependability and replicability?

Validity, reliability and trustworthiness for this study were ensured by applying these strategies as described by Shenton (2004:72):

- i) Credibility (internal validity) was assured by adopting well-established researched methods in the form of questionnaires. Credibility was determined by ensuring that the research was conducted in such a manner that the research aim and questions were appropriately identified and described (Marshall & Rossman, 2011:251).
- ii) Transferability (external validity) in this study implied the use of a nominated sample and 'thick' descriptions of the study context provided by the researcher. The sample population was purposively chosen using the previously mentioned criteria (being youth from Khayelitsha). All respondents were educated on the reason and motivation behind the study. A 'thick' description implies rich and thorough descriptions of the research context, which was done by developing and submitting a

research proposal for approval by the Committee for Research Ethics (REC) and the Faculty Higher Degrees Committee of CPUT to ensure rigour. All documentation of decisions and of the data constitutes an audit trail that can facilitate the transferability of the study.

- iii) Dependability (reliability) involves an audit trail of the research process and procedures so that it can be repeated by another researcher to obtain similar results. The researcher recorded all questionnaire responses and documented all procedures and processes during the research, which, altogether with the raw data, were made available to the study supervisors for verification.

3.7 Verification

Researchers can validate higher-order themes using NVivo (Bazeley & Jackson, 2015). Utilizing evaluation criteria will increase the research's rigor, as well as the calibre of the research design and data analysis (Silverman, 2005). Reliability is defined as "the degree to which instances are assigned to the same category by different observers or by the same observer on different occasions" (Hammersley, 1987:57), whereas validity is defined as "the extent to which an account accurately represents the social phenomenon to which it refers" (Hammersley, 1992). Reliability is defined as the degree of repeatability of measurements. With the aid of NVivo, word frequencies, tables, and tree maps were quickly made in this study to identify the outcomes that were consistent across the cases.

3.8 Delineation of study

The study was conducted in Khayelitsha, Cape Town (Figure 3.2). Khayelitsha is under the jurisdiction of the Metropolitan Municipality of Cape with 28 sub-locations, which are: "Bungan TR Section, Victoria Mxenge, Trevor Vilakazi, Monwabisi, Khayelitsha T3-V3, Tembani, Village V1 North, Silver Town, Solomon Mahlangu, RR Section, Khayelitsha T2-V2b, Village V1 South, Bongweni, Khayelitsha T3-V5, Ikwezi Park, Washington Square, Village V2 North, Khayelitsha T3-V4, Griffiths Mxenge, Khayelitsha T3-V2, Harare/Holomisa, Khayelitsha SP, Ekuphumleni, Village V4 North, Graceland, Village V3 North, Mandela Park, and Town 3" (Stats SA, 2020). It excludes all other underserved communities.



Figure 3.2: Map of Khayelitsha

3.9 Ethics

Ethics are the "norms of conduct that differentiate between acceptable and undesirable behaviour," according to the definition (Resnik, 2015:1). Honesty, plagiarism, informed consent, and publishing authorization are among the ethical norms (Myers & Klein, 2011:20). During the study process, researchers must be careful to apply these ethical principles and make sure that people's and institutions' rights are upheld (Eriksson & Kovalainen, 2015).

Ethics-related governance and rules have multiplied in the context of the changing research landscape. This has led to an increase in research on the ethics of human behaviour. Because of how human study volunteers are treated, informed consent has been a hotly contested topic (Lincoln, 2009). Researchers "must ensure that the rights, privacy, and welfare of the persons and communities involved in the study are protected," according to Ntseane (2009:296). Four major frameworks surrounding ethical issues have arisen: i) the ethical treatment of those with whom, on whom, and for whom (on whose behalf) we conduct research; ii) ethical considerations of the contexts in which research is conducted; iii) ethical considerations for a globalised ethnographic practice; and iv) ethical considerations surrounding data and the preparation of reports, especially in the question of for whom reports are created (Ntseane, 2009:296).

The researcher practiced and addressed the following standards (Resnik, 2015:367):

- i) Ethical principles promote values such as integrity, accountability, mutual respect and fairness, which are essential to collaborative work; standards promote research goals such as information, accuracy and error avoidance.
- ii) Ethics means that researchers will keep the public accountable.
- iii) Ethical research norms also help create public science support.
- iv) Help a variety of other fundamental moral and social values.

Ethics within a research context can be defined as “a method, procedure, or perspective for deciding how to act and for analysing complex problems and issues” as it “prohibits against fabricating, falsifying, or misrepresenting research data to promote the truth and minimise error” (Resnik, 2015). Greener (2011:64) and Leedy and Ormrod (2010:101) recognise some of the ethical issues that a researcher needs take cognisance of and to inform the selected participants prior to any of them participating in the research:

- i) **Voluntary participation:** The participants voluntarily participate and have every right to withdraw at any time from the research.
- ii) **No harm to the participants:** This research does not need any form of experiments; in other words, it will not cause any harm to the participants.
- iii) **Anonymity:** This research treated all the respondents as anonymous.
- iv) **Confidentiality:** This research did not identify any participants in any way.
- v) **Deception:** This research was conducted with honesty and truth. The participants were informed what the research were meant for and what it expected to achieve.
- vi) **Beneficence:** The participating youth can benefit their community.
- vii) **Informed consent:** The participants were informed of what the research was all about and they decided if they wanted to participate.
- viii) **Right to privacy:** The participants have been given the right to privacy in this research.

3.10 Research limitations

The selection of participants or samples bore difficulty as it depended on the availability and willingness of the participants aimed at for sampling. We underwent a global pandemic and as an abiding citizen, the researcher had to make the safety of her participant’s paramount by adhering to all the Covid-19 regulations. Notwithstanding the willingness to cooperate, some participants would eagerly volunteer to respond and when they were engaged and needed to participate in the survey, they no longer showed interest.

3.11 Summary

The research methodology in this chapter set out how the research process was carried out, the methods applied during the research process, and how knowledge was gained. The research philosophy, research approach, research strategy, unit of analysis, unit of observation, data collection approach, data analysis, ethics, delineation, and contribution of the research were discussed. A subjective ontological stance was adopted, as each research participant had a distinct opinion of the phenomenon under investigation. An interpretivist epistemological stance was adopted, as there were various ways of looking at the phenomena that were explored.

The researcher collected data by means of a qualitative online survey and photovoicing strategies. Non-random, purposive and relevant samples were used, comprising 14 participants from Khayelitsha. Consent was obtained from an ethical perspective from the selected youth of Khayelitsha. Once all data were collected from the 14 participants, it was analysed. The analysis was done by summarising the keywords and key concepts, then categorising them, and finally performing thematic analysis using Atlas.ti and NVivo. The data collected was reviewed, consolidated, and characterised to present a better understanding of the information and the development of themes. The research was done with the full compliance of the CPUT ethics policies and procedures.

The following Chapter (4) presents the data analysis and findings.

CHAPTER 4: DATA ANALYSIS AND RESULTS

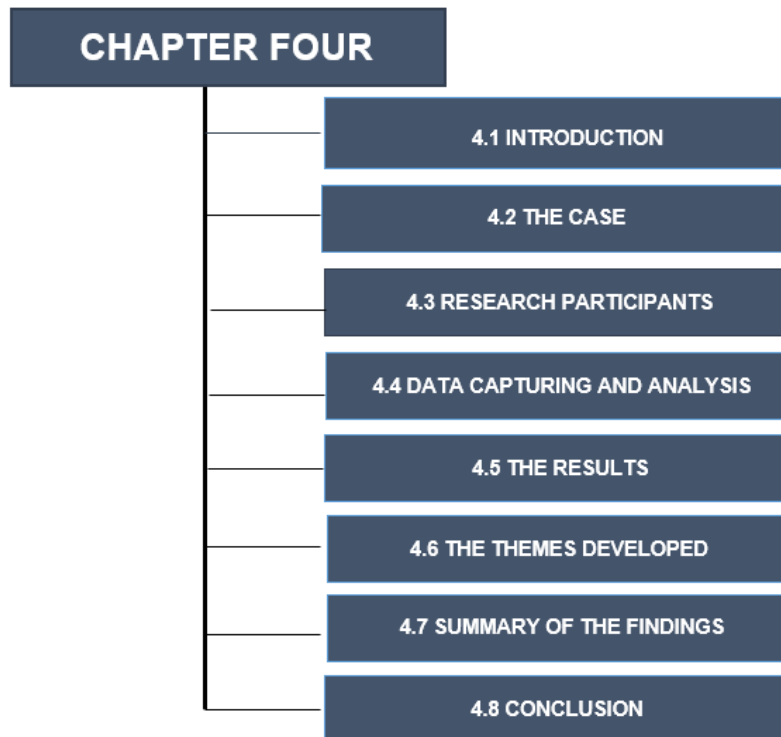


Figure 4.1: Layout of Chapter 4

4.1 Introduction

This chapter presents the data analysis and findings from the i) survey and ii) photovoicing research conducted. The data were collected from the youth in the Khayelitsha township community in Cape Town. The questionnaire survey endeavoured to assess the waste management (WM) problem in the targeted community and the photovoicing focused on the waste challenges being faced in the community. The data analysis involved the evaluation of the youth's perceptions, concerns, and actions they have undertaken with respect to WM awareness in their community. Relevant pictures are included to provide proof of the issues being highlighted by the participants in Khayelitsha as evidence to the state of waste problem therein. These results together with the possible recommendations as proposed by the participants and the summary of findings are highlighted in this chapter. For the convenience of the reader, the research questions for this study are stated again:

RQ1: What factors influence the youth's perceptions on waste management in an underserved community?

SRQ 1.1: What is the social and community context as perceived by the youth in Khayelitsha?

SRQ 1.2: What are the factors affecting the perceptions of the youth of Khayelitsha on WM?

SRQ 1.3: What are the concerns of the youth about WM?

WM is one of the many socio-economic issues which many communities in South Africa grapple with and deserves urgent attention from all stakeholders including the youth, community leaders, and policy makers, among others. Even though there are different ideas about how to broadly alleviate waste disposal, there is no consensus as to how these ideas can be implemented to provide lasting solution for specific communities in South Africa. It is therefore important to attempt and ascertain the perceptions of the youth on WM in the Khayelitsha township community.

The chapter (Figure 4.1) is presented as follows: i) the case; ii) participants; iii) analysis of the data; iv) results; v) themes; vi) summary of findings; and vii) chapter summary.

4.2 The case

More 3 million people may reside in the Cape Town area, with a large number of them living in the township of Khayelitsha. Most people live in unofficial housing, either in small shacks in the backyards of formal homes or in large unofficial colonies (the latter often squatting on public lands such as road reserves or electricity byways). Residents of the several informal communities of Khayelitsha encounter a variety of infrastructural micro-worlds. Some people use blue refuge bags, while others use wheelie dumpsters. The issue with the containers and plastic bags is that the City's waste removal trucks frequently are unable to enter Khayelitsha's informal settlements to collect the waste. The outcome is depicted in Figure 4.2.



Figure 4.2: Shacks and dwellings using blue refuge bags

Infrastructure becomes a complex means through which daily politics are carried out and socialites are formed at this junction of insufficient provision and great need. On a larger scale, apartheid's exclusion of non-white citizens from urban places and services is still the cause of the pressures that result in inadequate service provision within informal settlements (Makhulu, 2015:228). The study's aim was to investigate the elements that influence the youth's attitudes and perceptions concerning WM in order to better comprehend the difficulties associated with waste disposal in Khayelitsha.

4.3 Research participants

The problem of WM in Khayelitsha has been evaluated from the perspective of the youth (Chapter 3, section 3.3.3.2). The youth in the age group 18–35 years was targeted for this study (Chapter 3, section 3.3.3.1), because this age group is the future of the community, it appreciates the issues under study, and can possibly provide some practical solutions to the problem befalling their community.

Twenty-eight (28) participants initially showed interest in partaking in the study. However, only 14 participants remained throughout the study. There were 14 females and one (1) male participating. All participants have at least a senior certificate (Grade 12) qualification. It was difficult finding male participants that met the requirements of the study sample who wanted to participate voluntarily. When approached, they either immediately declined or would agree and later when contacted refrained from being included in the research. The females on the other hand were interested in the research topic. They responded positively and voluntarily participated and remained committed. All the participants were Xhosa speaking (their first language), but they were comfortable with English being the primary language of the survey and engagement, and they understood the questions and aim of the study. All the participants that took part in the Khayelitsha waste management questionnaire were of the African black ethnic group. This was to be expected as Khayelitsha is predominantly a black township.

The participants understood the survey questions as it was in English (basic) and did not ask clarification questions. Communication was done on a regular basis via WhatsApp and no-one seemed to be experiencing any technical challenges. The survey was compatible on their smart phones.

Figure 4.3 represents the overall demographics of the participants. There were 10 participants in the age group 24–27 years, one (1) participant in the age group 28–31 years, and three (3) in the age group 32–35 years. There was only 1 (one) male who participated throughout the study.

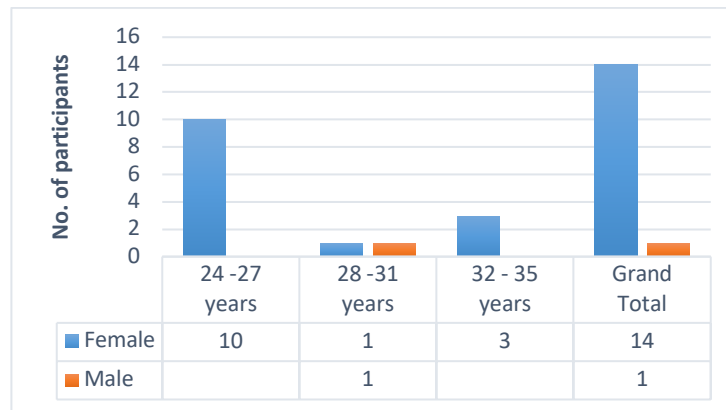


Figure 4.3: Demographic profile of research participants

4.4 Data analysis

Two sets of data were collected using i) online survey questionnaires and ii) a photo data collection technique (auto photography; photo data collection; Chapter 3, section 3.4).

According to Marshall and Rossman (1999), data analysis, is the process of giving the vast amount of gathered data organization, order, and significance. The categories and themes were determined through the coding process.

4.4.1 The survey questionnaire

The questionnaire was sent to the participants through an online SurveyMonkey link (Figure 4.4) using the WhatsApp platform. The survey was designed using the questionnaire template of SurveyMonkey and took between 10 and 20 minutes to complete. The captured data were exported to Excel and then imported into NVivo. NVivo introduced quantitative tools for the data analysis, including SurveyMonkey (QSR International). This study used SurveyMonkey and NVivo as data collection and analysis tools. The data were coded into categories and themes in line with each survey question asked. The analysis in NVivo was mainly based on tag cloud, word frequency, and map analysis. The data analysis process involved a three-phase approach (Neuman, 2014), namely: i) open coding; ii) axial coding; and iii) selective coding. The coding process led to identifying the categories and themes. The following steps were followed:

- i) Survey Monkey questionnaire software was used to create and run a professional questionnaire (Figure 4.4). The questionnaires were sent via the social media platform WhatsApp to 28 youth participants from Khayelitsha by means of a Web link to collect responses and for the convenience of the participants. The participants used SMS and WhatsApp to give their consent and interest to take part in the research. Regrettably, because of Covid-19, the youth were focused on looking for

work and had personal matters to attend to; as a result, only 14 remained to participate in the research.

- ii) The results were viewed as the participants completed the SurveyMonkey questionnaire (Figure 4.4).

Waste Management

We are interested in what the role of community context is in the perception of the youth of waste management?

1. Who are the stakeholders involved in the community waste management?

2. Who are concerned with the problem of waste in the community?

3. Please describe five places in the community where waste is the biggest problem.

Figure 4.4: An example of a part of the SurveyMonkey questionnaire

- iii) A copy of the questionnaire and the response results were downloaded and exported to Excel, as shown in Figure 4.5.

| UC | Participant code | IQ | Interview question | Response |
|----|------------------|----|---|--------------------------|
| 1 | P1 | 1 | 1. Who are the stakeholders involved in the community waste management? | The Municipality |
| 2 | P2 | 1 | 1. Who are the stakeholders involved in the community waste management? | None that im aware of |
| 3 | P3 | 1 | 1. Who are the stakeholders involved in the community waste management? | The community as a whole |
| 4 | P4 | 1 | 1. Who are the stakeholders involved in the community waste management? | City of Cape Town |
| 5 | P5 | 1 | 1. Who are the stakeholders involved in the community waste management? | None that I'm aware of. |
| 6 | P6 | 1 | 1. Who are the stakeholders involved in the community waste management? | Municipalities |
| 7 | P7 | 1 | 1. Who are the stakeholders involved in the community waste management? | The municipality |

*UC - Unit Count; IQ - Interview Question

Figure 4.5: SurveyMonkey exported output

Table 4.1 shows the applied stages used in the data analysis for this study.

Table 4.1: The applied stages of content analysis

| Phases of thematic content analysis | Steps used by researcher |
|--|---|
| First phase | Created a project |
| <input type="checkbox"/> Pre-analysis | Add documents |
| | Group documents into document groups |
| | Write-up overall project aim |
| | Include the research questions |
| Second Phase | Read the data, select data segments and create quotations |
| <input type="checkbox"/> Material exploration | Create and apply codes |
| | Write memos and comments |
| | Group codes with memos |
| Third Phase | Explore the coded data |
| <input type="checkbox"/> Interpretation | Link quotations, codes and memos on a conceptual level |
| | Extract reports |
| | Make use of tag cloud for the data visualisation |
| | Run the word frequency query to see the words, concepts that are frequently used by participants, and made use of a map |
| | Formulated the tables in excel for analysis |

The applied stages of content analysis shown in Table 4.1 were done using NVivo as follows:

An explorative round where the data were read and topics that stood out were identified. The structured completed individual questionnaires were exported from SurveyMonkey and imported into Nvivo, and codes or themes were then formulated and assigned to the questionnaires.

Analysis was done using Word Frequency queries to list the most frequently occurring words or concepts in the sources. The Word Frequency query was used to identify possible themes by looking for exact words and broadening the search to find the most frequently occurring concepts.

Thereafter, a Tree Map like word cloud was developed (Figure 4.6). The Tree Map was used to display words as a series of rectangles. The more frequently occurring words are in larger rectangles, and assisted in terms of a visual display to better understand and comprehend the survey responses.

It took deliberate effort to interact with the data in a meaningful way. Finally, in response to the study questions and objective mentioned in Chapter 1, the analysis led to the creation of themes recounting the phenomenon of interest.

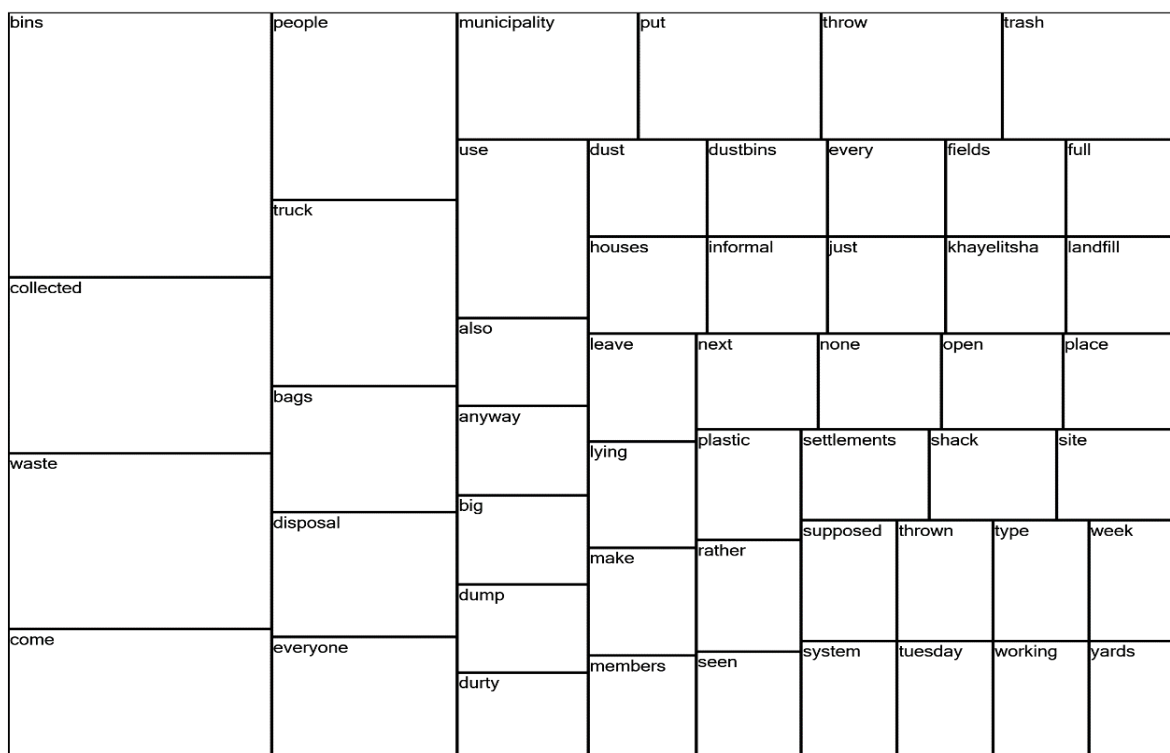



Figure 4.6: Tree Map: Identified methods of waste disposal in Khayelitsha

In the second round of coding, usable data were identified and grouped together, and categories were identified. From there, four main themes were identified (Table 4.2).

Table 4.2: First and second round coding, categories and themes developed from the data

| Codes: 1 st round | Codes: 2 nd round | Categories | Themes |
|---|---|--------------------------------|----------------------|
| 1. People who don't have dustbins and who are not well informed about waste management | 1. Lack of waste facilities | Awareness | Citizens involvement |
| 2. Nothing | 2. Lack of knowledge on waste management | Behaviour | |
| 3. Dumping waste everywhere and not doing anything to clean it up | 3. No comment | Multi stakeholders | |
| 4. Recycling | 4. Negligence by community | Awareness | Community dynamics |
| 5. None | 5. Municipality not collecting waste | Employment | |
| 6. Alcohol abuse. Shortage of dust bins Shortage of rest rooms in the informal areas | 6. Recyclable materials | Fault reporting | |
| 7. Those who are negligent and ignorant in the community | 7. No comment | Human behaviour | |
| 8. High unemployment rate plays a huge role in the community | 8. Lack of waste facilities | Leadership | |
| 9. Not having enough water and sanitation facilities | 9. Poor sanitation in informal areas | Accessibility to refuse trucks | Infrastructure |
| 10. Lack of information, workshops to share knowledge, | 10. Negligence by the community | Collecting waste | |
| 11. People not reporting incidents in time | 11. Lack of knowledge on waste management | Refuse trucks | |
| 12. Community leader to address the problem of waste management | 12. No relevant | Service delivery | |
| 13. The street committees report to the municipality | 13. Poor sanitation in informal areas | Waste disposal | |
| 14. Diseases | 14. Lack of knowledge on waste management | Waste facilities | |
| 15. People who don't have dustbins | 15. Lack of knowledge on waste management | Increase knowledge on WM | Waste management |
| 16. Careless inconsiderate humans | 16. Ineffective community leadership | Knowledge | |
| 17. Papers and uncollected waste bins | 17. Ineffective community leadership | | |
| | 18. Not relevant | | |

| Codes: 1 st round | Codes: 2 nd round | Categories | Themes |
|--|---|---------------------------|---|
| 18. Bottle and Plastics | 19. Lack of waste facilities in homes | Knowledge | |
| 19. Non arrival waste management truck | 20. Human behaviour (negligence) | Plastic bags | |
| 20. Alcohol bottles. Especially near shebeens | 21. None collection of refuse by municipality | Recycling | |
| 21. Papers from the small products sold at the shops.in the informal settlements littering anywhere where they see open space | 22. None collection of refuse by municipality | Sanitation | |
| 22. Littering the service waste truck not coming to collect waste is the main reason | 23. None collection of refuse by municipality | Awareness | Environment |
| 23. Sanitation facilities and waste management | 24. Human behaviour (negligence) | Collecting waste | |
| 24. Water, Meat stalls waste (Bones), genera household waste | 25. Human behaviour (negligence) | Collecting waste | |
| 25. Burst pipes and drains, full bins and people throwing off waste out on the road | 26. None collection of refuse by municipality | Collecting waste | |
| 26. More trucks that are assisting in collection on bins | 27. None collection of refuse by municipality | Dumping | |
| 27. The main source of waste is the dustbin when they are not being collect the municipality so the community end up throwing their waste within the houses so that could cause harm to the community. | 28. Lack of waste facilities in homes | Recycling | |
| 28. Containers Plastics | 29. Human behaviour (negligence) | Recycling | |
| 29. Nothing | 30. Human behaviour (negligence) | Awareness | Participants' recommendation |
| 30. Nothing | 31. None collection of refuse by municipality | Bigger disposal units | |
| 31. Nothing | 32. None collection of refuse by municipality | Employment | |
| 32. Dumping waste anywhere | 33. None collection of refuse by municipality | Knowledge | |
| 33. Nothing | 34. Human behaviour (negligence) | Recycling | |
| 34. Nothing as yet because of the lockdown | 35. Human behaviour (negligence) | Refuse collection | |
| 35. There are green bins allocated near the shops for disposal | 36. No effort | Stakeholders | |
| 36. Not much is done because community is still run by old people who don't want us the youth to have an input | 37. No effort | Waste disposal facilities | |
| 37. So far nothing has been done | 38. No effort | Knowledge on WM | |
| 38. Nothing much, waste management is solemnly depending on the Garbage collection and community workers employed by the organisations | 39. No effort | Negligence of community | |
| 39. Quickly report burst pipes, | 40. No effort | Waste disposal facilities | Factors contributing to the waste problem |
| 40. To create pages like this  | 41. No effort | Recycling | |
| 41. The community does the report to the street committees. | 42. Awareness education for the community about waste facilities at the shops | Poor sanitation | |
| 42. We call the councillors | 43. No effort | Service delivery | |
| 43. The 3 R's and Glasses | 44. No effort | Leadership issues | |
| 44. None | 45. No effort | | |
| 45. Bottles and cans | 46. Quickly reporting to the municipality | | |
| 46. Collection of bottles | 47. Online awareness through social media platforms | | |
| 47. None | 48. Report to community leadership | | |
| 48. A friend of mine tried to open a cleaning company here in the township but it wasn't a success due to commuters not willing to pay | 49. Quickly reporting to the municipality | | |
| 49. Not that i know of in my community | 50. Recycle, reuse, reduce | | |
| 50. Paper cycling, plastic recycling | 51. No knowledge | | |
| 51. Bottle recycling Paper recycling Mshengu recycling | 52. Recycle, reuse | | |
| 52. None | 53. Reduce | | |
| 53. Can recycling | 54. No knowledge | | |
| 54. bottle and paper, plastic | 55. Reuse | | |
| 55. We only have people who collect recycling. | 56. No knowledge | | |
| 56. Plastic bottles Cans | 57. Recycling | | |
| 57. They should create awareness about Waste Management | 58. Recycling | | |
| | 59. No knowledge | | |
| | 60. Recycling | | |
| | 61. Reuse, Recycling | | |
| | 62. Recycling | | |
| | 63. Recycling Reuse | | |
| | 64. Creation of waste management awareness programmes | | |
| | 65. Creation of waste management awareness programmes | | |
| | 66. Creation of waste management awareness programmes | | |
| | 67. Increase knowledge on waste management | | |

| Codes: 1 st round | Codes: 2 nd round | Categories | Themes |
|--|--|------------|--------|
| 58. By introducing paying waste management workshops | 68. Creation of waste management awareness programmes | | |
| 59. Be involved more be willing to recycle and help with the recycling and cleaning up those open spaces and fields and doing something positive to them like learning new skills or playing sports | 69. Creation of waste management awareness programmes | | |
| 60. By teaching each other how to recycle and ideas of creating art out of the waste bottle and plastics that are being recycled. | 70. Creation of waste management awareness programmes | | |
| 61. By introducing waste management workshops | 71. Employ a multi-stakeholder approach to tackle the problem | | |
| 62. By conducting waste awareness | 72. Create employment for the community youths | | |
| 63. We could assist in the word of mouth awareness of the importance of the right way to dispose of things | 73. Municipality must contract youths to do the work (employment creation) | | |
| 64. A joint venture between old community leaders, the counsellor and the youth to discuss ideas as to how we can all work together to minimise the problem we are facing and finding a way where all parties involved can benefit to minimise unemployment as well | 74. Creation of waste management awareness programmes | | |
| 65. I think the municipality must hire more youth or have volunteers to educate the community. Give out opportunities to the youth to voice out different options about waste management | 75. Increase knowledge on waste management | | |
| 66. The youth can be workshopped on Waste Management, Recycling, Compost production. And youth can be championed to actually facilitate the Waste management in their streets and also be given a chance to have suggestions and opportunities to run the programme. | 76. Increase knowledge on waste management | | |
| 67. Train the youth about the environment so they can spread the awareness to their homes | 77. Employ a multi-stakeholder approach to tackle the problem | | |
| 68. Youth must participate in community group chat where they can address the problem of waste | 78. Regular of refuse by the municipality | | |
| 69. They must collect cans and plastics. | 79. Create employment for the community youths | | |
| 70. By employing the youth to work on the waste management. | 80. Increased waste management awareness | | |
| 71. The community should be made aware of recycling and waste management | 81. Waste collection should be regular in the township similar to the affluent suburbs | | |
| 72. The same way it's preserved in the suburbs | 82. Erect infrastructure on all open spaces | | |
| 73. If something recreational can be built or put in those open spaces and fields so that people don't dump waste on them | 83. Initiate more recycling programmes | | |
| 74. If there can be a way of collecting all the waste and be recycled into a place where, most of the people can use them. | 84. Bigger waste facilities should be availed | | |
| 75. We use big containers to dispose waste. | 85. Waste collection should be regular twice a week | | |
| 76. At the moment the collection of waste is done once a week, it would be better if it was done at least twice a week. | 86. Increased waste management awareness | | |
| 77. Waste management awareness like a local meeting and the big steel waste bins for the informal settlements | 87. Bigger waste facilities should be availed | | |
| 78. Recycling beams where waste trucks are unable to reach, employing | 88. Improve accessibility of informal settlements by refuse trucks | | |
| | 89. No knowledge | | |
| | 90. Increased waste management awareness through sports activities | | |
| | 91. Initiate more recycling programmes | | |
| | 92. Bigger waste facilities should be availed | | |
| | 93. No knowledge | | |
| | 94. Initiate more recycling programmes | | |
| | 95. Waste collection should be regularly every week | | |
| | 96. Increase waste management awareness/knowledge | | |
| | 97. Increase waste management awareness/knowledge | | |
| | 98. Increase waste management awareness through sport | | |
| | 99. Initiate recycling initiatives | | |
| | 100. Increase waste management awareness/knowledge | | |
| | 101. Improve municipal resources for refuse collection | | |
| | 102. Provide adequate waste facilities | | |

| Codes: 1 st round | Codes: 2 nd round | Categories | Themes |
|--|---|------------|--------|
| <p>community members who will clean their own community dump sites in assisting of the waste trucks that cannot reach certain areas in our informal settlements</p> <p>79. I don't know</p> <p>80. A desired situation, would be first run workshops on Waste Management. Where the community will have recycling ports even in the houses to separate waste easily before collection. Encourage the recycling methods and compost manufacturing</p> <p>81. Where the dump site is should put recycling bins and sections for type of waste</p> <p>82. Children are playing in a cloudy area where they can have affected by diseases</p> <p>83. They should be a near or located recycling sites. So that they would be job creation.</p> <p>84. It is taken every Tuesday by a Disposal truck from the waste container</p> <p>85. Create awareness about Waste Management and teach them ways to manage the waste</p> <p>86. With proper tools and enough knowledge, I'd win the youth.</p> <p>87. Get youth to clean up the previous mentioned places and hold competitions sports allow people to put their stalls and sell their products there like a market type of thing</p> <p>88. I would make sure that, I get people to help me towards the recycling and try to collect all the waste and create something that would be useful. Doing this, can even give them an opportunity to get some income and platform to make some changes in our communities.</p> <p>89. I will make people aware about waste management and how to treat the environment.</p> <p>90. I would increase a number of waste municipal workers. Make sure all households have dust bins. And collection would be done at least twice a week</p> <p>91. Meet with the local municipality so we can assess the situation and ask if they can't make a landfill site or arrange for the different labelled bins. For recyclable waste and non-recyclables. And have a schedule to clear it so that it doesn't overflow</p> <p>92. Put recycling beams at all informal settlements create a task team that will be responsible for its waste in their area to minimise unemployment, creative initiatives that will teach the community about recycling so they can acquire a skill and earn a living at the same time</p> <p>93. I will try to make them understand the importance of keeping the community clean and also give out enough disposal equipment like (plastic bags).</p> <p>94. Outsource training and material to train interested individuals on Waste</p> | <p>103. Initiate recycling initiatives</p> <p>104. Regular collection of refuse by the municipality</p> <p>105. Initiate recycling initiatives</p> <p>106. Increase waste management awareness/knowledge</p> <p>107. Increase waste management awareness/knowledge</p> <p>108. Initiate recycling initiatives</p> <p>109. Effective community participation on waste management</p> <p>110. Increase waste management awareness/knowledge</p> <p>111. Initiate recycling programmes</p> <p>112. Initiate recycling programmes</p> <p>113. Increase waste management awareness/knowledge</p> <p>114. Dumping</p> <p>115. Dustbins</p> <p>116. Plastic bags</p> <p>117. Dustbins</p> <p>118. Waste disposing</p> <p>119. Dustbins</p> <p>120. Dumping</p> <p>121. Dustbins</p> <p>122. Plastic bags</p> <p>123. Dustbins</p> <p>124. Municipal dump truck dumping</p> <p>125. Dustbins</p> <p>126. Municipal dump truck</p> <p>127. Dustbins</p> <p>128. Municipal dump truck</p> <p>129. Dumping</p> <p>130. No answer</p> <p>131. Dustbins</p> <p>132. Municipal dump truck</p> <p>133. Dustbins</p> <p>134. Municipal dump truck</p> | | |

| Codes: 1 st round | Codes: 2 nd round | Categories | Themes |
|---|------------------------------|------------|--------|
| <p>Management. Engaging the community to voice out what challenges they have when it comes to Waste management in the households first. Gathering information on Recycling and Compost</p> <p>95. Gather the youth in the community, train them so they can spread it at their homes to teach their parents</p> <p>96. I would employ people</p> <p>97. I would ask people to collect all the recycling things such as plastics and can bring the recycling place.</p> <p>98. I would organise a group of youth in my age and form a group, write a story about how keen we are to solve the waste management problem to the council leaders.</p> <p>99. They throw the waste anyway</p> <p>100. Bins and plastic bags</p> <p>101. Bins are collected</p> <p>102. Khayelitsha is dirty and seen as a place where everyone can put a shack.</p> <p>103. We bins in our yards but some people don't make use of them</p> <p>104. It's supposed to be put in dust bins but people just leave it lying next to those bins rather</p> <p>105. The houses have the big bins but informal settlements use bags and landfill system.</p> <p>106. The waste truck comes once a week to come and collect waste, if it doesn't come people dispose of their waste in open fields</p> <p>107. We have members working for the municipality</p> <p>108. Every Tuesday the truck collects Dustbins</p> <p>109. There is a dump site where everyone can throw their waste if it's full and also any other type waste can be thrown there</p> <p>110. None</p> <p>111. It is collected by the municipality.</p> <p>112. Disposal Trucks</p> | | | |

The seven themes developed from the survey are: i) citizen's involvement; ii) community dynamics; iii) infrastructure; iv) waste management; v) environment; vi) participants' recommendations; vii) factors contributing to the waste problem.

4.4.2 Photovoicing (photo data collection technique/autophotography)

Seventy (70) photos were collected from the 14 participants, with each participant submitting five photos. These photos were thoroughly investigated and 43 were chosen for further analysis using Atlas.ti (Annexure H). From the photos, 36 different artefacts were identified, which then became codes (34), and from the codes, categories (18) and themes (5) were identified (Table 4.3).

Table 4.3: The identified codes, cleaned codes, categories and themes

| Atlas.ti photo code (36) | Photo code cleaned (34) | Category (18) | Themes (5) |
|--|------------------------------|------------------------------|-------------------------------|
| 1. Waste next to bag | 1. Waste next to bag | 1. Carelessness | 1. Citizen involvement |
| 2. No waste inside property only outside | 2. No waste inside property | 2. Waste ownership | |
| 3. Blue waste bags | 3. Bag with waste | | |
| 4. Citizen put waste in bin | 4. Citizen put waste in bin | | |
| 5. Waste in bin | 5. Waste placed in bin | | |
| 6. Citizens walking | 6. Citizens walking | 3. Citizens | 2. Community dynamics |
| 7. Washing line | 7. Washing line | 4. Community components | |
| 8. Community houses | 8. Dwellings | | |
| 9. Fence | 9. Fence | | |
| 10. Rubble | 10. Rubble | | |
| 11. Dwellings | 11. Dwellings | 5. Housing | |
| 12. Shack | 12. Shacks | | |
| 13. Shacks | | | |
| 14. Motor | 13. Motor | 6. Non-human element | |
| 15. Cars | | | |
| 16. Dumped waste | 14. Dumped waste | 7. Citizens dumping | 3. Environment |
| 17. Limited waste | 15. Limited waste | | |
| 18. Waste dumped on sidewalk | 16. Waste dumped on sidewalk | | |
| 19. Erosion | 17. Erosion | 8. Environmental protection | |
| 20. Open spaces | 18. Open space | 9. Landscape | |
| 21. Stream | 19. Stream | | |
| 22. Torn waste bag | 20. Torn waste bag | 10. Neglect | |
| 23. Clean area | 21. Clean area | 11. Spaces | |
| 24. Electronic waste | 22. Electronic waste | 12. Waste | |
| 25. Open water drain hole | 23. Open water drain hole | 13. Health and safety | |
| 26. Portable toilets | 24. Portable toilets | | |
| 27. Dirty Puddle | 25. Dirty Puddle | | |
| 28. Water overflow | 26. Water overflow | 14. Neglect | 4. Infrastructure |
| 29. Waste bin | 27. Waste bin | 15. Community components | |
| 30. Clean sidewalk | 28. Clean sidewalk | 16. Infrastructure | |
| 31. Clean street | 29. Clean street | | |
| 32. Organic waste | 30. Organic waste | 17. Waste ownership | |
| 33. Waste Inside a container | 31. Waste Inside a container | 18. Waste collection service | |
| 34. Collected waste bags | 32. Collected waste bins | | |
| 35. Waste bag service | 33. Waste bag service | | |
| 36. Container | 34. Waste Container | | |
| | | | |

For the development of the themes, the questionnaires and photo analysis were combined and grouped into themes (Table 4.4).

Table 4.4: Theme development for analysis

| Survey themes | Areas of interest | Photo themes |
|---|--|--|
| The youth's perceptions on waste management | - Stakeholders involved and concerned - Main methods of waste disposal | - Citizen involvement |
| Factors contributing to waste problem | - Areas with the biggest waste problem - Factors contributing to waste problem - Main sources of waste | - Environment |
| Actions implemented to increase waste management awareness | - Knowledge of waste recycling initiatives - Efforts done to increase awareness of waste management | - Community dynamics - Infrastructure |
| Participants' proposed recommendations | - Desired situation for the community - Ideas on youth involvement - Possible ways of waste management | - Community dynamics - Infrastructure - Environment |

Table 4.5 is a summary of the combined themes.

Table 4.5: Themes developed from the categories

| Theme No. | Themes |
|-----------|---------------------------------------|
| 1 | Youth perceptions |
| 2 | Factors contributing to waste problem |
| 3 | Waste management |
| 4 | Participants' recommendations |
| 5 | Community dynamics |
| 6 | Infrastructure |
| 7 | Environment |

4.5 The results

The results are presented in the section below.

4.5.1 Online survey questionnaires

The survey questionnaires are presented as follows: i) the youth’s perceptions on WM in Khayelitsha; ii) perceptions of youth in Khayelitsha; iii) concerns of the youth about MSWM in Khayelitsha; iv) impact of proximity of dumpsites to households; v) tourism; vi) youth actions to increase WM awareness in Khayelitsha, vii) and the participants’ recommendations.

4.5.1.1 Youth perceptions on WM in Khayelitsha

To ascertain the perceptions of the youth on WM, participants were asked who they think is involved and concerned about the community’s WM. Insights into the youths’ perceptions on WM were ascertained through three main questions: i) Who are the stakeholders involved? ii) Who are the stakeholders concerned? iii) Waste disposal methods?

i) Stakeholders involved in community WM



Figure 4.7: Stakeholders involved in community WM

Figure 4.7 shows that the youth in Khayelitsha perceive their community (residents and their leaders) and the local government (municipality and the City of Cape Town) as the key

stakeholders in WM. These results indicate that the attitude of youth towards WM is still on the municipality offering the service and their community leader(s) assisting. There is always a danger of irresponsible WM when society believes they are not part of the system to a challenge such as WM. Indiscriminate dumping of waste is made worse by a society that sees the municipality as their servant which has to come and fix the avoidable waste challenges caused by society. The government’s efforts towards behaviour change to the communities play a major role in how the communities respond to waste. There is also general regard (12 of the 15 participants) among the youth that WM is the sole duty and responsibility of local authorities.

ii) Stakeholders concerned about WM in Khayelitsha



Figure 4.8: Stakeholders concerned about WM in Khayelitsha

The youth are of the opinion that the community members (residents including adults, youth and children) in Khayelitsha are more concerned about the waste problem relative to other stakeholders (Figure 4.8). Councillors, the municipality and government are also perceived to be concerned stakeholders with regard to the waste problem.

iii) Methods of waste disposal in Khayelitsha

The inappropriate disposal of waste can cause harm and result in air pollution and soil contamination. The identified methods of waste disposal in the community are shown in Table 4.6. However, the participants highlighted some concerns about the manner in which people are disposing of waste in the community. For example, P1 shared that people dispose waste any way without considering the dangers it might have to the environment. P1 stated: “They throw the waste anyway” (Appendix I). Although P1 shared that some people dispose waste by any means, other participants (P2, P3 & P5) indicated that the municipality collects the waste bins and plastic bags. In addition, P7 highlighted that each household has a waste bin, but those who live in informal settlements dispose their waste anywhere as

explained in the following submission of P7: “The houses have the big bins but informal settlements use bags and landfill system” (Appendix I).

Table 4.6 indicates that the community is using various ways of disposing waste, including dustbins, plastic bags, and municipality waste disposal trucks which collect garbage on Tuesdays. Some people in houses and shacks were reported to be using the open spaces and landfills as their dumping sites. It is however important to note that in areas where the municipality is collecting waste, the residents only resort to dumping their waste when the municipal dump trucks fail to turn up for collection on the stipulated timetable. This is mentioned by P8 who said that “the waste truck comes once a week to come and collect waste if it doesn’t come people dispose of their waste in open fields” (Appendix I).

Table 4.6: Identified methods of waste disposal in Khayelitsha

| P | Response | Finding category |
|-----|--|---|
| P1 | “They throw the waste anyway” | Dumping |
| P2 | “Bins and plastic bags” | Dustbins Plastic bags |
| P3 | “Bins are collected” | Dustbins |
| P4 | “Khayelitsha is dirty and seen as a place where everyone can put a shack” | Waste disposing |
| P5 | “We have bins in our yards but some people don’t make use of them” | Dustbins |
| P6 | “It’s supposed to be put in dust bins but people just leave it lying next to those bins rather” | Dumping |
| P7 | “The houses have the big bins but informal settlements use bags and landfill system” | Dustbins Plastic bags |
| P8 | “The waste truck comes once a week to come and collect waste, if it doesn’t come people dispose of their waste in open fields” | Dustbins Municipal dump truck Dumping |
| P9 | “We have members working for the municipality” | Dustbins Municipal dump truck |
| P10 | “Every Tuesday the truck collects dustbins” | Dustbins Municipal dump truck |
| P11 | “There is a dump site where everyone can throw their waste if it’s full and also any other type waste can be thrown there” | Dumping |
| P12 | “None” | No answer |
| P13 | “It is collected by the municipality” | Dustbins Municipal dump truck |
| P14 | “Disposal trucks” | Dustbins Municipal dump truck |

*P - Participant

4.5.1.2 Concerns of the youth about MSWM in Khayelitsha

The study also sought to determine the concerns of the youth in Khayelitsha about MSWM. To determine the concerns, three (3) questions were asked::

- i) What factors contribute to the waste problem in Khayelitsha?
- ii) What are the main sources of waste?
- iii) In which areas is WM a problem?

i) What factors contribute to the waste problem in Khayelitsha?

Communities in Khayelitsha are faced with challenges related to WM. Many factors were shown to be contributing to the waste problem in the community of Khayelitsha (Table 4.7).

Table 4.7: Factors contributing to waste problem in Khayelitsha

| P | Responses from participants | Finding category |
|----------|--|--|
| P1 | "People who don't have dustbins and who are not well informed about WM" | Lack of waste disposal facilities Lack of knowledge on waste management |
| P2 | "Inconsiderate by people who dump careless" | Negligence by community |
| P3 | "Dumping waste everywhere and not doing anything to clean it up" | Negligence by community Municipality not collecting waste |
| P4 | "Recycling" | Recyclable materials |
| P5 | :None" | No comment |
| P6 | "Alcohol abuse. Shortage of dustbins. Shortage of rest rooms in the informal areas" | Lack of waste disposal facilities Poor sanitation in informal areas |
| P7 | "Those who are negligent and ignorant in the community" | Negligence by the community Lack of knowledge on waste management |
| P8 | "The service waste truck not coming to collect waste but there is high unemployment rate plays a huge role in the community" | Poor service delivery |
| P9 | "Not having enough water and sanitation facilities" | Poor sanitation in informal areas |
| P10 | "Lack of information, workshops to share knowledge" | Lack of knowledge on waste management |
| P11 | "People not reporting incidents in time" | Lack of knowledge on waste management Ineffective community leadership |
| P12 | "Community leader should address the problem of WM" | Ineffective community leadership |
| P13 | "They dustbins are not being collected by the municipality. The street committees must report to the municipality but not" | Ineffective community leadership Poor service delivery |
| P14 | "Diseases" | Not relevant |

*P = Participant

The main factors identified in Table 4.7 are:

a) Negligence by the community

The findings show that 71% of the participants (10 of 14) highlighted ignorance and littering as one of the main contributing factors to the waste problem in Khayelitsha. For instance, P3 mentioned that people dump waste everywhere. P3 stated: "Dumping waste everywhere and not doing anything to clean it up" (Appendix J).

Others mentioned that people have dustbins where they can place the waste, but they are ignorant. In this regard, P7 said: "We have bins in our yards, but some people do not make use of them" and "It's supposed to be put in dust bins, but people just leave it lying next to those bins rather" (Appendix J). People also throw things such as bottles, plastics, water, and bones in open spaces. P2 regarded these littering people as "careless inconsiderate humans" (Appendix J).

b) Lack of waste disposal facilities

Even though participants alluded that the waste problem is caused by littering and mere ignorance from the residents, four (4) participants mentioned that not everyone has means to buy the bins and as a result, people litter due to a lack of bins. For instance, when P1 was asked who/what contributes to the waste problem in the community, P1 answered that: "People who don't have dustbins" (Appendix J). However, P1, P5 and P6 mentioned that not only do the people in Khayelitsha not have the bins, but they also face the problem of a lack of WM facilities. This was revealed by P9 who shared that: "Not having enough water and sanitation facilities. Sanitation facilities and WM" (Appendix J).

c) Lack of knowledge on WM

The WM issue in Khayelitsha was also discovered to be caused by a lack of understanding about or limited access to WM. Participants P1, P7, P10, and P11 each provided support for this assertion. According to P10, this lack of awareness about WM is caused by "a lack of information, workshops to share knowledge" (Appendix J). P5 and P14 were unaware of the issues causing Khayelitsha's waste issue. Education is essential for reducing the problems that various areas encounter (Environmental Protection Agency, 2017). This relates to the problem of incorrect waste disposal.

Agencies and government departments responsible for WM should show citizens how the environmental system is affected by improper waste disposal and what we can do to avoid it. This education should ideally commence at a very young age since young persons are typically more likely to improve their actions because of their education.

d) Ineffective community leadership

Every community has representatives for all the challenges the community faces. However, this is not a reality for some communities in Khayelitsha, as one of the participants indicated they do not have a community leader to help them with the waste problem they currently face. In this regard, P12 commented: "Community leader should address the problem of WM" (Appendix J). However, those who have community representatives complain about the inabilities of these leaders to report the waste incidences on time. For instance, P11 shared: "People not reporting incidents in time" (Appendix J). P13 stated that "the street committees must report to the municipality but they are not" (Appendix J).

e) Poor service delivery

Another factor associated with the waste problem in Khayelitsha is the poor service delivery by the municipality. As a result, the problem of waste is prevalent in areas where people use plastics for waste and dump these in open spaces. P13 stated that "the main source of waste is the dustbin when they are not being collected by the municipality so the community end up

throwing their waste within the houses so that could cause harm to the community” (Appendix J). P8 mentioned that “the service waste truck not coming to collect waste is the main reason” (Appendix J).

ii) What are the main sources of waste?

Waste can emanate from various sources. Therefore, there is need to ascertain the main sources of the waste in the Khayelitsha community. The information that emerged from the analysed data indicates that human behaviour in the form of negligence/carelessness and poor service delivery by the municipality were cited as a major source of waste. As a result, there is a huge amount of uncollected garbage from houses, shebeens and informal settlements where there is also lack of proper infrastructure as presented in Table 4.8. According to the youth, the waste varies from uncollected dustbins, plastics, papers, containers, alcohol bottles, waste thrown by people, and waste foods, among others.

Table 4.8: Main sources of waste in the community of Khayelitsha

| P Code | Responses from participants | Finding category |
|--------|---|---|
| P1 | "People who don't have dustbins" | Lack of waste facilities in homes |
| P2 | "Careless inconsiderate humans" | Human behaviour (negligence) |
| P3 | "Papers and uncollected waste bins" | Poor service delivery collection of refuse by municipality |
| P4 | "Bottle and Plastics" | Poor service delivery collection of refuse by municipality |
| P5 | "Non arrival WM truck" | Poor service delivery collection of refuse by municipality |
| P6 | "Alcohol bottles. Especially near shebeens" | Human behaviour (negligence) |
| P7 | "Papers from the small products sold at the shops.in the informal settlements littering anywhere where they see open space" | Human behaviour (negligence) |
| P8 | "Littering the service waste truck not coming to collect waste is the main reason" | Poor service delivery collection of refuse by municipality |
| P9 | "Sanitation facilities and WM" | Poor service delivery collection of refuse by municipality Lack of waste facilities in homes |
| P10 | "Water, Meat stalls waste (Bones), genera household waste" | Human behaviour (negligence) |
| P11 | "Burst pipes and drains, full bins and people throwing off waste out on the road" | Human behaviour (negligence) None collection of refuse by municipality |
| P12 | "More trucks that are assisting in collection on bins" | Poor service delivery collection of refuse by municipality |
| P13 | "The main source of waste are the dustbin when they are not being collect by the municipality so the community end up throwing their waste within the houses so that could cause harm to the community" | Poor service delivery collection of refuse by municipality Human behaviour (negligence) |
| P14 | "Containers Plastics" | Human behaviour (negligence) |

*P = Participant

iii) In which areas is WM a problem?

According to the data retrieved from participants, there are many areas faced with a waste problem (Table 4.10). P1 mentioned the following sites: "Site B, Site C, Nkanini Makhaza Ndlovini". P4 also said that Town2, Makhaza, and Nkanini are areas with waste problems and further indicated that Khayelitsha is perceived as the dirtiest and most populated area.

P4 submitted that “Town2, and Makhaza Nkanini Macassar, are dirty and seen as a place where everyone can put a shack” (Appendix J).

In addition to the above statement, P2 shared that dams and parks also have been affected by the waste problem and named the following areas: “Open fields, Parks, Dams, Dump Sites, and Pavements” (Appendix J). Buttressing more on the above statement is P10, who also added: “Open places where people dump things at night, Containers where informal settlements dump their waste, drains where people dump stuff at night, open roads where people throw dirty water” (Appendix J).

Table 4.9: Areas with waste problems in Khayelitsha

| P Code | Responses from participants |
|--------|---|
| P1 | “Site B, Site C, Nkanini, Makhaza, Ndlovini” |
| P2 | “Open fields, Parks, Dams ,Dump sites, Pavements” |
| P3 | “Mini dams after the rain has poured and leaves ponds, The streets Pavements, Fields, Schools” |
| P4 | “Town2, Makhaza, Nkanini, Maccasser” |
| P5 | “Dam, open fields, park, roads and shacks” |
| P6 | “Site B, Site C, Ndlovini, informal settlement, Delft, and Dunoon” |
| P7 | “The squatter camps and the shops” |
| P8 | “Open spaces that are not occupied by residents, Public parks, Sports fields New develops of informal settlements, Old informal settlement areas” |
| P9 | “ENdlovini, ENkanini, Site B, Site C, And ENkadla” |
| P10 | “Open places where people dump things at night, Containers where informal settlements dump their waste, drains where people dump stuff at night, open roads where people throw dirty water” |
| P11 | “Drains, informal settlements, toilets, community taps and pipes” |
| P12 | “Nkanini, Harare, Kuyasa, Makhaza, Mandela part” |
| P13 | “Harare, Monwabisi park, Kuyasa, Enkanini, Makhaza” |
| P14 | “Waste container Next to public toilets, Blocked drains Next to the road” |

P = Participant

4.5.1.3 Impact of proximity of dumpsites on households

When dealing with the health implications of illegal dumping, it's also important to take into account how close dumping in open public spaces is to residential areas. According to Abul (2010:21), when “dumpsites are close to residential areas, the occupants are frequently subjected to sickening odours.” The unpleasant smells coming from landfills have the potential to make nearby residents unwell, according to Abul (2010:21). According to Alam and Ahmade (2013), poorly managed solid waste can enter an ecosystem in which people live through the biodegradation of material that is absorbed into the soil. This can result in pollutants being taken up by plants, ventilated, and spread by birds, rats, flies, and other animals.

4.5.1.4 Youth actions to increase WM awareness in Khayelitsha

This study also endeavoured to determine what the youth are doing to increase WM awareness in the community of Khayelitsha. Therefore, the following categories have been

developed to try and ascertain if the youth are taking any action to address the problem of waste in their community:

- a) Efforts by the youths to increase waste management awareness in Khayelitsha
- b) Identified recycling initiatives known by the youth

i) Identified efforts by the youth to increase WM awareness in Khayelitsha

The results from the data analysed as shown in Table 4.7 indicate that most of the youth have done nothing to increase WM awareness in their community. Only five (5) are attempting to increase awareness of WM in their community. From the data, nine (9) participants (P1, P2, P3, P4, P5, P6, P8, P9 & P10) said they are doing nothing to address waste in the community. P10 elaborated that they are not doing anything regarding WM awareness because it is a preserve of the municipality who employ people to do so: “Nothing much, waste management is solemnly depending on the garbage collection and community workers employed by the organisations” (Appendix J). P6 stated their reason for not doing anything as follows: “Nothing as yet because of the lockdown” (Appendix J).

In a different vein, P8 highlighted the lack of youth involvement in WM as one of the contributing factors to waste in the community and said: “Not much is done because community is still run by old people who don’t want us the youth to have an input” (Appendix J). Only five (5) of the 14 participants were making some efforts to increase awareness in the community. P11, P13 and P14 said they quickly report any waste issue to the municipality. P12 uses social media platforms to increase WM awareness among the youths and P7 reminds the community to dump their waste in disposal facilities available near shops.

Table 4.10: Actions implemented to increase awareness of WM in Khayelitsha

| P Code | Responses from participants | Identified efforts done |
|--------|--|--|
| P1 | “Nothing” | No effort |
| P2 | “Nothing” | No effort |
| P3 | “Nothing” | No effort |
| P4 | “Dumping waste anywhere” | No effort |
| P5 | “Nothing” | No effort |
| P6 | “Nothing as yet because of the lockdown” | No effort |
| P7 | “There are green bins allocated near the shops for disposal” | inform the community about waste facilities at the shops |
| P8 | “Not much is done because community is still run by old people who don’t want us the youth to have an input” | No effort |
| P9 | “So far nothing has been done” | No effort |
| P10 | “Nothing much, WM is solemnly depending on the Garbage collection and community workers employed by the organisations” | No effort |
| P11 | “Quickly report burst pipes” | Quickly reporting to the municipality |
| P12 | “To create pages “ | Online awareness through social media platforms |
| P13 | “The community does the report to the street committees” | Report to community leadership |
| P14 | We call the councillors” | Quickly reporting to the municipality |

*P = Participant

ii) Recycling initiatives known by the youth in Khayelitsha

When asked specifically what forms of recycling are taking place in the community, 10 of the 14 participants indicated that they have some knowledge of recycling issues. The results in Table 4.11 show appreciation of the 3 R's, reduce, recycle and reuse, in respect of the WM of plastics, papers, bottles by the youth interviewed.

Table 4.11: Recycling activities known by the youth in Khayelitsha

| P Code | Responses from participants | Summary of responses |
|--------|---|------------------------|
| P1 | "The 3 R's and Glasses" | Recycle, reuse, reduce |
| P2 | "None" | No knowledge |
| P3 | "Bottles and cans" | Recycle, reuse |
| P4 | "I would make sure that, I get people to help me towards the recycling and try to collect all the waste and create something that would be useful. Doing this, can even give them an opportunity to get some income and platform to make some changes in our communities" | Reduce, reuse |
| P5 | "None" | No knowledge |
| P6 | "A friend of mine tried to open a cleaning company here in the township but it wasn't a success due to commuters not willing to pay" | Reduce, reuse |
| P7 | "Not that i know of in my community" | No knowledge |
| P8 | "Put recycling bins at all informal settlements create a task team that will be responsible for its waste in their area to minimise unemployment, creative initiatives that will teach the community about recycling so they can acquire a skill and earn a living at the same time". | Recycling |
| P9 | "Bottle recycling, Paper recycling, Mshengu recycling is what I know. I will try to make them understand the importance of keeping the community clean and also give out enough disposal equipment like (plastic bags)" | Recycling, reduce |
| P10 | "None" | No knowledge |
| P11 | "Can recycling" | Recycling |
| P12 | "bottle and paper, plastic" | Reuse, recycling |
| P13 | "We only have people who collect waste such as paper and plastics for recycling sometimes" | Recycling |
| P14 | "Plastic bottles Cans" | Recycling Reuse |

*P = Participant

Some of the participants (P4, P8, & P9) mentioned recycling initiatives that can be put in place to ease the waste problem and also create employment at the same time. For example, P8 highlighted that there could be employment prospects of distributing bins and educating the community about recycling: "Put recycling bins at all informal settlements create a task team that will be responsible for its waste in their area to minimise unemployment, creative initiatives that will teach the community about recycling so they can acquire a skill and earn a living at the same time" (Appendix K). P4 emphasised a community action-oriented approach and highlighted the potential of using WM to create an alternative revenue stream for community members: "I would make sure that, I get people to help me towards the recycling and try to collect all the waste and create something that would be useful. Doing this, can even give them an opportunity to get some income and platform to make some changes in our communities" (Appendix K). P9 placed emphasis on raising social awareness and providing supplies as a way to combat waste in the community: "I will

try to make them understand the importance of keeping the community clean and also give out enough disposal equipment like (plastic bags)” (Appendix K).

Most participants (10 of 14) highlighted the different forms of waste disposal in the community with plastics, papers, cans and bottles reported as the main forms of waste in the Khayelitsha community. However, the use of the term *bottle* made it difficult to distinguish between plastic and glass bottle (Appendix K). “Collection of bottles for reuse one way of recycling waste” (P4, Appendix K). P9 made an actual reference to recycling places that do recycling: “Bottle recycling, paper recycling and Mshengu recycling” (Appendix K), thereby indicating some knowledge of recycling. P13 indicated that they sometimes see some people collecting waste material, but not regularly. For example, P13 noted: “We only have people who collect waste such as paper and plastics for recycling sometimes” (Appendix K).

4.5.1.5 Ideal WM examples

Participants were presented with an opportunity to describe the desired situation they envision for their community if WM was implemented effectively (Table 4.13). The following are some of the community responses they envisioned.

P2, P6, and P14 envisaged a scenario where waste is collected regularly. P2 desired a scenario where there is need for equality in the way the municipality collects waste in both affluent suburbs and the township communities because waste is collected regularly in suburbs: “We want waste collection to be done the same way it’s preserved in the suburbs”.

Others desired a scenario where the municipality can provide bigger waste facilities at shops or open spaces so that people can have designated areas of disposing waste, as provided by P3, P5, P7 and P11. For instance, P3 said: “If something recreational can be built or put in those open spaces and fields so that people don’t dump waste on them”. Other participants, including P1, P7 and P10 desired for a scenario where WM awareness is increased.

Table 4.12: Desired WM scenarios provided by the youth in Khayelitsha

| P Code | Responses from participants | Key finding on desired WM |
|--------|---|--|
| P1 | “The community should be made aware of recycling and WM” | Increased WM awareness |
| P2 | “We want waste collection to be done the same way it’s preserved in the suburbs” | Regular collection of waste |
| P3 | “If something recreational can be built or put in those open spaces and fields so that people don’t dump waste on them” | Provide bigger waste disposal facilities |
| P4 | “If there can be a way of collecting all the waste and be recycled into a place where, most of the people can use them” | Initiate more recycling programmes |
| P5 | “We use big containers to dispose waste” | Provide bigger waste disposal facilities |
| P6 | “At the moment the collection of waste is done once a week, it would be better if it was done at least twice a week” | Regular collection of waste |
| P7 | “WM awareness like a local meeting and the big steel waste bins for the informal settlements” | Increased WM awareness Provide bigger waste disposal facilities |

| P Code | Responses from participants | Key finding on desired WM |
|--------|--|--|
| P8 | "Recycling beams where waste trucks are unable to reach, employing community members who will clean their own community dump sites in assisting of the waste trucks that cannot reach certain areas in our informal settlements" | Improve accessibility of informal settlements by refuse trucks |
| P9 | "I don't know" | No knowledge |
| P10 | "A desired situation would be first run workshops on WM. Where the community will have recycling ports even in the houses to separate waste easily before collection. Encourage the recycling methods and compost manufacturing" | Increased WM awareness Initiate more recycling programmes |
| P11 | "Where the dump site is should put recycling bins and sections for type of waste" | Provide bigger waste disposal facilities |
| P12 | "Children are playing in a cloudy area where they can be affected by diseases" | No knowledge |
| P13 | "They should be a near or located recycling sites. So that they would be job creation" | Initiate more recycling programmes |
| P14 | "It is taken every Tuesday by a Disposal truck from the waste container" | Regular collection of waste |

*P = Participant

4.5.1.6 Ideas suggested on how the youth can be involved to solve the waste problem

Table 4.13 presents the ideas suggested by the participants on how to best involve the youths in solving the waste problem in Khayelitsha. Fifty per cent (50%) of the participants (7 of 14) suggested the creation of WM programmes to educate the youth and community on how to better manage waste in Khayelitsha. However, other participants (P4, P10 & P11) proffered for increased knowledge on WM among the youth that can open opportunities to employment. For instance, P4 said: "By teaching each other how to recycle and ideas of creating art out of the waste bottle and plastics that are being recycled" (Appendix L).

Two participants, P8 and P12, suggested a multi-stakeholder approach on the problem of WM. P8 provided that: "A joint venture between old community leaders, the counsellor and the youth to discuss ideas as to how we can all work together to minimise the problem we are facing and finding a way where all parties involved can benefit to minimise unemployment as well" (Appendix L).

Table 4.13: Ideas of the youth to solve the waste problem in Khayelitsha

| P Code | Responses from participants | Key category from ideas suggested |
|--------|---|---|
| P1 | "They should create awareness about WM" | Creation of WM awareness programmes |
| P2 | "By introducing paying WM workshops" | Creation of WM awareness programmes |
| P3 | "Be involved more be willing to recycle and help with the recycling and cleaning up those open spaces and fields and doing something positive to them like learning new skills or playing sports" | Creation of WM awareness programmes |
| P4 | "By teaching each other how to recycle and ideas of creating art out of the waste bottle and plastics that are being recycled" | Increase knowledge on WM |
| P5 | "By introducing WM workshops" | Creation of WM awareness programmes |
| P6 | "By conducting waste awareness" | Creation of WM awareness programmes |
| P7 | "We could assist in the word of mouth awareness of the importance of the right way to dispose of things" | Creation of WM awareness programmes |
| P8 | "A joint venture between old community leaders, the counsellor and the youth to discuss ideas as to how we can all work together to minimise the problem we are facing and finding a way where all parties involved can benefit to minimise unemployment as well" | Employ a multi-stakeholder approach to tackle the problem Create employment for the community youths |
| P9 | "I think the municipality must hire more youth or have volunteers to educate the community. Give out opportunities to the youth to voice out different options about WM" | Municipality must contract youths to do the work (employment creation) |
| P10 | "The youth can be workshopped on WM, Recycling, and Compost production. And youth can be championed to actually facilitate the WM in their streets and also be given a chance to have suggestions and opportunities to run the program" | Creation of WM awareness programmes Increase knowledge on WM |
| P11 | "Train the youth about the environment so they can spread the awareness to their homes" | Increase knowledge on WM |
| P12 | "Youth must participate in community group chat where they can address the problem of waste" | Employ a multi-stakeholder approach to tackle the problem |
| P13 | "They must collect cans and plastics" | Regular of refuse by the municipality |
| P14 | "By employing the youth to work on the WM" | Create employment for the community youths |

*P = Participant

4.5.1.7 Recommendations by the youth on solving the waste problem in Khayelitsha

Table 4.14 illustrates the recommendations of the participants on ways to solve the waste problem in Khayelitsha. It can be deduced that most of the recommendations relate to a) increased WM awareness/knowledge, b) initiating recycling programmes, and c) providing adequate waste disposal facilities.

Table 4.14: Recommendations by the youth on solving the waste problem in Khayelitsha

| P Code | Responses from participants | Key categories identified from recommendations |
|--------|--|--|
| P1 | "Create awareness about WM and teach them ways to manage the waste" | Increase WM awareness/ knowledge |
| P2 | "With proper tools and enough knowledge, I'd win the youth" | Increase WM awareness/ knowledge Provide adequate waste disposal facilities and resources |
| P3 | "Get youth to clean up the previous mentioned places and hold competitions sports allow people to put their stalls and sell their products there like a market type of thing" | Increase WM awareness/ knowledge |
| P4 | "I would make sure that, I get people to help me towards the recycling and try to collect all the waste and create something that would be useful. Doing this, can even give them an opportunity to get some income and platform to make some changes in our communities" | Initiate recycling programmes |
| P5 | "I will make people aware about WM and how to treat the environment" | Increase WM awareness/ knowledge |
| P6 | "I would increase a number of waste municipal workers. Make sure all households have dust bins. And collection would be done at least twice a week" | Provide adequate waste disposal facilities and resources |
| P7 | "Meet with the local municipality so we can assess the situation and ask if they can't make a landfill site or arrange for the different labelled bins for recyclable waste and non-recyclables and have a schedule to clear it so that it doesn't overflow. There should be big steel bins for waste" | Initiate recycling programmes Provide adequate waste disposal facilities and resources |
| P8 | "Put recycling beams at all informal settlements create a task team that will be responsible for its waste in their area to minimise unemployment, creative initiatives that will teach the community about recycling so they can acquire a skill and earn a living at the same time" | Initiate recycling programmes |
| P9 | "I will try to make them understand the importance of keeping the community clean and also give out enough disposal equipment like (plastic bags)" | Increase WM awareness/ knowledge Provide adequate waste disposal facilities and resources |
| P10 | "Outsource training and material to train interested individuals on WM. Engaging the community to voice out what challenges they have when it comes to WM in the households first. Gathering information on Recycling and Compost making" | Increase WM awareness/ knowledge Initiate recycling programmes |
| P11 | "Gather the youth in the community, train them so they can spread it at their homes to teach their parents" | Increase WM awareness/ knowledge |
| P12 | "I would employ people" | Initiate recycling programmes |
| P13 | "I would ask people to collect all the recycling things such as plastics and can bring the recycling place" | Initiate recycling programmes |
| P14 | "I would organise a group of youth in my age and form a group, write a story about how keen we are to solve the WM problem to the council leaders" | Increase WM awareness/ knowledge |

*P = Participant

a) Increase WM awareness/knowledge

Most of the participants (8 of 14) alluded to the need for more community education through various means. The identified methods of conducting awareness include workshops and targeted community sports programmes. One participant emphasised the need for the youth to be proactive and creative in how they address issues of WM in their communities, as P14 said: "I would organise a group of youth in my age and form a group, write a story about how keen we are to solve the WM problem to the council leaders" (Appendix M). P3 argued the importance of the youth to be more active in WM strategies in their communities. P3 furthermore mentioned the youth to be "involved more be willing to recycle and help with the

recycling and cleaning up those open spaces and fields and doing something positive to them like learning new skills or playing sports” (Appendix M). To educate communities about WM, participants highlighted the need to embark on awareness campaigns, as P7 stated: “We could assist in the word-of-mouth awareness of the importance of the right way to dispose of things” (Appendix M). P11 emphasised the importance of educating the youth so that information dissemination happens through them and can infiltrate their communities: “Gather the youth in the community, train them so they can spread it at their homes to teach their parents”. P10 also highlighted that the youth should be the centre of all efforts to educate the community on WM: “Outsource training and material to train interested individuals on WM. Engaging the community to voice out what challenges they have when it comes to WM in the households first” (Appendix M).

b) Initiate recycling programmes

In an effort to address WM issues in their communities, 6 of the 14 participants recommended the initiation of recycling programmes. According to the participants (P4, P7, P8, P10, P12 & P13), this will help reduce the waste problem and also create employment opportunities for the youth in the community. P4 recommended: “I would make sure that, I get people to help me towards the recycling and try to collect all the waste and create something that would be useful. Doing this, can even give them an opportunity to get some income and platform to make some changes in our communities” (Appendix M). P7 recommended an engagement with the municipality to find possible areas that can be used for waste disposal or arrange for labelled dustbins to avoid waste everywhere: “Meet with the local municipality so we can assess the situation and ask if they can’t make a landfill site or arrange for the different labelled bins for recyclable waste and non-recyclables and have a schedule to clear it so that it doesn’t overflow” (Appendix M). Others such as P10 also had better ideas to recommend for reducing waste through recycling and compost/organic manure production: “Gathering information on recycling and compost production” (Appendix M).

c) Provide adequate waste disposal facilities

Only four of the fourteen (14) responsible participants (P2, P6, P7 & P9) in this study recommended that the community should be provided with adequate waste disposal facilities to alleviate the problems and health risks that can emanate from the waste problems. For instance, P6 recommended that: “I would increase a number of waste municipal workers. Make sure all households have dust bins. And collection would be done at least twice a week” (Appendix M). This submission touches on issues of adequate waste disposal resources such as big steel bins and demarcated areas for disposing waste where waste can be collected regularly. In addition, P7 also added that “there is need to engage the

municipality for a landfill site or arrange for the different labelled bins for recyclable waste and non-recyclables and have a schedule to clear it so that it doesn't overflow. There should be big steel waste bins for the informal settlements" (Appendix M). On the same note, P9 also suggested that the people should be given waste disposal bags for use in their home as per the following quote: "Give out enough disposal equipment like (plastic bags)" (Appendix M).

4.5.2 The photo data collection

From the waste images (Figures 4.10–4.15) it is evident that no sorting or recycling are taking place and that most of the dumping are on open spaces and the streets are fairly clean. This section is presented as follows: i) map of where most of the dumping was found; ii) identification of various WM plans and practices in the area; iii) ineffective technologies and equipment; and iii) summary.

4.5.2.1 Map of where most of the waste was dumped in Khayelitsha

There are 12 identified hotspot dumping sites in Khayelitsha. Figure 4.9 represents a map where the illegal dumping sites are allocated in Khayelitsha.

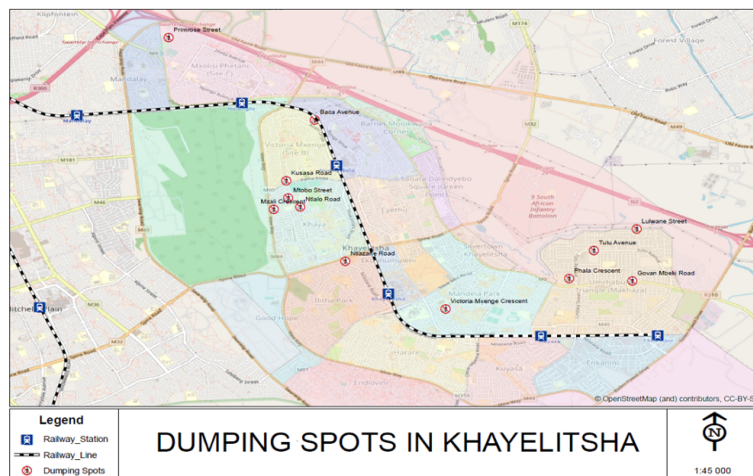


Figure 4.9: Dumping sites in Khayelitsha (🚫 = dump site)

Figures 4.10, 4.11 and 4.12 are examples of illegal dumping in Khayelitsha.



Figure 4.10: Example of an unofficial dumping site in Khayelitsha



Figure 4.11: Example of an unofficial dumping site in Khayelitsha



Figure 4.12: Example of an unofficial dumping site in Khayelitsha

4.5.2.2 Identification of various waste practices in the area

The informal settlements in Khayelitsha are located in areas that are densely populated and without any municipal services. The government is faced with a significant dilemma and responsibility to manage the excessive amounts of waste in these types of settlements. The study area is characterised by scattered waste and illegal waste heaps as shown below (Figures 4.12 and Figure 4.13).



Figure 4.13: Scattered dumping of waste in Khayelitsha



Figure 4.14: Example of more scattered dumping of waste in Khayelitsha

The residents do not have access to municipal waste wheelie bins and use blue bags for storing their waste (Figure 4.15). However, these bags fill up in a matter of days, which is the reason why excess waste can be seen in the surrounding environment in Khayelitsha.



Figure 4.15: City of Cape Town branded blue refuse plastic bags used for waste collection in Khayelitsha

Residents are also throwing glass into the bags, hence the bags are torn. The issue with these plastic bags is that they are not durable and are vulnerable to scavenger dogs searching for food. In the absence of municipal waste wheelie bins, residents of Khayelitsha resort to incineration and illegal dumping as modes of managing their waste, hence the photo shows dumping on open spaces.

4.5.2.3 Ineffective technologies and equipment

Another factor that could be at play in the limited service coverage and operational inefficiencies previously mentioned is the use of ineffective technologies and equipment. Many sources of waste may only be accessed by roads or alleys in a study of SWM in the developing world, and these may be too wide, congested, or elevated for some modes of transportation.

Open dumps are the most popular mode of disposal. The failure of local authorities to supply municipal waste bins to informal settlements derails the participation of these communities in sustainable WM. All the participants in the study emphasised their willingness to play their part in the minimisation of waste in the area. The current system of waste collection does not function effectively and that as a result, many residents resort to dumping their waste or taking it to the large storage containers (provided by the government for use by contractors) themselves.



Figure 4.16: Plastics bags are torn by glass being disposed into the bags

Another issue in Khayelitsha seems to be that some residents are careless when it comes to the management of their waste. Community members in the study area dispose of their waste into the surrounding environment via open dumping.



Figure 4.17: Open dumping is a health and safety risk to the Khayelitsha community

Dumping is considered to be a serious issue in Khayelitsha. A field observation and images provided by the youngsters revealed that there is waste on the sidewalks and in open public areas. Households have a propensity to maintain their surroundings, but they pay little attention to public spaces. This is seen by the large percentage of responders who sweep their yard debris into the street or place litter in plastic bags and discard it in public open spaces. Dumping involves costs in terms of the economy, society, and safety, so this needs to be addressed from an individual standpoint.

The dumping degrades the neighbourhood's aesthetic appeal, which has an impact on the community's quality of life and economic health because people and businesses avoid settling in unsightly regions. The community's health and safety are also at stake from dumping. Because there is no sense of "ownership" among the locals, these open public places are frequently neglected while being widely accessible. When open communal spaces are neglected and locals lack a sense of shared ownership over them, the areas are vulnerable to being used for illegal rubbish disposal.

As massive machinery is used to plow the soil and ground where the dumpsite is located, in addition to the evident bad aesthetic effects of illegal dumpsites, the process of clearing and cleaning dumpsites can contribute to further degradation of the land. A part of the issue, according to Vaverková et al. (2019:2), is that when an illegal dumpsite is cleared, the specific landscape is left in its degraded form, making it even more unappealing. Further illegal dumping is probably going to happen if the landscape is thought to be unattractive.

4.5.2.4 Development of the themes from the photos

The photos as collected from the participants were analysed and 36 codes were identified. After re-coding and removing duplications, 34 codes were presented. These codes were then further analysed and 18 categories were identified. These categories then led to the five (5) themes presented in Table 4.15.

Table 4.15: The photo data collection coding

| Atlas.ti photo code (36) | Photo code cleaned (34) | Category (18) | Themes (5) |
|---------------------------------------|--------------------------------|--------------------------|----------------------------|
| Waste next to bag | Waste next to bag | Carelessness | Citizen involvement |
| No waste inside property only outside | No waste inside property | Waste ownership | |
| Blue waste bags | Bag with waste | | |
| Citizen put waste in bin | Citizen put waste in bin | | |
| Waste in bin | Waste placed in bin | | Community dynamics |
| Citizens walking | Citizens walking | Citizens | |
| Washing line | Washing line | Community components | |
| Community houses | Dwellings | | |
| Fence | Fence | | |
| Rubble | Rubble | | |
| Dwellings | Dwellings | Housing | |
| Shack | Shacks | | |
| Shacks | | | |
| Motor | Motor | Non-human element | |
| Cars | | | Environment |
| Dumped waste | Dumped waste | Citizens dumping | |
| Limited waste | Limited waste | | |
| Waste dumped on sidewalk | Waste dumped on sidewalk | | |
| Erosion | Erosion | Environmental protection | |
| Open spaces | Open space | Landscape | |
| Stream | Stream | | |
| Torn waste bag | Torn waste bag | Neglect | |
| Clean area | Clean area | Spaces | |
| Electronic waste | Electronic waste | Waste | |
| Open water drain hole | Open water drain hole | Health and safety | Infrastructure |
| Portable toilets | Portable toilets | | |
| Dirty puddle | Dirty puddle | | |
| Water overflow | Water overflow | Neglect | |
| Waste bin | Waste bin | Community components | Waste management |
| Clean sidewalk | Clean sidewalk | Infrastructure | |
| Clean street | Clean street | | |
| Organic waste | Organic waste | Waste ownership | |
| Waste inside a container | Waste inside a container | Waste collection service | |
| Collected waste bags | Collected waste bins | | |
| Waste bag service | Waste bag service | | |
| Container | Waste container | | |

4.6 The themes developed

4.6.1 Themes developed from survey

The seven (7) main themes (Table 4.17) developed from the online questionnaire are: i) citizen involvement; ii) community dynamics; iii) environment; iv) factors contributing to waste management; v) infrastructure; vi) recommendations from participants; and vii) waste management.

Table 4.16 elaborates on the coding of the survey.

Table 4.16: The survey data collection coding

| P Code | IQ | Response spelling errors corrected | Nvivo survey cleaned up codes | Category | Theme |
|--------|----|---|--|----------------------------------|---------------------------------------|
| P13 | 3 | "harare °monwabisi park °kuyasa °enkanini °makhaza" | Dumping sites | Waste Hotspot areas | Environment |
| P10 | 9 | "A desired situation, would be first run workshops on Waste Management. Where the community will have recycling ports even in the houses to separate waste easily before collection. Encourage the recycling methods and compost manufacturing" | Recycling initiatives needed | Recycling suggestion | Citizens involvement |
| P6 | 7 | "A friend of mine tried to open a cleaning company here in the township but it wasn't a success due to commuters not willing to pay" | Lack of funding | Entrepreneurship barriers | Employment |
| P8 | 10 | "A joint venture between old community leaders, the counsellor and the youth to discuss ideas as to how we can all work together to minimise the problem we are facing and finding a way where all parties involved can benefit to minimise unemployment as well" | Collaborative waste management initiatives | Community collaboration | Citizens involvement |
| P6 | 5 | "Alcohol abuse. Shortage of dust bins Shortage of rest rooms in the informal areas" | Shortage of bins | Waste management issue | Factors contributing to waste problem |
| P6 | 6 | "Alcohol bottles. Especially near shebeens" | Used items littering | Dumping | Environment |
| P13 | 2 | "Also the street committee" | Street committee | Community | Citizens involvement |
| P6 | 9 | "At the moment the collection of waste is done once a week, it would be better if it was done at least twice a week" | Waste management need | Waste services | Waste management |
| P3 | 10 | "Be involved more be willing to recycle and help with the recycling and cleaning up those open spaces and fields and doing something positive to them like learning new skills or playing sports" | Involved youth | Training | Participants' recommendation |
| P2 | 8 | "Bins and plastic bags" | City of Cape Town services | Waste services | Waste management |
| P3 | 8 | "Bins are collected" | City of Cape Town services | Waste services | Waste management |
| P12 | 7 | "Bottle and paper, plastic" | Collection initiative | Recycling | Waste management |
| P4 | 6 | "Bottle and Plastics" | Used items littering | Littering | Environment |
| P9 | 7 | "Bottle recycling Paper recycling Mshengu recycling" | Collection initiative | Recycling | Waste management |
| P3 | 7 | "Bottles and cans" | Collection initiative | Recycling | Waste management |
| P11 | 6 | "Burst pipes and drains, full bins and people throwing off waste out on the road" | Waste on roads | Littering | Environment |
| P11 | 6 | "Burst pipes and drains, full bins and people throwing off waste out on the road" | Dump waste anywhere | Waste management factors | Waste management |
| P6 | 10 | "By conducting waste awareness" | Waste awareness campaign | Waste awareness | Participants' recommendation |
| P14 | 10 | "By employing the youth to work on the waste management" | Job creation | Job creation | Participants' recommendation |
| P2 | 10 | "By introducing paying waste management workshops" | Waste management workshops | Waste awareness | Participants' recommendation |
| P4 | 10 | "By teaching each other how to recycle and ideas of creating a art out of the waste bottle and plastics that are being recycled" | Create products from waste | Entrepreneurship opportunity | Participants' recommendation |
| P11 | 7 | "Can recycling" | Recycle bottles and cans | Recycling | Waste management |
| P2 | 6 | "Careless inconsiderate humans" | Careless citizens | Human behaviour | Factors contributing to waste problem |
| P12 | 9 | "Children are playing in a cloudy area where they can affected by diseases" | Possibility to catch diseases | Health issue | Environment |
| P4 | 1 | "City of Cape Town" | City of Cape Town | Municipal service delivery | Infrastructure |
| P4 | 7 | "Collection of bottles" | Collection initiative | Recycling | Waste management |
| P12 | 5 | "Community leader to address the problem of waste management" | Community leaders | Community leadership engagements | Community dynamics |
| P10 | 2 | "Community members, adults and children" | Citizens | Citizen responsibility | Citizens involvement |
| P4 | 2 | "Community People" | Citizens | Citizen responsibility | Citizens involvement |
| P14 | 6 | "Containers Plastics" | Containers | Waste services | Waste management |

| P Code | IQ | Response spelling errors corrected | Nvivo survey cleaned up codes | Category | Theme |
|--------|----|---|---|--|---------------------------------------|
| P14 | 2 | "Councillors" | Community leaders | Community leadership engagements | Community dynamics |
| P5 | 2 | "Councillors" | Community leaders | Community leadership engagements | Community dynamics |
| P1 | 11 | "Create awareness about Waste Management and teach them ways to manage the waste" | Waste awareness campaign | Waste awareness | Participants' recommendation |
| P5 | 3 | "Dam, open fields, park, roads and shacks" | Dumping sites | Waste Hotspot areas | Environment |
| P14 | 5 | "Diseases" | Diseases | Health issue | Environment |
| P14 | 8 | "Disposal Trucks" | City of Cape Town services | Waste services | Infrastructure |
| P11 | 3 | "Drains, informal settlements, toilets, community taps and pipes" | Dumping sites | Waste Hotspot areas | Environment |
| P3 | 5 | "Dumping waste everywhere and not doing anything to clean it up" | Dump waste anywhere | Human behaviour | Factors contributing to waste problem |
| P4 | 4 | "Dumping waste anywhere" | Dump waste anywhere | Waste management factors | Factors contributing to waste problem |
| P9 | 3 | "ENdlovini ENkanini Site B Site C And ENkadla" | Dumping sites | Waste Hotspot areas | Environment |
| P12 | 1 | "Expanded Public Works Programme" | Expanded Public Works Programme | National government job creation initiatives | Participants' recommendation |
| P14 | 1 | "Expanded Public Works Programme" | Expanded Public Works Programme | National government job creation initiatives | Participants' recommendation |
| P10 | 8 | "Every Tuesday the truck collects Dustbins" | City of Cape Town services | Waste services | Waste management |
| P11 | 11 | "Gather the youth in the community, train them so they can spread it at their homes to teach their parents" | Train youth as waste advocates | Waste awareness | Participants' recommendation |
| P3 | 11 | "Get youth to clean up the previous mentioned places and hold competitions sports allow people to put their stalls and sell their products there like a market type of thing" | Youth to be employed for waste management | Youth involvement | Participants' recommendation |
| P11 | 1 | "Government" | Government | Municipal service delivery | Infrastructure |
| P8 | 1 | "Government and community leaders" | Government and community | Community collaboration | Community dynamics |
| P8 | 5 | "High unemployment rate plays a huge role in the community" | Unemployment | Economic factors | Community dynamics |
| P9 | 1 | "I don't know" | No awareness | Lack of waste awareness | Factors contributing to waste problem |
| P9 | 9 | "I don't know" | No awareness | Lack of waste awareness | Factors contributing to waste problem |
| P9 | 10 | "I think the municipality must hire more youth or have volunteers to educate the community. Give out opportunities to the youth to voice out different options about waste management" | Waste awareness campaign | Job creation | Participants' recommendation |
| P5 | 11 | "I will make people aware about waste management and how to treat the environment" | Waste awareness campaign | Waste awareness and education | Participants' recommendation |
| P9 | 11 | "I will try to make them understand the importance of keeping the community clean and also give out enough disposal equipment like (plastic bags)" | Enough disposal equipment | Waste services | Participants' recommendation |
| P13 | 11 | "I would ask people to collect all the recycling things such as plastics and can bring the recycling place" | Recycling initiatives needed | Recycling suggestion | Participants' recommendation |
| P12 | 11 | "I would employ people" | Initiatives to address unemployment | job creation | Participants' recommendation |
| P6 | 11 | "I would increase a number of waste municipal workers. Make sure all households has dust bins. And collection would be done at least twice a week" | Increase municipality waste jobs | Job creation | Participants' recommendation |
| P4 | 11 | "I would make sure that, I get people to help me towards the recycling and try to collect all the waste and create something that would be useful. Doing this, can even give them an opportunity to get some income and platform to make some changes in our communities" | Recycling initiatives needed | Recycling suggestion | Waste management |

| P Code | IQ | Response spelling errors corrected | Nvivo survey cleaned up codes | Category | Theme |
|--------|----|--|--|----------------------------|---|
| P14 | 11 | "I would organise a group of youth in my age and form a group, write a story about how keen we are to solve the waste management problem to the council leaders" | Present waste management ideas to leadership | Community collaboration | Citizens involvement |
| P14 | 11 | "I would organise a group of youth in my age and form a group, write a story about how keen we are to solve the waste management problem to the council leaders" | Youth engagement | Youth involvement | Participants' recommendation |
| P3 | 9 | "If something recreational can be built or put in those open spaces and fields so that people don't dump waste on them" | Recreational spaces | Waste management issue | Waste management |
| P4 | 9 | "If there can be a way of collecting all the waste and be recycled into a place where, most of the people can use them" | Recycling initiatives needed | Recycling suggestion | Waste management |
| P13 | 8 | "It is collected by the municipality" | City of Cape Town services | Waste services | Waste management |
| P14 | 9 | "It is taken every Tuesday by a Disposal truck from the waste container" | Waste collection weekly | Waste services | Waste management |
| P6 | 8 | "Its supposed to be put in dust bins but people just leave it lying next to those bins rather" | Lack of responsibility | Human behaviour | Environment |
| P4 | 8 | "Khayelitsha is dirty and seen as a place where everyone can put a shack" | No waste service | Waste management issue | Waste management |
| P10 | 5 | "Lack of information, workshops to share knowledge" | Lack of information | Lack of waste awareness | Factors contributing to waste problem |
| P8 | 6 | "Littering the service waste truck not coming to collect waste is the main reason" | No waste service | Waste management issue | Factors contributing to waste problem |
| P7 | 11 | "Meet with the local municipality so we can assess the situation and ask if they can't make a landfill site or arrange for the different labelled bins. For recyclable waste and non-recyclables. And have a schedule to clear it so that it doesn't overflow" | Separate waste for recycling | Recycling suggestion | Participants' recommendation |
| P3 | 3 | "Mini dams after the rain has poured and leaves ponds The streets Pavements Fields Schools" | Dumping sites | Waste Hotspot areas | Environment |
| P12 | 6 | "More trucks that are assisting in collection on bins" | More trucks needed | Waste services | Participants' recommendation |
| P6 | 1 | "Municipalities" | Municipality | Municipal service delivery | Infrastructure |
| P12 | 3 | "Nkanini, harare, kuyasa, makhaza, Mandela part" | Dumping sites | Waste Hotspot areas | Environment |
| P5 | 6 | "Non arrival waste management truck" | No waste service | Waste management issue | Waste management |
| P12 | 8 | "None" | No awareness | Lack of waste awareness | Factors contributing to the waste problem |
| P2 | 7 | "None" | No awareness | Lack of waste awareness | Factors contributing to the waste problem |
| P5 | 5 | "None" | No awareness | Lack of waste awareness | Factors contributing to the waste problem |
| P5 | 7 | "None" | No awareness | Lack of waste awareness | Factors contributing to the waste problem |
| P2 | 1 | "None that I'm aware of" | No awareness | Lack of waste awareness | Factors contributing to the waste problem |
| P5 | 1 | "None that I'm aware of" | No awareness | Lack of waste awareness | Fors contributing to the waste problem |
| P10 | 7 | "None" | No awareness | Lack of waste awareness | Factors contributing to the waste problem |
| P9 | 5 | "Not having enough water and sanitation facilities" | Not enough water and sanitation | Waste management factors | Waste management |
| P8 | 4 | "Not much is done because community is still run by old people who don't want us the youth to have an input" | Youth no voice | Lack of youth involvement | Citizens involvement |
| P7 | 7 | "Not that i know of in my community" | No awareness | Lack of waste awareness | Factors contributing to the waste problem |

| P Code | IQ | Response spelling errors corrected | Nvivo survey cleaned up codes | Category | Theme |
|--------|----|---|-------------------------------|--------------------------|---|
| P1 | 4 | "Nothing" | No awareness | Lack of waste awareness | Factors contributing to the waste problem |
| P2 | 4 | "Nothing" | No awareness | Lack of waste awareness | Factors contributing to the waste problem |
| P2 | 5 | "Nothing" | No awareness | Lack of waste awareness | Factors contributing to the waste problem |
| P3 | 4 | "Nothing" | No awareness | Lack of waste awareness | Factors contributing to the waste problem |
| P5 | 4 | "Nothing" | No awareness | Lack of waste awareness | Factors contributing to the waste problem |
| P6 | 4 | "Nothing as yet because of the lockdown" | No awareness | Lack of waste awareness | Factors contributing to the waste problem |
| P6 | 4 | "Nothing as yet because of the lockdown" | No awareness | Lack of waste awareness | Factors contributing to the waste problem |
| P10 | 4 | "Nothing much, waste management is solemnly depending on the Garbage collection and community workers employed by the organisations" | Only current services | Waste management issue | Waste management |
| P2 | 3 | "Open fields Parks Dams Dump sites Pavements" | Dumping sites | Waste Hotspot areas | Environment |
| P10 | 3 | "Open places where people dump things at night, Containers where informal settlements dump their waste, drains where people dump stuff at night, open roads where people throw dirty water" | Dump waste anywhere | Waste Hotspot areas | Environment |
| P8 | 3 | "Open spaces that are not occupied by residents Public parks Sports fields New develops of informal settlements Old informal settlement areas" | Dumping sites | Waste Hotspot areas | Environment |
| P10 | 11 | "Outsource training and material to train interested individuals on Waste Management. Engaging the community to voice out what challenges the have when it comes to Waste management in the households first. Gathering information on Recycling and Compost" | Engage community | Community collaboration | Participants' recommendation |
| P8 | 7 | "Paper cycling, plastic recycling" | Recycle paper and plastics | Recycling | Waste management |
| P3 | 6 | "Papers and uncollected waste bins" | No waste service | Waste management issue | Waste management |
| P7 | 6 | "Papers from the small products sold at the shops.in the informal settlements littering anywhere where they see open space" | Used items littering | Types of waste | Environment |
| P11 | 2 | "People and the government" | Citizens | Citizen responsibility | Citizens involvement |
| P11 | 5 | "People not reporting incidents in time" | Not reporting problems | Human behaviour | Environment |
| P1 | 6 | "People who don't have dustbins" | No dustbins | Waste management issue | Waste management |
| P1 | 5 | "People who don't have dustbins and who are not well informed about waste management" | Uninformed citizens | Waste management issue | Waste management |
| P14 | 7 | "Plastic bottles Cans" | Recycle bottles and cans | Recycling | Waste management |
| P8 | 11 | "Put recycling beams at all informal settlements create a task team that will be responsible for its waste in their area to minimise unemployment, creative initiatives that will teach the community about recycling so they can acquire a skill and earn a living at the same time" | Recycling initiatives needed | Recycling suggestion | Participants' recommendation |
| P11 | 4 | "Quickly report burst pipes" | Problem reporting | Waste management factors | Waste management |
| P4 | 5 | "Recycling" | Recycling | lack of waste awareness | Waste management |

| P Code | IQ | Response spelling errors corrected | Nvivo survey cleaned up codes | Category | Theme |
|--------|----|--|-------------------------------|----------------------------------|---|
| P8 | 9 | "Recycling beams where waste trucks are unable to reach, employing community members who will clean their own community dump sites in assisting of the waste trucks that cannot reach certain areas in our informal settlements" | Citizen involvement needed | Citizen responsibility | Participants' recommendation |
| P10 | 1 | "Residents of the Community, community leaders and the City of Cape town that collect the dustbins" | Community Leaders | Community leadership engagements | Community dynamics |
| P6 | 2 | "Residents, especially youth" | Youth in community | Youth involvement | Citizens involvement |
| P9 | 6 | "Sanitation facilities and waste management" | Sanitation facilities | Waste management factors | Waste management |
| P6 | 3 | "Site B Khayelitsha, site c. Ndlovini informal settlement, Delft and Dunoon" | Dumping sites | Waste Hotspot areas | Environment |
| P1 | 3 | "SiteB Site C Nkanini Makhaza Ndlovini" | Dumping sites | Waste Hotspot areas | Environment |
| P9 | 4 | "So far nothing has been done" | No awareness | Lack of waste awareness | Factors contributing to the waste problem |
| P12 | 2 | "Street committee" | Street committee | Citizen responsibility | Citizens involvement |
| P13 | 1 | "Street committees" | Street committee | Community | Citizens involvement |
| P1 | 7 | "The 3 R's and Glasses" | Collection initiative | Recycling | Waste management |
| P7 | 4 | "There are green bins allocated near the shops for disposal" | Waste clean-up | Infrastructure | Infrastructure |
| P3 | 2 | "The community" | Community | Citizen responsibility | Citizens involvement |
| P7 | 2 | "The community" | Community | Citizen responsibility | Citizens involvement |
| P3 | 1 | "The community as a whole" | Community | Community collaboration | Citizens involvement |
| P13 | 4 | "The community does the report to the street committees" | Community reporting | Community leadership feedback | Citizens involvement |
| P1 | 9 | "The community should be made aware of recycling and waste management" | Waste awareness campaign | Waste awareness | Participants' recommendation |
| P8 | 2 | "The counsellors elected by community members" | Community Leaders | Community leadership engagements | Community dynamics |
| P2 | 2 | "The district" | District | Municipal service delivery | Infrastructure |
| P7 | 8 | "The houses have the big bins. But informal settlements use bags and landfill system" | City of Cape Town services | Waste services | Waste management |
| P1 | 2 | "The Local municipality and some few community members" | Municipality | Municipal service delivery | Infrastructure |
| P1 | 2 | "The Local municipality and some few community members" | Municipality | Municipal service delivery | Infrastructure |
| P13 | 6 | "The main source of waste is the dustbins when they are not being collected by the municipality so the community end up throwing their waste within the houses so that could cause harm to the community" | No waste service | Waste management issue | Waste management |
| P1 | 1 | The Municipality | Municipality | Municipal service delivery | Infrastructure |
| P7 | 1 | "The Municipality" | Municipality | Municipal Service Delivery | Infrastructure |
| P9 | 2 | "The Municipality" | Municipality | Municipal service delivery | Infrastructure |
| P2 | 9 | "The same way it's preserved in the suburbs" | Underserved community | Economic factors | Environment |
| P7 | 3 | "The skwatta camps and the shops" | Dumping sites | Waste Hotspot areas | Environment |
| P13 | 5 | "The street committees report to the municipality" | Street committee | Community | Citizens involvement |
| P8 | 8 | "The waste truck comes once a week to come and collect waste, if it doesn't come people dispose of their waste in open fields" | City of Cape Town services | Waste services | Waste management |
| P10 | 10 | "The youth can be works shop on Waste Management, Recycling, Compost production. And youth can be championed to actually facilitate the Waste management in their streets and also be given a chance to have suggestions and opportunities to run the program" | Youth engagement | Youth involvement | Participants' recommendation |

| P Code | IQ | Response spelling errors corrected | Nvivo survey cleaned up codes | Category | Theme |
|--------|----|--|-------------------------------------|----------------------------------|--|
| P11 | 8 | "There is a dump site where everyone can throw their waste if it's full and also any other type waste can be thrown there" | Dumping sites | Dumping sites | Infrastructure |
| P13 | 10 | "They must collect cans and plastics" | Waste collection weekly | Waste services | Waste Education , Communication and Training |
| P13 | 9 | "They should be a near or located recycling sites. So that they would be job creation" | Recycling initiatives needed | Job creation | Employment |
| P1 | 10 | "They should create awareness about Waste Management" | Waste awareness campaign | Promotion and training | Participants recommendation |
| P1 | 8 | "They throw the waste anyway" | City of Cape Town services | Waste services | Waste management |
| P7 | 5 | "Those who are negligent and ignorant in the community" | Negligent and ignorant citizens | Human behaviour | Environment |
| P12 | 4 | "To create plagues like this  | Waste signage | Waste communication | Waste Education, Communication and Training |
| P4 | 3 | "Town2 Makhaza Nkanini Maccasser" | Dumping sites | Waste Hotspot Areas | Environment |
| P11 | 10 | "Train the youth about the environment so they can spread the awareness to their homes" | Waste awareness campaign | Waste awareness | Participants' recommendation |
| P14 | 3 | "Waste container Next to public toilets. Blocked drains Next to the road" | Dumping sites | Waste Hotspot areas | Environment |
| P7 | 9 | "Waste management awareness. Like a local meeting and the big steel waste bins for the informal settlements" | Waste awareness campaign | Waste awareness | Waste management |
| P10 | 6 | "Water, Meat stalls waste (Bones), genera household waste" | Used items | types of waste | Waste management |
| P5 | 8 | "We bins in our yards but some people don't make use of them" | Lack of responsibility | Human behaviour | Environment |
| P14 | 4 | "We call the Councillors" | Community reporting | Community leadership engagements | Citizens involvement |
| P7 | 10 | "We could assist in the word of mouth awareness of the importance of the right way to dispose of things" | Awareness initiatives | Waste awareness | Participants' recommendation |
| P9 | 8 | "We have members working for the municipality" | City of Cape Town services | Waste services | Waste management |
| P13 | 7 | "We only have people who collect recycling" | Collection initiative | Recycling | Waste management |
| P5 | 9 | "We use big containers to dispose waste" | Waste management initiative | Waste disposal | Waste management |
| P11 | 9 | "Where the dump site is should put recycling bins and sections for type of waste" | Recycling initiatives needed | Recycling suggestion | Waste management |
| P2 | 11 | "With proper tools and enough knowledge, I'd win the youth" | Youth expose to tools and knowledge | Youth involvement | Waste Education , Communication and Training |
| P12 | 10 | "Youth must participate in community group chat where they can address the problem of waste" | Youth engagement | Youth involvement | Participants' recommendation |

P = Participant; IQ = Interview question

Table 4.17 shows the themes linked to the research questions and research sub-questions of the survey.

Table 4.17: Themes, research questions and research sub-questions of the survey

| Theme | RQ and SRQ |
|---------------------------------------|--|
| Citizen involvement | RQ: What factors influence the youth's perceptions on waste management in an underserved community? SRQ 1.1: What is the social and community context as perceived by the youth in Khayelitsha? |
| Community dynamics | SRQ 1.1: What is the social and community context as perceived by the youth in Khayelitsha? |
| Environment | SRQ 1.3: What are the concerns of the youth about WM? |
| Factors contributing to waste problem | SRQ 1.3: What are the concerns of the youth about WM? |
| Infrastructure | SRQ 1.2: What are the factors affecting the perceptions of the youth of Khayelitsha on WM? |
| Participants' recommendation | SRQ 1.1: What is the social and community context as perceived by the youth in Khayelitsha? |
| Waste management | SRQ 1.3: What are the concerns of the youth about WM? |

*RQ-research question; SRQ-sub-research question

4.6.2 Themes developed from photovoicing themes

Table 4.18 provides the themes together with the research question and research sub-questions for the photovoicing.

Table 4.18: The themes aligned with the research questions and research sub-questions

| Theme | RQ & SRQ |
|---------------------|--|
| Citizen involvement | RQ: What factors influence the youth’s perceptions on waste management in an underserved community? SRQ 1.1: What is the social and community context as perceived by the youth in Khayelitsha? |
| Community dynamics | SRQ 1.1: What is the social and community context as perceived by the youth in Khayelitsha? |
| Infrastructure | SRQ 1.2: What are the factors affecting the perceptions of the youth of Khayelitsha on WM? |
| Environment | SRQ 1.3: What are the concerns of the youth about WM? |
| Waste management | SRQ 1.3: What are the concerns of the youth about WM? |

*RQ-research question; SRQ-sub-research question

4.6.3 The themes of the survey and photovoicing combined

Seven themes were identified from the survey and photo data (Table 4.19).

Table 4.19: The themes from the survey and photovoicing

| Themes |
|---------------------------------------|
| Citizen involvement |
| Community dynamics |
| Environment |
| Factors contributing to waste problem |
| Infrastructure |
| Participants recommendation |
| Waste management |

4.7 Summary of the findings

This study endeavoured to explore the factors influences the youth perceptions on WM in the Khayelitsha community.

4.7.1 Youth perceptions on WM

To ascertain the perceptions of the youths on WM and methods of waste disposal, the study found that:

- i) The community (residents and their leaders) and local government (City of Cape Town Municipality) are identified as the key stakeholders in WM. The theme *Citizen Involvement* is based on the research question. “What factors influence the youth’s perceptions on waste management in an underserved community?” Local governance is an arena that consists of a diversity of actors. Research participants were able to identify the key role players in Khayelitsha as the local community, Ward Councillors (community leaders), and the local government (the municipality). Community leaders are regarded as government representatives and serve as a conduit between the two. Effective public participation is urgently needed, according to the findings. The results of the study show that it is essential for bringing people closer to local government that they participate in decision-making processes.

Citizens' voices and concerns are heard by public leaders thanks to citizen participation. To ensure that public policies, programs, and projects are tailored to meet the actual needs of local communities as identified by the people themselves, participatory local government is necessary. Public involvement is essential for effective local government. The results also showed that there is a critical need for structures that support, strengthen, and encourage public participation in local governance.

- ii) These results revealed that the attitude of youth towards WM is still on the municipality offering the service without them having to assist. When society feels they are not a part of the system to a challenge like WM, there is always a risk of irresponsible WM. The societal perception that the municipality is their servant and must intervene to address the problems with needless waste that society has created makes indiscriminate waste disposal even worse.
- iii) The community members (residents including adults, youth and children) in Khayelitsha were found to be more concerned about the waste problem in the community.
- iv) The study found that waste in the community is being disposed of using dustbins, plastic bags and random open spaces and landfills. The research also identified WM behaviour within the informal business sector as negatively affecting proper WM. Indiscriminate dumping of waste in open areas were some of the negative WM practices observed. It has however been noted in this research that respondents stated reasons such as the municipality's waste disposal trucks irregularly collecting waste. In such cases where the municipality fails to collect as per the area's respective weekly timetables, the community resorts to dumping waste anywhere.
- v) The study furthermore found that a lack of information and knowledge on WM exacerbate the problem of poor WM. No evidence has been mentioned by the youth of WM awareness programmes offered by local authorities to educating the public on good WM.

4.7.2 Concerns of the youth about MSWM in Khayelitsha

The study also sought to explore the concerns of the youth in Khayelitsha on municipal solid waste management (MSWM), ascertain the main sources of waste, and identify the areas with significant waste problems. The following findings were established:

- i) The main factors found to be contributing to the waste problem in Khayelitsha include poor service delivery in the community, poor management, shortage of resources, lack of knowledge on WM, and ignorance.

- ii) The analysis also found that the main source of waste problems in the community was human behaviour in the form of carelessness as well as uncollected garbage from houses, shebeens and informal settlements where there is a lack of proper infrastructure.
- iii) The areas identified to have significant waste problems in the community include Town2, Makhaza, Nkanini and Macassar. In addition, open spaces such public parks, landfills, sports fields, dams, and pavements were also waste problem areas identified.

4.7.3 Youth actions to increase WM awareness

This study furthermore endeavoured to understand what the youth do to increase WM awareness in the community of Khayelitsha or to indicate the recycling initiatives they are aware of. The following findings were derived:

- i) Most of the youth (9 of 14) have done nothing about the issue of increasing awareness of WM in their community.
- ii) Participants (5 of 14) were doing some awareness initiatives in the community by reporting waste problems to the municipality using social media platforms, and by word of mouth among their peers in the community.

4.7.4 Recommendations on how to improve WM

The study sought to establish practical solutions on how to solve the waste problem in Khayelitsha. The following main recommendations were suggested:

- i) The municipality need to provide a better service delivery to the community, especially regular collection of waste (weekly).
- ii) Bigger waste disposal facilities in designated areas within the community need to be provided as an option to manage waste disposal.
- iii) Increase WM awareness/knowledge in the community.
- iv) Initiate recycling programmes for the community that can help with addressing unemployment as well.

4.8 Summary

The findings revealed that there is still much to be done to create WM awareness. WM knowledge in Khayelitsha is inadequate. Infrastructure is needed to create an enabling environment for sustainable WM. While some of the participants emphasised the need for community awareness related to WM, they stressed that community action can only place alongside the provision of resources needed to implement WM. Structural issues such as insufficient resources and poor service delivery are an impediment to the effective implementation of WM. Having identified the current waste practice of the people of

Khayelitsha and uncovered the youth's perception on WM, one can conclude that the lack of waste awareness in Khayelitsha influences the way waste is being managed in the household.

CHAPTER 5: DISCUSSION

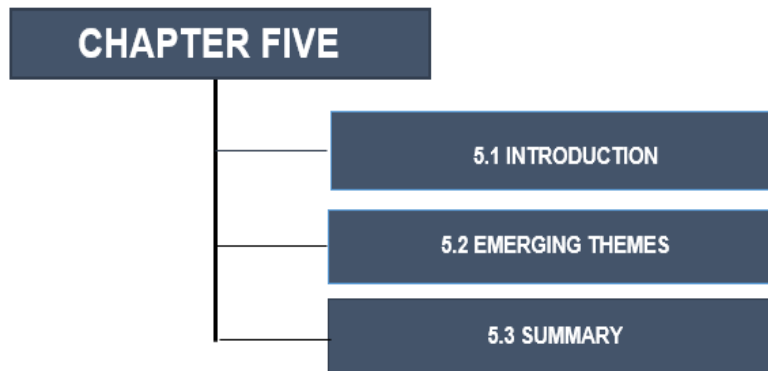


Figure 5.1: Layout of Chapter 5

5.1 Introduction

Saldana (2013) offers an in-depth account of thematic processes utilised in qualitative research. Ultimately, analysis steered to the emergence of five core themes recounting the phenomenon of interest in response to the research questions and objectives alluded to in the first chapter.

5.2 Emerging themes

The following themes, aligned to the research questions, emerged from the research: i) citizen's involvement; ii) community involvement; iii) infrastructure; iv) environment; v) waste and management.

5.2.1 Theme 1: Citizen's involvement linked to RQ 1: SRQ 1.1

It is shown that the youth have a lower than anticipated perception of their need to protect the environment. The majority of the young people who took part in this study think that the City of Cape Town and their community leaders have the primary duty of protecting their environment. Therefore, considerable environmental management awareness-building is required to improve young people's perceptions of managing their environment. Availability of information and WM awareness programmes are extremely important to change human attitudes towards WM. Most waste behaviours may be attributed to a lack of knowledge. It seems that there is a lack of alignment between the residents, private sector, informal business owners and the local authorities. Adding to this misalignment is the youth's perception that these organisations are responsible for WM and that they as the youth do not share in the responsibility. The youth must be seen as an important role-player contributing to the WM problem, but also having the ability to contribute towards the solutions. The misalignment is not only the authorities' issue but includes the citizens. Citizens also include the youth.

A major factor in the involvement of all citizens is that of knowledge on WM issues. This is where local authorities can play an important role in educating the citizen. As Muzenda (2013) argues, government's environmental campaigns can change behaviour and attitude of communities towards WM and need to align with WM programmes.

5.2.2 Theme 2: Community Dynamics linked to SRQ 1.1

A variety of stakeholders, including municipalities, decision-makers, and technical supporters, must be taken into account for SWM systems to be effective (Diaz & Otoma, 2012). Instead of resource scarcity, climate change, or public health, community participation including young participation and dynamics in developing nations are considered as beneficial drivers of SWM in this regard (Diaz & Otoma, 2012). Understanding community dynamics is essential for successful SWM. The four elements listed below have an impact on involvement, according to the 2013–2014 Planact Report (Planact, 2019:4).

- i) **Power relations:** It is necessary to close the gap in power between those with information and wealth. Many authorities do not want to relinquish control of actions or interventions because they are afraid of losing control. Communities may support factions that compete for control and influence, and they may forbid adolescents from making decisions on the grounds that adults always know best.
- ii) **Trust:** Maintaining high ethical standards is crucial because moral lapses breed mistrust among neighbour's. Although the youth, community, and authorities do not need to be equally skilled, they do need to be committed to one another and have trust for one another. The only way to establish and sustain trust is via ethical behaviour.
- iii) **Flexibility:** The requirements of communities and authorities should be accommodated in a flexible manner. Greater responsiveness to demands is closely correlated with greater flexibility.
- iv) **Decision making:** Youth and the community must have the right and opportunity to participate in genuine decision-making for participation to be truly democratic.

In terms of providing reliable fundamental services, municipalities are the closest to communities. In our democracy, the government has largely reduced residents to becoming passive recipients of its aid, even if many are still waiting for these services to be provided (Scherbruck, 2020:1) This increases the burden on local government to carry out developmental duties. To improve the quality of life for residents within the authority of the municipality, local government should not attempt to carry out this duty alone. Instead, it should draw on the great resources of knowledge and experience held by external stakeholders. This means the municipality needs to understand the community dynamics and

must work together with the citizens (youth and community) of Khayelitsha in order to fulfil its developmental mandate. The inputs of the people with their diverse skills, knowledge and energy must be coordinated in the process and consolidated by the officials in municipalities.

The empowerment of the youth within communities is necessary to maximize youth involvement. Power is made available through the process of empowerment so that it can be exploited to get immediate access to resources. For development and active participation in decisions affecting those resources, access to those resources is crucial. People can only have an impact on decisions that affect their way of life through meaningful engagement. Youth can serve as the "connective tissue" in government institutions, decision-making processes, and public dialogues to link immediate needs to long-term goals, create more equitable and inclusive policy outcomes, and strengthen societal resilience (Organisation for Economic Co-operation and Development, 2018). Therefore, efforts should be made to strengthen public institutions' resilience and anti-fragility while also empowering the youth.

The role of capacity building becomes crucial in the context of community dynamics. Building people's capacity entails giving them more power to start, steer, and manage the social change process in which they are engaged. Through active involvement in WM, the young of Khayelitsha might be inspired to take the reins of their own change processes. Building youth capability could lead to the establishment of a milieu where the kids are actors rather than only recipients of change.

5.2.3 Theme 3: Infrastructure linked to SRQ 1.2

Communities are breaking down municipal infrastructure in an attempt to get the attention of their councillors to attend to their grievances in terms of service delivery challenges. Many of these grievances are a result of the ill management and/or non-maintenance of infrastructure, and the consequence thereof is that access to basic services remains elusive for many communities (Sosibo, 2014). Many municipalities in South Africa find it difficult and sometimes impossible to follow the constitutional mandate of delivering sustainable basic services because of their inability to manage their assets effectively and thereby mitigating risks. Schermbrucker (2020:1) opines that for development and growth of communities to take place, we first have to fix our municipalities.

The subject of responsibility for dumping was one of the issues that kept coming up during the survey process. The findings make it evident that there are two opposing points of view on the subject of accountability. The youth believe that by removing illegal dumping and ensuring effective waste collection and disposal services, local authorities can keep Khayelitsha clean. Others believe that community members are not honouring their obligation to maintain a clean environment and adhere to the laws and regulations imposed by the local government.

This study highlighted the challenges that come with the delay in waste collection in Khayelitsha and the policy implications therein, using theoretical standpoints of the Welfarist theory as well as the qualitative research design as primary method of data collection. According to the findings, open dumps are the most viable solid waste disposal option in the research area. Because of the lack of infrastructure that makes it impossible for the municipal vehicle to enter and collect waste, open dumping will continue to be the most generally used method of waste disposal. According to the South African National Sanitation Policy (South African Government, 2016), Black South Africans in particular have traditionally been subjected to severe socioeconomic challenges, which have made it nearly impossible for these areas' ecosystems to flourish. If there are no other ways to manage waste from which people can benefit without incurring costs, the State is accountable through its local municipalities to collect and redistribute refuse bags, according to the South African National Sanitation Policy. This is in line with the welfare theory, which calls for the wellbeing of all citizens, including young, in a nation. According to the modernization theory, poor people in developing nations like South Africa depend on the government to provide basic services. In order to implement the Bill of Rights provisions of the South African Constitution, the government must assume responsibility for collecting the generated litter from its citizens. This is one approach to demonstrate that the government is aware that people generate litter (1996).

All areas of Khayelitsha have different levels of service delivery needs. Inadequate infrastructure and a high density of housing make it difficult for refuse collection vehicles to maneuver through informal settlements. As a result, to make up for it, these neighbourhoods need more frequent waste collection and thorough street cleaning. According to Kodua and Anaman (2020), inadequate waste collection is hampered by residential congestion and community design. Furthermore, according to Garg and Mashilwane (2015), backyard dwellings in townships increase the amount of waste that households create, which exceeds the capacity of a single household waste container.

An important contribution to public health and the aesthetics of towns and cities is the collection of MSW. However, a growing population has put tremendous strain on basic utilities and infrastructure, leaving vast areas without access to public services. Waste increases along with the population. With an increase in living standards and the significance of choosing the right type of WM system for an urban area, consumption patterns also change (Grazhdani, 2016). Rapid urbanization in South Africa's largest cities, such Cape Town in the Western Cape province, is to blame for the expanding environmental problem (City of Cape Town, 2016b; 2017). The issues with municipal waste management and other worldwide environmental issues are not unique to the City of Cape Town.

Climate change, waste and pollution, resource depletion, and biodiversity loss are just a few of the major environmental issues facing Cape Town at the moment. Urban environmental issues should be viewed as a threat to both the current and the future well-being of people because they arise from or are experienced in urban areas due to human-induced environmental harm (City of Cape Town, 2014:25). Many of the limitations and inefficiencies seen in WM have been largely caused by the primarily technologically driven character of WM systems, without proper social, ecological, and economic considerations. The infrastructure of WM systems in underdeveloped nations is found to be challenged by financial limits, insufficient service coverage and operational inefficiencies, ineffective technologies and equipment, poor landfill disposal, and limited use of recycling activities.

Gaps in service delivery are related to improper service management as well as the availability of infrastructure and funding. The conditions and requirements of the communities for which major interventions are performed must be taken into account. In order to successfully create sustainable WM systems, improvements to the WM system's infrastructure and technology must be complemented with community involvement, participation that includes the youth, as well as educational and awareness efforts.

5.2.4 Theme 4: Environment linked to SRQ 1.3

People continue to use environmentally harmful methods of disposing of solid waste in open public places including gutters, streets, rivers, and the sea despite the numerous studies on WM issues faced by nations and their effects on human health and the environment (Dladla et al., 2016). Such actions impose negative externalities that have a negative impact on society. An outbreak of diseases like bilharzia, cholera, diarrhoea, eye infections, guinea worm infections, malaria, and typhoid, for instance, occurs from the destruction of the environment's aesthetic qualities and people being exposed to bacteria and viruses.

The likelihood of dumping is increased by towns' low financial resources and the resulting difficulties in providing regular town cleaning and garbage collection services in rural and distant areas. The study's findings support the claim that waste collection and town cleanliness are inconsistent since participants reported having problems using municipal waste collection services.

P13 stated that “the main source of waste is the dustbin when they are not being collected by the municipality so the community end up throwing their waste within the houses so that could cause harm to the community” (Appendix N). P8 indicated that “the service waste truck not coming to collect waste is the main reason” (Appendix N).

The findings of this study support the notion that rural locations are more likely to have subpar WM facilities, poor infrastructure, and a glaring absence of treatment facilities, all of which contribute to littering and dumping as well as careless waste abandonment and

incorrect resource storage. Participants indicated that some ways in which the municipality could encourage households to keep the town clean would be to provide education on environmental clean-ups/recycling programmes, as well as awareness. P10 said: “The youth can be workshopped on waste management, recycling, and compost production. And youth can be championed to actually facilitate waste management in their streets and also be given a chance to have suggestions and opportunities to run the program” (Appendix N).

A considerable amount of sediment and silt, which contain crucial nutrients for the health and growth of aquatic plant life, are disrupted when river streams are cleared, which can be hazardous to aquatic habitats. Furthermore, according to Ma and Hipel (2016), contaminated inflows from rivers have been observed to significantly increase the amount of pollutants that are present in lakes and other water features within a watershed, which results in even more significant and pervasive ecological and sanitary issues. The management of waste is emphasized as a major risk to the communities' well-being because of swamps and environmentally sensitive water levels in and around Khayelitsha.

5.2.5 Theme 5: Waste Management linked to SRQ 1.3

The environmental involvement of students in a campus setting is crucial since they are youth and young adults and serve as the front line in the waste management movement. It has long been recognised that guaranteeing the sustainable utilisation and management of nature depends on comprehending and controlling the interactions between the natural world and humans. This is evident in the escalating environmental issues that the world is facing, which have raised concerns about how and how much humans are using natural resources. Environmental management that is responsible and thoughtful is crucial in promoting sustainable development due to the growing environmental issues that the globe is facing (Mikulčić et al., 2017:867).

In order to ensure better decision making, Kanu et al. (2018:8) describe public involvement as the process wherein an organization consults with people who are interested in and affected by a decision before making a decision. According to Saab et al. (2018:796), enabling people to engage in decision-making and gaining a better understanding of their actual needs and primary concerns are the key goals of public involvement. It is a fact that there are issues, such as average inadequate collection coverage because some fundamental locations are inaccessible to vehicles.

The youth have indicated that Khayelitsha residents do not care when dumping the solid waste, and have less education and knowledge of the process of dumping solid waste. The poor perception among the youth and residents on the process and systems of solid waste is a major contributing factor to the waste problem in Khayelitsha.

This study brought to light a variety of issues with the (alleged) dumping community's general awareness, attitudes, and beliefs. To further understand these difficulties and incorporate them into the strategies for decreasing dumping, more investigation and analysis are needed.

The research questions and aim of the study are answered in Chapter 6, section 6.4.

5.3 Summary

This chapter discussed the five themes developed from the data collected and analysis from 14 participants on the challenges of the delivery of one of the basic services, i.e., the collection of solid waste, and their perceptions on WM.

The participants noted a number of difficulties with SWM, or the collection of waste, in Khayelitsha, including: a lack of communication between the municipality and the community regarding issues; insufficient infrastructure; and a lack of public awareness. The youth also mentioned a lack of waste education and awareness, insufficient oversight, and limited resources as obstacles to collecting waste in Khayelitsha.

The findings reveal that the usage of open dumps is the most viable option of solid waste disposal in the study area. Open dumping will continue to be the most widely adopted technique of disposing waste by most towns in Khayelitsha due to its inadequate infrastructure, which makes it difficult for the municipal truck to collect the solid waste.

CHAPTER 6: CONCLUSION AND RECOMMENDATIONS

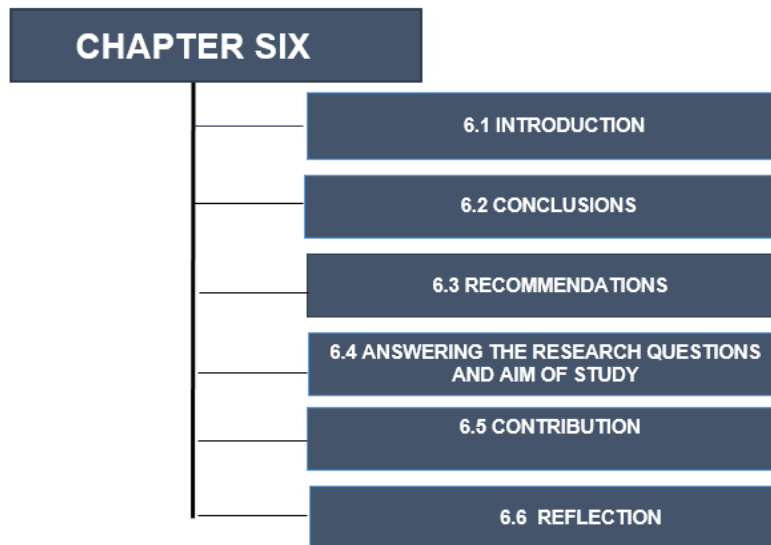


Figure 6.1: Layout of Chapter 6

6.1 Introduction

According to the Republic of South Africa's 1996 Constitution, the democratic government has kept its pledge to South Africans to provide waste collection as a fundamental right. Sanitation is a human right, according to the WHO and UNICEF (2020), and the literature adds that everyone has a right to sanitation services that offer privacy, uphold dignity and safety, are physically accessible, and are reasonably priced. According to the welfareist theory, poor sanitation impacts people's health and is therefore still a welfare concern. It is a provision that should also help to heal the divisions that existed in the past when some ethnic groups were held in substandard conditions while others enjoyed better living conditions.

Improper waste management (WM) can be a health hazard. Most communities do not consider WM a priority. Based on the results of this study, it is clear that the current WM system, equipment and vehicle conditions as well as the absence of waste minimisation and education programmes and the lack of infrastructure lead to inadequate WM practices (Appendix F).

According to Dlamini et al. (2019), if appropriate policy and regulations are not properly implemented, waste generators like kids, residents, or entities may select the least expensive option. This alternative is typically illegal waste disposal, such as dumping on unused land or even in river channels.

The successful approach to promoting waste minimisation is through proper education, awareness among the youth and public participation programmes. Public participation helps improve community health and reduces the financial investment of institutions in solid waste management programmes (Yeboah-Assiamah et al., 2017). If waste minimisation is made a priority in the community, substantial youth job opportunities should be created and the air space at landfill sites should increase. Along with the programmes of separation or recyclable waste, programmes of environmental education need to be created so that the activities of separation, re-utilisation and recycling may acquire a deeper meaning for the individual (Ojeda-Benitez et al., 2003).

The prevention of disease and resource conservation are the responsibilities of every government, and waste collection and disposal play a critical part in the global cleanliness and sustainability movement. Numerous privately-managed organizations also participate in these waste management and recycling programs, which relieves the burden on government authorities. Khayelitsha's natural beauty may be preserved via proper WM by the youth and residents, as well as regular waste collection by the municipality. Khayelitsha's natural beauty is harmed by careless waste disposal, littering, and illegal dumping. Dumping waste defaces landscapes, and tourist destinations may lose their appeal. It is also a blight for people who live in locations where garbage collection and recycling are not properly and effectively managed. Future generations, including today's youth, have a right and a responsibility to preserve natural beauty for their benefit, and it is our duty to do it today.

6.2 Conclusion

Young people in Khayelitsha do not appear to be interested in waste management. As a result, they could be losing out on the many business opportunities that exist in this community, province or elsewhere in the country. They are also losing out on the benefits of entrepreneurship, such as income generation and improvement of standards of living, among others. If this is the case and it continues to persist, youth unemployment will keep increasing, and dumping and littering will continue. The findings reveal that there is still much to be done to create awareness related to WM. WM knowledge in Khayelitsha is inadequate. The research indicates that the youth should be seen as key agent of change towards a more sustainable future. In the case of Khayelitsha, they are not partaking in proper waste management. Khayelitsha youth should be further engaged and given a quality array of continuous learning to improve their knowledge on environmental problems such as poor waste management. Improved knowledge could contribute to improved environmental awareness and a pro-environmental attitude. The study also indicates that the perception of the youth as residents of Khayelitsha greatly mediates between delivery of public services and their satisfaction. Efficient refuse removal service delivery leads to positive perception about service delivery, which increases the satisfaction level of the youth.

The research makes it clear that additional evaluation of Khayelitsha is needed to establish an all-encompassing understanding of their awareness, knowledge, and habits about waste and waste management. The results of this study cannot be applied to all youth living in townships throughout South Africa, which is one of its drawbacks. A longer study could be undertaken in the future to include a broader participant pool. It is possible to extend the study to compare and contrast data from Khayelitsha with that from other townships. This study examined the awareness, attitudes, and waste management practices of a sample of the youth living in Khayelitsha in an effort to build a baseline of descriptive information on their preconceptions, ideas, and beliefs.

Although the attitude of the youth was not directly addressed in the ambit of this study, a number of responses obtained from the questionnaire delivered interesting qualitative results. The youth do not display a positive attitude towards waste management to protect the environment. For as long as the municipality cannot supply municipal garbage bins (Black Wheelie Bins) for the residents in these locations, efforts to control waste in the informal settlements will remain fruitless. Managing waste in informal settlements appears to be a serious difficulty for municipalities across the nation. The South African government must intensify efforts if it is serious about addressing problems with waste management and illicit dumping in these unofficial regions. The residents of informal settlements have not been exposed to adequate waste management, which is another important factor that appears to be aggravating the issue. As a result, informal settlements are characterised by unsustainable waste management practices and uncontrolled waste mounds. The problem of illegal dumping may be caused by the Khayelitsha community's dissatisfaction and a lack of suitable waste disposal practices on the part of the people.

The youth is witnessing their own people in Khayelitsha engaging in illegal dumping without concern for repercussions. The local government must educate local youth and residents on environmental issues and encourage recycling among its residents. Ward council members must also be educated people in order for them to be aware of their surroundings. A solid educational foundation will also guarantee that ward councillors are competent decision-makers with perspectives on important topics like waste management. The 3Rs, also known as reduce, reuse, and recycle, offer environmentally beneficial ways to lessen the adverse effects of rising waste levels on the environment. The notion of managing garbage as high up in the waste hierarchy as feasible is one of the fundamental philosophies essential for sustainable waste management. Additionally, encouraging a culture of reusing objects for different purposes is crucial for waste management and can encourage youth entrepreneurship. One can conclude that residents of Khayelitsha perceive waste as a commodity that is destined for the landfill site since the majority of survey participants were not well educated about waste management.

Public participation is one of the fundamental principles of sustainable development where the general public, and especially the youth, get to voice their opinions on decisions that have an impact on their welfare. Whilst this research did not focus on entrepreneurship and the country's level of unemployment, it would be remiss if the researcher does not highlight that waste management can be seen as business model opportunity for the youth. Youth must actively participate in daily activities and rethink, refuse, reduce, and reuse garbage in order to improve waste management services. Any awareness campaign's success or failure will depend on their willingness to alter their behaviour and believe that they are helping to create resilient and sustainable communities. Any waste management intervention can only be successful with the support of the civil community. Every citizen, especially the young, should be fully aware of how important their support is for the shift to resilient, sustainable communities and the circular economy.

6.2.1 Citizens involvement

Citizens, and more specifically youth engagement, are a central principal of youth development. The youth are more than just passive recipients of outside influences; they are active participants in their own development. By connecting with the people and possibilities offered in their surroundings, they actively participate in influencing development. Communities can better provide the resources, opportunities, and support that young people need to develop in a healthy way by involving young people in the design process. Youth involvement gives local elders access to the knowledge and collaboration of young people, assisting adults in better understanding what it's like to grow up in a quickly changing environment. Engagement of young people is crucial from a political perspective because they must speak up for their own interests. Youth civic engagement is essential for educating young people to become engaged participants in democracies.

This study showed a lack of youth involvement in waste management. It also showed that one perception of the youth is that they are not responsible for WM, and that other role-players such as the private sector and local authorities need to do this.

6.2.2 Infrastructure Environment

Infrastructure plays a crucial role in waste management (Fan et al., 2019:442; Liu et al., 2016:13). If smart systems or other ways to track waste disposal are not used, waste facilities in high-density complexes with shared infrastructure are especially vulnerable to abuse. Communal waste systems are frequently more difficult to use and restricted by access and space in high density projects. Because there aren't enough bags provided and the waste cans are always full, the problem is made worse in Khayelitsha. When these systems are used improperly, it deters other residents from maintaining the facilities, and the secrecy connected with their use might contribute to further degradation.

Consideration should be given to population density for two reasons. First off, South Africa's population is not dispersed fairly. Second, compared to less populous places, densely populated areas often produce more waste (mostly general waste). As a result, waste collection and WM facilities are under more demand in densely inhabited areas than with less densely populated areas. The highest population densities are typically found in densely inhabited areas, as is the case in Philippi, Mitchells Plain, Khayelitsha, and the Site B, Site C, and TR Section sub-districts. The presence of informal settlements with the highest population densities is generally correlated with the most densely populated places.

6.3 Recommendations

The following recommendations are made from the results and themes developed:

- i) Regular waste awareness and education campaigns are needed to educate and inform Khayelitsha's youth about the importance of responsible waste disposal practices as well as the dangers of littering and illegal dumping and how they can affect all aspects of community life. According to the survey results, Khayelitsha has a lack of WM education and knowledge. Youth expressed a desire for educational materials on environmental responsibility and waste management.
- ii) WM campaigns should aim to change and overcome youth attitudes and perceptions about illegal dumping and environmental responsibility. All youth must be instilled with a sense of responsibility. In addition, educational approaches must emphasise the harm that improper WM and illegal dumps can cause in the community, particularly among Khayelitsha's youth. Residents may think twice about dumping waste again if the benevolent and compassionate side of people is appealed to.
- iii) A platform from which the youth can engage with municipal authorities on issues such as illegal dumping and regular waste collection appears to be a necessity, especially given the need for increased awareness. Residents have repeatedly expressed a desire for a forum to discuss issues in Khayelitsha and potential solutions with the municipality. One of the most pressing community needs was identified as a platform for community engagement and consultation with municipal officials.
- iv) The local authority should engage both the private sector and informal business operators by facilitating and hosting WM workshops for the youth.
- v) It is recommended that the City of Cape Town works towards implementing a Youth Policy aimed to empower the youth to achieve their full potential.
- vi) The City of Cape Town needs to engage with the youth, involving them in WM.
- vii) Increased environmental awareness is needed by both the government and the public to minimise environmental problems.

- viii) More education on ecological aspects of WM is needed to change the perceptions of the youth and decry unhealthy practices as open dumping.
- ix) Involve several stakeholders to improve system resilience.
- x) A culture of sustainable waste practices needs to be developed.
- xi) For sustainable WM the whole community, including the youth, should be involved in WM.
- xii) A focused educational and awareness programme to change the negative perceptions of the youth on WM should be developed and implemented.
- xiii) Provide signage that is multi-lingual (English and Xhosa) and easy to follow. Inductions should be provided for new residents to explain how waste management systems work. Information can be targeted and shared through different channels to suit different needs and ways of accessing information.
- xiv) Provide a system that encourages a sense of personal responsibility for correct segregation of waste and use of waste management service/infrastructure. This could include linking use of service to individuals or households via technology (e.g. smart bins) and/or monitoring (via CCTV and caretaking staff), providing building caretaker(s) with a clear waste management role, and engaging with residents to encourage good recycling behaviours.
- xv) For SWM efforts to be deemed successful, involvement and participation of the youth are necessary. As such, SWM can only be effective if key stakeholders are fully informed of the various activities and policies geared towards ridding the environment of solid wastes.
- xvi) SWM programmes need to be formulated and carried out by government agencies with significant youth participation.
- xvii) Public gatherings and committee meetings at neighbourhood levels to enable positive results realised through inclusive participation will promote consultations by securing a public commitment to supporting better service delivery. In this regard, inviting the public to be part of decision making ought to be one of the key performance indicators (KPIs) for SWM in Khayelitsha.
- xviii) Public awareness and education programmes for the youth need to be done in Xhosa.
- xix) Collection is the first step in WM, determining the future of the waste. Even though a waste service is observed to be available within Khayelitsha, delivery is often unreliable as evidenced by waste collected after many days, weeks, or months, or the

same collected too early or too late. Due to the conspicuous lapse in service provision, most communal receptacles and bags provided by the City of Cape Town were observed to overflow with waste due to an irregular collection.

- xx) The City should promote youth-led and youth-centred approaches where they engage youth and key community stakeholders throughout programme design and implementation to garner buy-in and strengthen the enabling environment.
- xxi) When PYD programming is influenced by the youth's own goals, aspirations, and interests, it is most effective. Focusing on youth-led activities instead of adult-led ones, such as peer mentoring and youth centres, can enable adolescents to take the lead in shaping their own and their peers' development and may increase program participation and attendance.
- xxii) Youth need to be catalysts of inclusive and resilient societies. Youth organisations need to be formed in Khayelitsha to be in a position to swiftly step in to disseminate information among their peers and help with waste minimisation by providing waste awareness to their peers and community in relation to the bad health effects of dumping and promoting recycling.
- xxiii) Government needs to partner with youth to help them participate in decisions affecting them and strengthening their ability to advance human rights and development issues such as health, waste awareness, education and employment.
- xxiv) Government needs to acknowledge that an inclusive response to and recovery from waste crises requires an integrated approach to public governance that anticipates the impact of response and recovery measures across different age cohorts. "Building better" requires decision makers to acknowledge generational divides and address them decisively to leave no one behind and recognise that youth play significant role.

6.4 Answering the research questions and aim of study

6.4.1 Research question 1

RQ1: What factors influence the youth's perceptions on waste management in an underserved community?

The youth's perceptions on WM in an underserved community are influenced by the following:

- i) Inadequately constructed, placed, and maintained communal bin stores.
- ii) Residents and businesses don't know what to recycle or how to use facilities, and they aren't given the necessary information.
- iii) Absence of personal accountability for garbage disposal in public waste locations.

- iv) Negligently run communal spaces that foster antisocial behaviour.
- v) A misalignment between the waste collection authority's strategies for waste collection and processing and the strategy used in developments, including the quantity and types of collections, disposal methods, and recycling methods

6.4.1.1 Research sub-question 1.1

SRQ 1.1: What is the social and community context as perceived by the youth in Khayelitsha?

Since participants perceived indiscriminate dumping of solid waste as a contributing factor, it can be inferred that there is some comprehension that dumping further augments the waste problem. The participants are likely to improve their waste disposal and management practices if they had proper resources and appropriate waste awareness and education. This lack of awareness ties into the social and community context. The youth perceives the waste awareness as a problem and blames a large part of it on the community's ignorance and the lack of the local authorities' leadership in solving the problem. From a social perspective, the youth identified a lack of a waste management culture as a challenge.

6.4.1.2 Research sub-question 1.2

SRQ 1.2: What are the factors affecting the perceptions of the youth of Khayelitsha on WM?

The factors affecting the perceptions of the youth in Khayelitsha on WM are:

- i) Lack of involvement
- ii) Absence of waste removal
- iii) Negligence by the community
- iv) Lack of waste disposal facilities
- v) Lack of knowledge on WM
- vi) Ineffective community leadership
- vii) Poor service delivery

6.4.1.3 Research sub-question 1.3

SQ1.3: What are the concerns of the youth about WM?

The concerns youth had about WM are as follows:

- i) Lack of waste facilities in homes

- ii) Human behaviour (negligence)
- iii) Poor service delivery collection of refuse by municipality
- iv) Lack of knowledge on WM and ignorance
- v) Shebeen's and informal settlements where there is a lack of proper infrastructure
- vi) Illegal dumping at Town2, Makhaza, Nkanini, and Macassar. In addition, open spaces such public parks, landfills, sports fields, dams, and pavements in Khayelitsha

6.4.2 Aim of study

The aim of the study was to explore the youth's attitudes and perception on WM in Khayelitsha, Cape Town, South Africa. The research fulfilled the aim of the study by showing the perceptions of the youth through the developed themes, namely: citizen involvement, community dynamics, infrastructure, environment and waste management.

6.5 Contribution

The general people in the area has a significant degree of ignorance and complacency regarding the severity of the issues brought on by inappropriate waste disposal. Although there are many obstacles to proper waste disposal and sanitation, such as a lack of public education, inadequate infrastructure, a lack of resources, and insufficient policies regarding waste disposal methods, there is still room for improvement if the youth begin to consider these issues at a young age and work toward solving this problem.

The results of a survey conducted through the eyes of young people in a large but understudied township community in the Western Cape are presented in this paper as a contribution to the ongoing conversation on sustainability in informal settlements. This is intended to serve as a foundation for understanding the traits and varied perspectives of the young people in this community and, in turn, serve as a guide for those in informal settlements. This study was designed to assess the discourse, add to the body of knowledge, and investigate how young people in Khayelitsha see solid waste management.

The youth's attitudes and behaviours toward the environment are influenced by their perceptions. Living in the Khayelitsha township can be a gateway to criminality because the youth's immediate environment is one of crime and violence, and it is simple for them to be invited to participate in it. This cycle of negativity corrupts youth before they are even old enough to make long-term decisions about their future.

Hence, this study aimed to learn about the current practices regarding solid waste management as steps to be taken to move the community closer to a circular economy and the youth to be the change agents within their community and to further take part in waste management ventures in a bid to address the persistent challenges of unemployment. The

study further emphasises leveraging youth action to promote sustainable urban waste management practices within communities in Khayelitsha

There is a clear need to understand what the youth themselves view as important about their environments, especially in the case of waste management. No known studies have been carried out to evaluate solid waste management perceptions of youth in Khayelitsha. This research makes a valuable contribution to improving solid waste management practices in the Khayelitsha area and to motivate commitment among the youth and residents. The study enabled the researcher to make recommendations that can assist Khayelitsha and the youth in minimising waste going to landfills and dumping within the community.

The perceived quality of life among the youth is highly connected with how well they believe they understand waste management. The engagement of the youth must involve control and exertion of influence over institutions and decisions that are intended to affect their well-being, rather than simply being there as human beings or as receivers of waste management initiatives. Youth is frequently viewed as a time of transition during which young people aspire to achieve the social milestones of adulthood, such as finding employment, beginning families, and being accepted as contributing members of society. Because youth unemployment in South Africa is so high, young people may feel anxious, hopeless, and overburdened and may not give other problems, including WM, any thought.

Together, these dampen and constrain young people's ability to envision, strive for and plan to meet opportunities today and into the future and for this reason the research is important to reiterate that the youth's perception matters, their voice and opinions count, and that we recognise them as the future leaders. Some of the youth knew that recycling helps with waste minimisation; however, most of them did not see the income opportunities of recycling waste. Through recycling and diverting waste, the youth can earn an income or even start and maintain a sustainable business.

Waste management is an important part of society. Recycling waste unlocks the value of refuse, creates jobs for youth, and boosts the local economy. The perception of Khayelitsha's youth are influenced by the transcending power of the broader social, economic, political and culture of the people of Khayelitsha. According to the findings of this study, the existing waste problem in Khayelitsha could be alleviated if waste collection is conducted twice a week and strong municipal waste plastic bags are provided to fit the various types of waste from households.

Despite the fact that waste should be collected in the mornings, the research indicates that just once a week is spent collecting it and that collection schedules are not properly observed. The conclusion that there is a lack of good communication among the key players (local government, contracted waste collection businesses, and the citizens) is seen as a

crucial element. Taking the solid waste to the street or to the gate on the wrong days for collection is one example that supports this claim. As a result, the neighbourhood is left with uncollected plastic bags full of waste that were left on the street or at the gate. It indicates that there is a lack of public awareness of the fundamentals guiding solid waste collection.

It means the public is not well informed of the working principles for the collection of solid waste. Whilst it could be concluded that the residential area of Khayelitsha requires a different approach to solid WM like recycling, there is no indication of a strategy to address the problem anytime soon. Khayelitsha does not have any personnel capacitated with environmental regulations in the area. The area clearly lacks aesthetic beauty, and the local government needs to stimulate local tourism in the township. This way, the residents will be encouraged to employ effective and proper approaches to solid WM and potentially have the area kept tidy and neat.

The Constitution of the Republic of South Africa (1996:9) upholds every resident's right to a clean and safe environment, which includes having garbage collected in a timely manner by sectors assigned with providing this service to people and their residential areas. This is one aspect of decency that arrived with democracy in South Africa as a new political bargain. Every person is entitled to an environment that does not jeopardise their health or well-being, according to the Constitution of the Republic of South Africa (1996:9). In the South African Sanitation Policy (South African Government, 2016), this condition is listed as the bare minimum of sanitation that is acceptable. The South African Sanitation Policy clearly states that appropriate health and hygiene awareness and behaviour are raised, that sanitation services should be provided at the lowest cost, that there must be an appropriate system for disposing of human excreta, and that the environment must be clean and safe for both humans and animals. This provision is listed as the least possible basic extent of sanitation acceptable under the policy.

6.6 Reflection

Waste management is a problem and something needs to be done right away. In addition to minimizing the amount of waste, good waste management is a solution that may be implemented as it grows daily. Environmental behaviour displayed by the community, particularly the youth, determines good and correct management. I was working at the Municipal Solid Waste Management Planning Branch within the Public Awareness, Communication and Education unit where we would do a lot of awareness and education at primary and high schools and within communities where elders were targeted around waste to business; however, this was never specifically targeted at the youth, yet they are our future leaders.

I was 28 when I enrolled for my Master's qualification. I am presently 31 years of age and still in my youth, and years later the research study remains relevant and there has been no significant visible change within Khayelitsha, which is my area of study. I engaged a colleague of mine that works within the waste operations who wishes to remain anonymous. He pointed to the fact that the Khayelitsha Township environment is threatened because of pollution caused by residents, and that this is not only affecting the environment but the residents' health as well.

I believe the transmission of knowledge or education to the youth concerning environmental issues is not adequate and the youth's current perceptions on waste management as well as their level of awareness should be determined so that environmentalists can better understand how this affects their intention and behaviour in recognising themselves as an important role-player able to contribute to change. Carrying out my intended qualitative research under lockdown presented some challenges. It affected the way I went about conducting research. I found myself becoming anxious that I may not graduate and I also had to suspend story telling design data collection and slightly re-design my methods to avoid physical contact as the safety of my participants and my family as well as my own well-being remained paramount. This pandemic is leading us all to reflect on how we do things. They say, "be the change you want to see in the world". I personally volunteered to join an organisation called HELP UP where I helped two residents from Makhaza Khayelitsha do a community clean-up campaign on a scorching hot Saturday morning. It was Covid-19 and all covid-19 protocols were observed. The park was fairly clean and filled with kids unattended on the swings; the further down I walked, I became overwhelmed by all the uncollected and/or illegally dumped soiled nappies, food waste, sand, gravel, paper, plastic packaging, and medical waste etc. that is contributing to several environmental implications (Appendix E).

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APPENDIX A: Ethical Clearance Certificate



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Symphony Road Bellville 7535


| | |
|--|--|
| Office of the Chairperson Research Ethics Committee | FACULTY: BUSINESS AND MANAGEMENT SCIENCES |
|--|--|

The Faculty's Research Ethics Committee (FREC) on **25 August 2020**, ethics **Approval** was granted to **Sumaya Abarder (209061243)** for a research activity for **M Tech: Business Administration** at Cape Peninsula University of Technology.

| | |
|---------------------------------------|--|
| Title of dissertation/thesis/project: | Perceptions of youth on waste management in Khayelitsha, Cape Town, South Africa Lead Supervisor (s): Dr Andre de la Harpe |
|---------------------------------------|--|

Comments:

Decision: APPROVED

| | |
|---|--------------------------|
|  Signed: Chairperson: Research Ethics Committee | 7 September 2020 Date |
|---|--------------------------|

APPENDIX B: Plagiarism Report

PERCEPTIONS OF YOUTH ON WASTE MANAGEMENT IN KHAYELITSHA, CAPE TOWN, SOUTH AFRICA

ORIGINALITY REPORT

21 %

SIMILARITY INDEX

19 %

INTERNET SOURCES

5 %

PUBLICATIONS

0 %

STUDENT PAPERS

MATCH ALL SOURCES (ONLY SELECTED SOURCE PRINTED)

5%

★ hdl.handle.net

Internet Source

APPENDIX C: Informed Consent Sample

Informed consent

1. Please enter your first name and surname if you understand what informed consent means as described below:

If you volunteer to participate in the study the following will be done:

- **Purpose of the study** - it is explained to you in the introduction part of this communication so that you are informed about what to expect
- **Contact researcher** - you are welcome to contact the researcher directly if there is anything that you would like to ask for more clarity
- **Your responses** - your response will be treated with full confidentiality and that, if published, it will not be identifiable as yours
- **Leaving out answers** - you may omit answering questions if you do not want to answer except in cases marked as compulsory because we need your input for that specific question
- **No risk** - the questions do not pose any realistic risk of distress or discomfort, either physically or psychologically, to you
- **Feedback** - we will provide you with feedback at the end of the research if requested
- **Voluntarily participation** - you will be free to withdraw your participation at any time without having to give a reason.

Your surname and first name:

2. Please enter your location

3. I understand the purpose of the research

4. I understand what the research requires of me

5. I volunteer to participate in the research

6. I know that I can withdraw at any time

7. I agree that my responses may be used, without any identifiable information, in academic publications

- voice recordings
- video recordings
- photos
- other designs or creations

8. I agree that my responses, without my identifiable information, may be posted on social media

- voice recording
- video recording
- photos
- designs or other creations

9. I agree that my creations may be used in exhibitions, identified as my creation

Thank you for your participation. We really appreciate your time.

APPENDIX D: Participant Informed Consent Evidence

| Participant code | Respondent ID | Collector ID | Start Date | End Date | IP Address | Surname & Name | Please enter your location | I understand the purpose of the research | I understand what the research requires of me |
|------------------|---------------|--------------|---------------------|---------------------|-----------------|---------------------|----------------------------|--|---|
| | | | | | | Open-Ended Response | Open-Ended Response | Response | Response |
| SP15 | 11770139649 | 261480334 | 2020-07-08 10:18:52 | 2020-07-08 10:20:59 | 197.229.2.4 | Veyi zintle | Khayelitsha | Yes | Yes |
| SP16 | 11770822539 | 261480334 | 2020-07-08 14:24:23 | 2020-07-08 14:27:39 | 41.13.246.123 | Ongezwa Funda | Khayelitsha | Yes | Yes |
| SP17 | 11758250826 | 261480334 | 2020-07-04 13:26:23 | 2020-07-04 13:29:32 | 197.185.115.123 | Mahuza Sivenathi | 33058 Makhulu Cr | Yes | Yes |
| SP18 | 11758254080 | 261480334 | 2020-07-04 13:31:09 | 2020-07-04 13:32:24 | 37.153.125.71 | Nontlahla Nanti | Khayelitsha | Yes | Yes |
| SP19 | 11756681405 | 261480334 | 2020-07-03 13:45:46 | 2020-07-03 13:48:56 | 197.229.2.233 | Matanga Nelisa | Makhaza Khayelits | Yes | Yes |
| SP20 | 11758294496 | 261480334 | 2020-07-04 14:06:07 | 2020-07-04 14:09:25 | 41.114.182.74 | Nozethu Bonyongo | Nkcukacha street | Yes | Yes |
| SP21 | 11758243657 | 261480334 | 2020-07-04 13:21:29 | 2020-07-04 13:22:51 | 41.114.182.74 | Pikoko Sonia | Faku Ntoyoi Street | Yes | Yes |
| SP22 | 11758221857 | 261480334 | 2020-07-04 13:01:42 | 2020-07-04 13:03:00 | 105.9.153.86 | Dlakavu Mthetheleli | Khayelitsha, Makh | Yes | Yes |
| SP23 | 11758270689 | 261480334 | 2020-07-04 13:46:32 | 2020-07-04 13:47:59 | 197.229.1.180 | Asanda moyake | Khayelitsha | Yes | Yes |
| SP26 | 11757127344 | 261480334 | 2020-07-03 17:01:53 | 2020-07-03 17:03:33 | 102.38.95.245 | Amanda Myali | Khayelitsha | Yes | Yes |
| SP27 | 11759265180 | 261480334 | 2020-07-05 07:49:31 | 2020-07-05 07:53:32 | 41.13.204.97 | Gcobani Mdaka | Khayelitsha Site B | Yes | Yes |
| SP28 | 11758612398 | 261480334 | 2020-07-04 18:27:31 | 2020-07-04 18:29:35 | 105.9.226.195 | Gantsa Nwabisa | Khayelitsha | Yes | Yes |
| SP29 | 11758299738 | 261480334 | 2020-07-04 14:11:50 | 2020-07-04 14:14:09 | 41.114.185.107 | Veyi Linathi | Harare | Yes | Yes |

| I volunteer to participate in the research | I know that I can withdraw at any time | I agree that my responses may be used, without any identifiable information, in academic publications | | | | I agree that my responses, without my identifiable information, may be posted on social media | | | | I agree that my creations may be used in exhibitions, identified as my creation |
|--|--|---|------------------|--------|----------------------------|---|-----------------|--------|----------------------------|---|
| Response | Response | voice recordings | video recordings | photos | other designs or creations | voice recording | video recording | photos | designs or other creations | Response |
| Yes | Yes | | | photos | | | | photos | | Yes |
| Yes | Yes | voice recordings | video recordings | photos | other designs or creations | voice recording | video recording | photos | designs or other creations | Yes |
| Yes | Yes | voice recordings | video recordings | photos | other designs or creations | voice recording | video recording | photos | designs or other creations | Yes |
| Yes | Yes | voice recordings | video recordings | photos | other designs or creations | voice recording | video recording | photos | designs or other creations | Yes |
| Yes | Yes | voice recordings | | | other designs or creations | voice recording | | | designs or other creations | Yes |
| Yes | Yes | voice recordings | | | | | | photos | | Yes |
| Yes | Yes | voice recordings | video recordings | photos | other designs or creations | voice recording | video recording | photos | designs or other creations | Yes |
| Yes | Yes | voice recordings | | photos | | voice recording | | photos | | Yes |
| Yes | Yes | voice recordings | video recordings | photos | other designs or creations | voice recording | video recording | photos | designs or other creations | Yes |
| Yes | Yes | | | photos | | | | photos | | Yes |
| Yes | Yes | voice recordings | video recordings | photos | other designs or creations | voice recording | video recording | photos | designs or other creations | Yes |
| Yes | Yes | voice recordings | video recordings | photos | other designs or creations | voice recording | video recording | photos | designs or other creations | Yes |
| Yes | Yes | | | photos | | | | photos | | Yes |

| | | | | | | | | | |
|------|-------------|-----------|---------------------|---------------------|----------------|--------------------|-------------------|-----|-----|
| SP31 | 11758772400 | 261480334 | 2020-07-04 20:50:21 | 2020-07-04 20:54:30 | 41.114.216.153 | Andisiwe Tsholwana | Khayelitsha | Yes | Yes |
| SP36 | 11758254361 | 261480334 | 2020-07-04 13:31:17 | 2020-07-04 13:32:41 | 41.114.199.53 | Ayanda Mazwi | Khayelitsha | Yes | Yes |
| SP37 | 11758722040 | 261480334 | 2020-07-04 20:05:38 | 2020-07-04 20:07:08 | 105.9.31.34 | Fuziswa Shuba | Khayelitsha | Yes | Yes |
| SP38 | 11758226605 | 261480334 | 2020-07-04 13:05:38 | 2020-07-04 13:07:11 | 41.13.204.159 | Mankqu Nosimphiwe | Khayelitsha | Yes | Yes |
| SP83 | 11758746711 | 261480334 | 2020-07-04 20:26:23 | 2020-07-04 20:29:34 | 105.9.211.137 | Luvuyo ngqwemla | Khayelitsha Mandl | Yes | Yes |
| SP84 | 11758793354 | 261480334 | 2020-07-04 21:14:19 | 2020-07-04 21:15:47 | 105.8.0.253 | Moyake Sinazo | Khayelitsha | Yes | Yes |

| | | | | | | | | | | |
|-----|-----|------------------|------------------|--------|----------------------------|-----------------|-----------------|--------|----------------------------|-----|
| Yes | Yes | voice recordings | video recordings | photos | other designs or creations | voice recording | video recording | photos | designs or other creations | Yes |
| Yes | Yes | voice recordings | video recordings | photos | other designs or creations | voice recording | video recording | photos | designs or other creations | Yes |
| Yes | Yes | voice recordings | video recordings | photos | other designs or creations | voice recording | video recording | photos | designs or other creations | Yes |
| Yes | Yes | voice recordings | video recordings | photos | other designs or creations | voice recording | video recording | photos | designs or other creations | Yes |
| Yes | Yes | voice recordings | | | | voice recording | | | | Yes |
| Yes | Yes | | | | other designs or creations | voice recording | | | | Yes |

APPENDIX E: Researcher Clean-Up Campaign in Khayelitsha Photos



PHOTO 1 & 2 : RESEARCHER PARTICIPATING IN WASTE CLEAN-UP WITHIN KHAYELITSHA DURING COVID-19 PANDEMIC



PHOTO 3 & 4: MEDICAL WASTE



PHOTO 5: HOUSEHOLD WASTE



PHOTO 6: BABY NAPPY AND HAIR WEAVE

PHOTO 7 : BUILDERS RUBBLE AND COVID-19 PPE

PHOTO 8: TIRES AND BOXES

APPENDIX F: Thesis Participants: Khayelitsha Youth

| Ni | Name | Area Reside | Age | Male | Female | Participant Whatsapp or sms consent | No longer intereste | Dedicated participant that is part of thesis chapter 4 |
|-----|-----------------------|-------------|-----------------------|------|--------|-------------------------------------|---------------------|--|
| 1. | Zintle Veyi | Khayelitsha | indicated 24 | | x | Yes | x | No |
| 2. | Ongezwa Funda | Khayelitsha | indicated youth 18-35 | | x | Yes | x | No |
| 3. | Sivenathi Mahuza | Khayelitsha | indicated 30 | | x | Yes | N/A | Yes |
| 4. | Nontlahla Nanti | Khayelitsha | indicated 24 | | x | Yes | N/A | Yes |
| 5. | Nelisa Matanga | Khayelitsha | indicated 25 | | x | Yes | N/A | Yes |
| 6. | Nozethu Bhonyongo | Khayelitsha | indicated youth 18-35 | | x | Yes | N/A | Yes |
| 7. | Sonia Pikoko | Khayelitsha | indicated youth 18-35 | | x | Yes | N/A | Yes |
| 8. | Mthetheli Dlakavu | Khayelitsha | indicated youth 18-35 | x | | Yes | N/A | Yes |
| 9. | Asanda Moyake | Khayelitsha | indicated youth 18-35 | | x | Yes | N/A | Yes |
| 10. | Palesa Adam | Khayelitsha | indicated youth 18-35 | | x | No | x | No |
| 11. | Asemahle Nophulula | Khayelitsha | indicated youth 18-35 | | x | No | x | No |
| 12. | Amanda Myali | Khayelitsha | indicated 34 | | x | Yes | N/A | Yes |
| 13. | Gcobani Mdaka | Khayelitsha | indicated 34 | x | | Yes | x | No |
| 14. | Nwabisa Sharon Gantsa | Khayelitsha | indicated youth 18-35 | | x | Yes | N/A | Yes |
| 15. | Linathi Veyi | Khayelitsha | indicated 26 | | x | Yes | N/A | Yes |
| 16. | Andisiwe Tsholwana | Khayelitsha | indicated 29 | | x | Yes | x | No |
| 17. | Ntuthuzelo Goqwana | Khayelitsha | indicated youth 18-35 | | x | Yes | N/A | Yes |
| 18. | Lukhanyo Tshotsho | Khayelitsha | indicated youth 18-35 | | x | Yes | x | No |
| 19. | Melissa Plaatjies | Khayelitsha | indicated youth 18-35 | | x | Yes | N/A | Yes |
| 20. | Esona Mahluli | Khayelitsha | indicated youth 18-35 | | x | Yes | x | No |
| 21. | Ayanda Mazwi | Khayelitsha | indicated youth 18-35 | | x | Yes | x | No |
| 22. | Fuziswa Shuba | Khayelitsha | indicated 24 | | x | Yes | N/A | Yes |
| 23. | Nosimphive Mankqu | Khayelitsha | indicated 32 | | x | Yes | N/A | Yes |
| 24. | Gcobani Mdaka wife | Khayelitsha | indicated youth 18-35 | | x | No | x | No |
| 25. | Siyanda Sopangisa | Khayelitsha | indicated 35 | x | | Yes | x | No |
| 26. | Sinazo Moyake | Khayelitsha | indicated 24 | | x | Yes | N/A | Yes |
| 27. | Luvuyo Ngqwemla | Khayelitsha | indicated 30 | x | | Yes | x | No |

APPENDIX G: Qualitative Online Questionnaire Survey

Demographics

Welcome to My Survey

Thank you for participating in our survey. Your feedback is important.

This information is for our youth research project.

Demographics

1. What is your nationality?

2. What is your country of birth?

3. Home - where do you currently live?

4. Is the place where you live your permanent residence?

5. Living arrangements: do you live alone or with someone? If you live with someone then with whom?

6. Gender: what gender do you identify with?

7. Age: how old are you?

8. Home language: what is your first/home language?

9. Language preference: what is your preferred language?

10. Responsibilities: do you have family responsibilities? Please elaborate, for example, are you married; look after parents or other people; look after your own children, etc.

11. Financial situation: how do you earn money to support yourself and others? Please also share the challenges you experience

12. Technology: please describe the technology you use in your daily life, for example, for what purpose?
What are you able to do with it? What features do your phone have?

13. Can you take photos with your phone?

- Yes
 No

14. Can you see pictures and photos on your phone?

- Yes
 No

15. Can you watch videos on your phone? Also videos on Youtube?

- I can watch videos on my phone
 I can watch Youtube videos
 I cannot watch videos on my phone
 I cannot see pictures or videos on my phone, but have access to someone else phone that I can use to watch videos

We would like to thank you for your participation. Your time is appreciated.

Waste Challenge

We are interested in your ideas about how waste can be managed better.

Activity 1: Please send five photos of waste examples in your community. Name the photos: Waste Photo1, etc.

1. Yes, I have sent my five Waste photos

Activity 2: Please send between one and three photos of examples where waste is properly managed in your community. Please name the photos: Waste Managed Photo 1, etc.

2. Yes, I have sent my Waste Managed photo(s)

Activity 3: Please design a poster with your waste management idea that you could use to propose your idea to the community waste authorities. Please name your poster: Waste Idea

3. Yes, I have sent my Waste Idea Poster

APPENDIX H: Atlas Photo and Code Report

(49 Page Atlas.ti report; hence only screenshot of page1 inserted)

ATLAS.ti Report

Waste management

Quotations grouped by Codes

Report created by Retha de la Harpe on Jan 18, 2021

o Bag with rubbish

1 Quotations:

8:1 Quotation 8:1

In Document:

8 Waste Photo 8 IMG-20200707-WA0024.jpg

Codings:

o Bag with rubbish

Content:



o Blue rubbish bags

1 Quotations:

14:3 Quotation 14:3

In Document:

14 Waste Photo 14 IMG-20200720-WA0008.jpg

Codings:

o Blue rubbish bags

Content:

APPENDIX I: Participant Responses to Processes of Waste Disposal in the Community

Name: Processes of waste disposal in the community

<Files\\Participant Code P1> - § 1 reference coded [1.79% Coverage]

Reference 1 - 1.79% Coverage

They throw the waste anyway

<Files\\Participant Code P2> - § 1 reference coded [1.58% Coverage]

Reference 1 - 1.58% Coverage

Bins and plastic bags

<Files\\Participant Code P3> - § 1 reference coded [1.01% Coverage]

Reference 1 - 1.01% Coverage

Bins are collected

<Files\\Participant Code P4> - § 1 reference coded [4.16% Coverage]

Reference 1 - 4.16% Coverage

Khayelitsha is dirty and seen as a place where everyone can put a shack.

<Files\\Participant Code P5> - § 1 reference coded [4.28% Coverage]

Reference 1 - 4.28% Coverage

We bins in our yards but some people don't make use of them

<Files\\Participant Code P6> - § 1 reference coded [5.35% Coverage]

Reference 1 - 5.35% Coverage

It's supposed to be put in dust bins but people just leave it lying next to those bins rather

<Files\\Participant Code P7> - § 1 reference coded [4.41% Coverage]

Reference 1 - 4.41% Coverage

The houses have the big bins. But informal settlements use bags and landfill system.

<Files\\Participant Code P8> - § 1 reference coded [5.16% Coverage]

Reference 1 - 5.16% Coverage

The waste truck comes once a week to come and collect waste, if it doesn't come people dispose of their waste in open fields

<Files\\Participant Code P9> - § 1 reference coded [2.65% Coverage]

Reference 1 - 2.65% Coverage

We have members working for the municipality

<Files\\Participant Code10> - § 1 reference coded [1.72% Coverage]

Reference 1 - 1.72% Coverage

Every Tuesday the truck collects Dustbins

<Files\\Participant Code11> - § 1 reference coded [7.13% Coverage]

Reference 1 - 7.13% Coverage

There is a dump site where everyone can throw their waste if it's full and also any other type waste can be thrown there

<Files\\Participant Code12> - § 1 reference coded [0.27% Coverage]

Reference 1 - 0.27% Coverage

None

<Files\\Participant Code13> - § 1 reference coded [2.07% Coverage]

Reference 1 - 2.07% Coverage

It is collected by the municipality.

<Files\\Participant Code14> - § 1 reference coded [1.00% Coverage]

Reference 1 - 1.00% Coverage

Disposal Trucks

APPENDIX J: Participant Responses to Contributors to the Waste Problem in the Community

Table 20: Factors contributing to waste problem in Khayelitsha

| Participant code | Response | Summarised Analysis |
|------------------|---|--|
| P1 | People who don't have dustbins and who are not well informed about waste management | Lack of waste facilities Lack of knowledge on waste management |
| P2 | Nothing | No comment |
| P3 | Dumping waste everywhere and not doing anything to clean it up | Negligence by community Municipality not collecting waste |
| P4 | Recycling | Recyclable materials |
| P5 | None | No comment |
| P6 | Alcohol abuse. Shortage of dust bins Shortage of rest rooms in the informal areas | Lack of waste facilities Poor sanitation in informal areas |
| P7 | Those who are negligent and ignorant in the community | Negligence by the community Lack of knowledge on waste management |
| P8 | High unemployment rate plays a huge role in the community | No relevant |
| P9 | Not having enough water and sanitation facilities | Poor sanitation in informal areas |
| P10 | Lack of information, workshops to share knowledge, | Lack of knowledge on waste management |
| P11 | People not reporting incidents in time | Lack of knowledge on waste management |
| P12 | Community leader to address the problem of waste management | Ineffective community leadership |
| P13 | The street committees report to the municipality | Ineffective community leadership |
| P14 | Diseases | Not relevant |

Table 21: What are the main sources of waste?

| Participant code | Response | Summarised Analysis |
|------------------|---|--|
| P1 | People who don't have dustbins | Lack of waste facilities in homes |
| P2 | Careless inconsiderate humans | Human behaviour (negligence) |
| P3 | Papers and uncollected waste bins | None collection of refuse by municipality |
| P4 | Bottle and Plastics | None collection of refuse by municipality |
| P5 | Non arrival waste management truck | None collection of refuse by municipality |
| P6 | Alcohol bottles. Especially near shebeens | Human behaviour (negligence) |
| P7 | Papers from the small products sold at the shops.in the informal settlements littering anywhere where they see open space | Human behaviour (negligence) |
| P8 | Littering the service waste truck not coming to collect waste is the main reason | None collection of refuse by municipality |
| P9 | Sanitation facilities and waste management | None collection of refuse by municipality Lack of waste facilities in homes |
| P10 | Water, Meat stalls waste (Bones), genera household waste | Human behaviour (negligence) |
| P11 | Burst pipes and drains, full bins and people throwing off waste out on the road | Human behaviour (negligence) None collection of refuse by municipality |
| P12 | More trucks that are assisting in collection on bins | None collection of refuse by municipality |
| P13 | The main source of waste are the dustbin when they are not being collect my the municipality so the community end up throwing their waste within the houses so that could cause harm to | None collection of refuse by municipality Human behaviour (negligence) |

| | | |
|-----|---------------------|------------------------------|
| | the community. | |
| P14 | Containers Plastics | Human behaviour (negligence) |

Table 22: In which areas is waste management a problem?

| Participant code | Response |
|------------------|--|
| P1 | SiteB Site C Nkanini Makhaza Ndlovini |
| P2 | Open fields Parks Dams Dump sites Pavements |
| P3 | Mini dams after the rain has poured and leaves ponds The streets Pavements Fields Schools |
| P4 | Town2, Makhaza, Nkanini, Maccasser |
| P5 | Dam, open fields, park, roads and shacks. |
| P6 | Site B khayelitsha, site c. Ndlovini informal settlement, Delft and Dunoon |
| P7 | The squatter camps and the shops. |
| P8 | Open spaces that are not occupied by residents Public parks Sports fields New developos of informal settlements Old informal settlement areas |
| P9 | ENdlovini ENkanini Site B Site C And ENkadla |
| P10 | Open places where people dump things at night, Containers where informal settlements dump their waste, drains where people dump stuff at night, open roads where people throw dirty water, |
| P11 | Drains, informal settlements, toilets, community taps and pipes |
| P12 | Nkanini, harare, kuyasa, makhaza, Mandela part |
| P13 | Harare, monwabisi park, kuyasa, enkanini, makhaza |
| P14 | Waste container Next to public toilets. Blocked drains Next to the road |

Table 23: Identified youth's efforts to increase awareness of waste management in Khayelitsha


| Participant code | Response | Identified efforts done |
|------------------|--|---|
| P1 | Nothing | No effort |
| P2 | Nothing | No effort |
| P3 | Nothing | No effort |
| P4 | Dumping waste anywhere | No effort |
| P5 | Nothing | No effort |
| P6 | Nothing as yet because of the lockdown | No effort |
| P7 | There are green bins allocated near the shops for disposal | Create awareness around the community about waste facilities at the shops |
| P8 | Not much is done because community is still run by old people who don't want us the youth to have an input | No effort |
| P9 | So far nothing has been done | No effort |
| P10 | Nothing much, waste management is solemnly depending on the Garbage collection and community workers employed by the organisations | No effort |
| P11 | Quickly report burst pipes, | Quickly reporting to the municipality |
| P12 | To create pages like this  | Online awareness through social media platforms |
| P13 | The community does the report to the street committees. | Report to community leadership |
| P14 | We call the councillors | Quickly reporting to the municipality |

Table 24: Recycling initiatives known by the youth in Khayelitsha

| Participant code | Response | Summary of Identified Initiatives |
|------------------|--|-----------------------------------|
| P1 | The 3 R's and Glasses | Recycle, reuse, reduce |
| P2 | None | No knowledge |
| P3 | Bottles and cans | Recycle, reuse |
| P4 | Collection of bottles | Reduce |
| P5 | None | No knowledge |
| P6 | A friend of mine tried to open a cleaning company here in the township but it wasn't a success due to commuters not willing to pay | Reuse |
| P7 | Not that i know of in my community | No knowledge |
| P8 | Paper cycling, plastic recycling | Recycling |
| P9 | Bottle recycling Paper recycling Mshengu recycling | Recycling |

| | | |
|-----|--|------------------|
| P10 | None, | No knowledge |
| P11 | Can recycling | Recycling |
| P12 | bottle and paper, plastic | Reuse, Recycling |
| P13 | We only have people who collect recycling. | Recycling |
| P14 | Plastic bottles Cans | Recycling Reuse |

Table 25: Suggest an idea on how the youth can be involved in solving the waste problem

| Participant code | Response | Summarised Ideas |
|------------------|---|---|
| P1 | They should create awareness about Waste Management | Creation of waste management awareness programmes |
| P2 | By introducing paying waste management workshops | Creation of waste management awareness programmes |
| P3 | Be involved more be willing to recycle and help with the recycling and cleaning up those open spaces and fields and doing something positive to them like learning new skills or playing sports | Creation of waste management awareness programmes |
| P4 | By teaching each other how to recycle and ideas of creating art out of the waste bottle and plastics that are being recycled. | Increase knowledge on waste management |
| P5 | By introducing waste management workshops | Creation of waste management awareness programmes |
| P6 | By conducting waste awareness | Creation of waste management awareness programmes |
| P7 | We could assist in the word of mouth awareness of the importance of the right way to dispose of things | Creation of waste management awareness programmes |
| P8 | A joint venture between old community leaders, the counsellor and the youth to discuss ideas as to how we can all work together to minimize the problem we are facing and finding a way where all parties involved can benefit to minimize unemployment as well | Employ a multi-stakeholder approach to tackle the problem Create employment for the community youths |
| P9 | I think the municipality must hire more youth or have volunteers to educate the community. Give out opportunities to the youth to voice out different options about waste management | Municipality must contract youths to do the work (employment creation) |
| P10 | The youth can be workshopped on Waste Management, Recycling, Compost production. And youth can be championed to actually facilitate the Waste management in their streets and also be given a chance to have suggestions and opportunities to run the program. | Creation of waste management awareness programmes Increase knowledge on waste management |
| P11 | Train the youth about the environment so they can spread the awareness to their homes | Increase knowledge on waste management |
| P12 | Youth must participate in community group chat where they can address the problem of waste | Employ a multi-stakeholder approach to tackle the problem |
| P13 | They must collect cans and plastics. | Regular of refuse by the municipality |
| P14 | By employing the youth to work on the waste management. | Create employment for the community youths |

Table 26: Ideal waste management examples

| Participant code | Response | Key concept |
|------------------|---|--|
| P1 | The community should be made aware of recycling And waste management | Increased waste management awareness |
| P2 | The same way it's preserved in the suburbs | Waste collection should be regular in the township similar to the affluent suburbs |
| P3 | If something recreational can be built or put in those open spaces and fields so that people don't dump waste on them | Erect infrastructure on all open spaces |

| | | |
|-----|---|--|
| P4 | If there can be a way of collecting all the waste and be recycled into a place where, most of the people can use them. | Initiate more recycling programmes |
| P5 | We use big containers to dispose waste. | Bigger waste facilities should be availed |
| P6 | At the moment the collection of waste is done once a week, it would be better if it was done at least twice a week. | Waste collection should be regular twice a week |
| P7 | Waste management awareness like a local meeting and the big steel waste bins for the informal settlements | Increased waste management awareness Bigger waste facilities should be availed |
| P8 | Recycling beams where waste trucks are unable to reach, employing community members who will clean their own community dump sites in assisting of the waste trucks that cannot reach certain areas in our informal settlements | Improve accessibility of informal settlements by refuse trucks |
| P9 | I don't know | No knowledge |
| P10 | A desired situation, would be first run workshops on Waste Management. Where the community will have recycling ports even in the houses to separate waste easily before collection. Encourage the recycling methods and compost manufacturing | Increased waste management awareness through sports activities Initiate more recycling programmes |
| P11 | Where the dump site is should put recycling bins and sections for type of waste | Bigger waste facilities should be availed |
| P12 | Children are playing in a cloudy area where they can be affected by diseases | No knowledge |
| P13 | They should be a near or located recycling sites. So that they would be job creation. | Initiate more recycling programmes |
| P14 | It is taken every Tuesday by a Disposal truck from the waste container | Waste collection should be regularly every week |

Table 27: Recommendations on solving the waste problem in Khayelitsha

| Participant code | Response | Summarised key points |
|-------------------------|---|--|
| P1 | Create awareness about Waste Management and teach them ways to manage the waste | Increase waste management awareness/knowledge |
| P2 | With proper tools and enough knowledge, I'd win the youth. | Increase waste management awareness/knowledge |
| P3 | Get youth to clean up the previous mentioned places and hold competitions sports allow people to put their stalls and sell their products there like a market type of thing | Increase waste management awareness through sport |
| P4 | I would make sure that, I get people to help me towards the recycling and try to collect all the waste and create something that would be useful. Doing this, can even give them an opportunity to get some income and platform to make some changes in our communities. | Initiate recycling initiatives |
| P5 | I will make people aware about waste management and how to treat the environment. | Increase waste management awareness/knowledge |
| P6 | I would increase a number of waste municipal workers. Make sure all households has dust bins. And collection would be done at least twice a week | Improve municipal resources for refuse collection Provide adequate waste facilities |
| P7 | Meet with the local municipality so we can assess the situation and ask if they cant make a landfill site or arrange for the different labelled bins. For recyclable waste and non recyclables.and have a schedule to clear it so that it doesn't overflow | Initiate recycling initiatives Regular collection of refuse by the municipality |
| P8 | Put recycling beams at all informal settlements create a task team that will be responsible for its waste in their area to minimize unemployment, creative initiatives that will teach the community about recycling so they can acquire a skill and earn a living at the same time | Initiate recycling initiatives |
| P9 | I will try to make them understand the importance of keeping the community clean and also give out enough disposal equipment like (plastic bags). | Increase waste management awareness/knowledge |
| P10 | Outsource training and material to train interested individuals on Waste Management. Engaging the community to voice out | Increase waste management awareness/knowledge |

| | | |
|-----|---|---|
| | what challenges they have when it comes to Waste management in the households first. Gathering information on Recycling and Compost | Initiate recycling initiatives Effective community participation on waste management |
| P11 | Gather the youth in the community, train them so they can spread it at their homes to teach their parents | Increase waste management awareness/knowledge |
| P12 | I would employ people | Initiate recycling programmes |
| P13 | I would ask people to collect all the recycling things such as plastics and can bring the recycling place. | Initiate recycling programmes |
| P14 | I would organise a group of youth in my age and form a group, write a story about how keen we are to solve the waste management problem to the council leaders. | Increase waste management awareness/knowledge |

Table 28: Identified methods of waste disposal in Khayelitsha

| Participant code | Response | Key themes |
|------------------|--|---|
| P1 | They throw the waste anyway | Dumping |
| P2 | Bins and plastic bags | Dustbins Plastic bags |
| P3 | Bins are collected | Dustbins |
| P4 | Khayelitsha is dirty and seen as a place where everyone can put a shack. | Waste disposing |
| P5 | We bins in our yards but some people don't make use of them | Dustbins |
| P6 | It's supposed to be put in dust bins but people just leave it lying next to those bins rather | Dumping |
| P7 | The houses have the big bins but informal settlements use bags and landfill system. | Dustbins Plastic bags |
| P8 | The waste truck comes once a week to come and collect waste, if it doesn't come people dispose of their waste in open fields | Dustbins Municipal dump truck Dumping |
| P9 | We have members working for the municipality | Dustbins Municipal dump truck |
| P10 | Every Tuesday the truck collects Dustbins | Dustbins Municipal dump truck |
| P11 | There is a dump site where everyone can throw their waste if it's full and also any other type waste can be thrown there | Dumping |
| P12 | None | No answer |
| P13 | It is collected by the municipality. | Dustbins Municipal dump truck |
| P14 | Disposal Trucks | Dustbins Municipal dump truck |

Table 29: Coding themes for analysis

| Participant code | Main themes | Sub-themes |
|------------------|--|--|
| | 1. Youth perceptions on waste management | - Stakeholders involved and concerned - Main methods of waste disposal |
| | 2. Concerns of the youth on MSWS | - Areas with the biggest waste problem - Factors contributing to waste problem - Main sources of waste |
| | 3. Actions on waste management awareness | - Knowledge of waste recycling initiatives - Efforts done to increase awareness of waste management |
| | 4. Recommendations proposed | - Desired situation for the community - Ideas on youth involvement - Possible ways of waste management |

APPENDIX K: Participant Responses to Recycling Activities Known by the Youth in Khayelitsha

Name: Waste recycling initiatives you know

<Files\\Participant Code P1> - § 1 reference coded [1.46% Coverage]

Reference 1 - 1.46% Coverage

The 3 R's and Glasses

<Files\\Participant Code P2> - § 1 reference coded [0.30% Coverage]

Reference 1 - 0.30% Coverage

None

<Files\\Participant Code P3> - § 1 reference coded [0.90% Coverage]

Reference 1 - 0.90% Coverage

Bottles and cans

<Files\\Participant Code P4> - § 1 reference coded [1.25% Coverage]

Reference 1 - 1.25% Coverage

Collection of bottles

<Files\\Participant Code P5> - § 1 reference coded [0.36% Coverage]

Reference 1 - 0.36% Coverage

None

<Files\\Participant Code P6> - § 1 reference coded [7.48% Coverage]

Reference 1 - 7.48% Coverage

A friend of mine tried to open a cleaning company here in the township but it wasn't a success due to commuters not willing to pay

<Files\\Participant Code P7> - § 1 reference coded [1.84% Coverage]

Reference 1 - 1.84% Coverage

Not that I know of in my community

<Files\\Participant Code P8> - § 1 reference coded [1.37% Coverage]

Reference 1 - 1.37% Coverage

Paper cycling, plastic recycling

<Files\\Participant Code P9> - § 1 reference coded [3.01% Coverage]

Reference 1 - 3.01% Coverage

Bottle recycling Paper recycling Mshengu recycling

<Files\\Participant Code10> - § 1 reference coded [0.21% Coverage]

Reference 1 - 0.21% Coverage

None,

<Files\\Participant Code11> - § 1 reference coded [0.77% Coverage]

Reference 1 - 0.77% Coverage

Can recycling

<Files\\Participant Code12> - § 1 reference coded [1.99% Coverage]

Reference 1 - 1.99% Coverage

bottle and and paper, plastic

<Files\\Participant Code13> - § 1 reference coded [2.36% Coverage]

Reference 1 - 2.36% Coverage

We only have people who collect recycling

<Files\\Participant Code14> - § 1 reference coded [1.34% Coverage]

Reference 1 - 1.34% Coverage

Plastic bottles Cans

APPENDIX L: Participant Responses to Suggestions on How the Youth Can Become Involved in Community Waste Management

Name: Suggestions on how the youth can become involved in the community waste management

<Files\\Participant Code P1> - § 1 reference coded [3.38% Coverage]

Reference 1 - 3.38% Coverage

They should create awareness about Waste Management

<Files\\Participant Code P2> - § 1 reference coded [3.61% Coverage]

Reference 1 - 3.61% Coverage

By introducing paying waste management workshops

<Files\\Participant Code P3> - § 1 reference coded [10.71% Coverage]

Reference 1 - 10.71% Coverage

Be involved more be willing to recycle and help with the recycling and cleaning up those open spaces and fields and doing something positive to them like learning new skills or playing sports

<Files\\Participant Code P4> - § 1 reference coded [7.29% Coverage]

Reference 1 - 7.29% Coverage

By teaching each other how to recycle and ideas of creating an art out of the waste bottle and plastics that are being recycled.

<Files\\Participant Code P5> - § 1 reference coded [2.97% Coverage]

Reference 1 - 2.97% Coverage

By introducing waste management workshops

<Files\\Participant Code P6> - § 1 reference coded [1.67% Coverage]

Reference 1 - 1.67% Coverage

By conducting waste awareness

<Files\\Participant Code P7> - § 1 reference coded [5.35% Coverage]

Reference 1 - 5.35% Coverage

We could assist in the word of mouth awareness of the importance of the right way to dispose of things

<Files\\Participant Code P8> - § 1 reference coded [10.60% Coverage]

Reference 1 - 10.60% Coverage

A joint venture between old community leaders, the counsellor and the youth to discuss ideas as to how we can all work together to minimize the problem we are facing and finding a way where all parties involved can benefit to minimize unemployment as well

<Files\\Participant Code P9> - § 1 reference coded [10.95% Coverage]

Reference 1 - 10.95% Coverage

I think the municipality must hire more youth or have volunteers to educate the community... Give out opportunities to the youth to voice out different options about waste management

<Files\\Participant Code10> - § 1 reference coded [10.65% Coverage]

Reference 1 - 10.65% Coverage

The youth can be workshopped on Waste Management, Recycling, Compost production. And youth can be championed to actually facilitate the Waste management in their streets and also be given a chance to have suggestions and opportunities to run the program.

<Files\\Participant Code11> - § 1 reference coded [5.05% Coverage]

Reference 1 - 5.05% Coverage

Train the youth about the environment so they can spread the awareness to their homes

<Files\\Participant Code12> - § 1 reference coded [6.17% Coverage]

Reference 1 - 6.17% Coverage

Youth must participate in community group chat where they can address the problem of waste

<Files\\Participant Code13> - § 1 reference coded [2.07% Coverage]

Reference 1 - 2.07% Coverage

They must collect cans and plastics.

<Files\\Participant Code14> - § 1 reference coded [3.68% Coverage]

Reference 1 - 3.68% Coverage

By employing the youth to work on the waste management.

APPENDIX M: Participant Responses Identifying Best Ways of Managing Waste in Your Community

Name: Identify best ways of managing waste in your community

<Files\\Participant Code P1> - § 1 reference coded [5.23% Coverage]

Reference 1 - 5.23% Coverage

Create awareness about Waste Management and teach them ways to manage the waste

<Files\\Participant Code P2> - § 1 reference coded [4.36% Coverage]

Reference 1 - 4.36% Coverage

With proper tools and enough knowledge, I'd win the youth.

<Files\\Participant Code P3> - § 1 reference coded [9.59% Coverage]

Reference 1 - 9.59% Coverage

Get youth to clean up the previous mentioned places and hold competitions sports allow people to put their stalls and sell their products there like a market type of thing

<Files\\Participant Code P4> - § 1 reference coded [15.04% Coverage]

Reference 1 - 15.04% Coverage

I would make sure that, I get people to help me towards the recycling and try to collect all the waste and create something that would be useful. Doing this, can even give them an opportunity to get some income and platform to make some changes in our communities.

<Files\\Participant Code P5> - § 1 reference coded [5.87% Coverage]

Reference 1 - 5.87% Coverage

I will make people aware about waste management and how to treat the environment.

<Files\\Participant Code P6> - § 1 reference coded [8.29% Coverage]

Reference 1 - 8.29% Coverage

I would increase a number of waste municipal workers. Make sure all households has dust bins. And collection would be done at least twice a week

<Files\\Participant Code P7> - § 1 reference coded [13.07% Coverage]

Reference 1 - 13.07% Coverage

Meet with the local municipality so we can assess the situation and ask if theycant make a landfill site or arrange for the different labeled bins. Fir recyclable waste and non-recyclables. And have a schedule to clear it so that it doesn't overflow

<Files\\Participant Code P8> - § 1 reference coded [11.43% Coverage]

Reference 1 - 11.43% Coverage

Put recycling beams at all informal settlements create a task team that will be responsible for its waste in their area to minimize unemployment, creative initiatives that will teach the community about recycling so they can acquire a skill and earn a living at the same time

<Files\\Participant Code P9> - § 1 reference coded [8.72% Coverage]

Reference 1 - 8.72% Coverage

I will try to make them understand the importance of keeping the community clean and also give out enough disposal equipment like (plastic bags).

<Files\\Participant Code10> - § 1 reference coded [10.53% Coverage]

Reference 1 - 10.53% Coverage

Outsource training and material to train interested individuals on Waste Management. Engaging the community to voice out what challenges they have when it comes to Waste management in the households first. Gathering information on Recycling and Compost

<Files\\Participant Code11> - § 1 reference coded [6.24% Coverage]

Reference 1 - 6.24% Coverage

Gather the youth in the community, train them so they can spread it at their homes to teach their parents

<Files\\Participant Code12> - § 1 reference coded [1.44% Coverage]

Reference 1 - 1.44% Coverage

I would employ people

<Files\\Participant Code13> - § 1 reference coded [6.15% Coverage]

Reference 1 - 6.15% Coverage

I would ask people to collect all the recycling things such as plastics and can bring the recycling place.

<File\\Participant Code14> - § 1 reference coded [10.65% Coverage]

Reference 1 - 10.65% Coverage

I would organise a group of youth in my age and form a group, write a story about how keen we are to solve the waste management problem to the council leaders.

APPENDIX N: Participant Responses to Main Sources of Waste in the Community

Name: Main sources of waste in the community

<Files\\Participant Code P1> - § 1 reference coded [1.99% Coverage]

Reference 1 - 1.99% Coverage

People who don't have dustbins

<Files\\Participant Code P2> - § 1 reference coded [2.18% Coverage]

Reference 1 - 2.18% Coverage

Careless inconsiderate humans

<Files\\Participant Code P3> - § 1 reference coded [1.96% Coverage]

Reference 1 - 1.96% Coverage

Papers and uncollected waste bins

<Files\\Participant Code P4> - § 1 reference coded [1.08% Coverage]

Reference 1 - 1.08% Coverage

Bottle and Plastics

<Files\\Participant Code P5> - § 1 reference coded [2.46% Coverage]

Reference 1 - 2.46% Coverage

Non arrival waste management truck

<Files\\Participant Code P6> - § 1 reference coded [2.42% Coverage]

Reference 1 - 2.42% Coverage

Alcohol bottles. Especially near shebeens.

<Files\\Participant Code P7> - § 1 reference coded [6.35% Coverage]

Reference 1 - 6.35% Coverage

Papers from the small products sold at the shops.in the informal settlements littering anywhere where they see open space

<Files\\Participant Code P8> - § 1 reference coded [3.33% Coverage]

Reference 1 - 3.33% Coverage

Littering the service waste truck not coming to collect waste is the main reason

<Files\\Participant Code P9> - § 1 reference coded [2.53% Coverage]

Reference 1 - 2.53% Coverage

Sanitation facilities and waste management

<Files\\Participant Code10> - § 1 reference coded [2.35% Coverage]

Reference 1 - 2.35% Coverage

Water, Meat stalls waste (Bones), genera household waste

<Files\\Participant Code11> - § 1 reference coded [4.69% Coverage]

Reference 1 - 4.69% Coverage

Burst pipes and drains, full bins and people throwing off waste out on the road

<Files\\Participant Code12> - § 1 reference coded [3.56% Coverage]

Reference 1 - 3.56% Coverage

More trucks that are assisting in collection on bins

<Files\\Participant Code13> - § 1 reference coded [11.49% Coverage]

Reference 1 - 11.49% Coverage

The main source of waste are the dustbin when they are not being collected by the municipality so the community end up throwing their waste within the houses so that could cause harm to the community.

<Files\\Participant Code14> - § 1 reference coded [1.27% Coverage]

Reference 1 - 1.27% Coverage

APPENDIX O: Nvivo Survey Raw Data Report

(Full excel report to lengthy to insert hence raw themes & categories summary inserted)

| Row Labels | Count of Code |
|---|---------------|
| Community involvement | 18 |
| Citizen responsibility | 7 |
| Community | 3 |
| Community collaboration | 4 |
| Lack of youth involvement | 1 |
| Recycling suggestion | 1 |
| Waste awareness & training | 1 |
| Youth involvement | 1 |
| Employment | 13 |
| Economic factors | 1 |
| Entrepreneurship barriers | 1 |
| Entrepreneurship opportunity | 3 |
| Job creation | 7 |
| Youth involvement | 1 |
| Environment | 30 |
| Economic factors | 1 |
| Health issue | 3 |
| Human behaviour | 6 |
| Littering | 2 |
| Pandemic lockdown | 1 |
| Social ill | 1 |
| types of waste | 2 |
| Waste Hotspot Areas | 14 |
| Government | 11 |
| City of Cape Town | 9 |
| Government | 2 |
| Leadership | 9 |
| Community collaboration | 2 |
| Community leadership Engagements | 6 |
| Community leadership feedback | 1 |
| Reduce , reuse , recycle | 10 |
| lack of waste awareness | 1 |
| Recycling | 9 |
| Waste Education , Communication and Training | 40 |
| Community collaboration | 1 |
| lack of waste awareness | 1 |
| No awareness | 17 |
| Promotion and training | 1 |
| Take no responsibility | 1 |
| Training | 2 |
| Waste Awareness | 11 |
| Waste communication | 1 |
| Waste services | 1 |
| Youth involvement | 4 |
| Waste management | 45 |
| Dumping sites | 1 |
| Infrastructure | 1 |
| National Government Job Creation Intitiatives | 2 |
| Recycling suggestion | 6 |
| types of waste | 1 |
| Waste Awareness | 1 |
| Waste disposal | 1 |
| Waste management factors | 7 |
| Waste management issue | 10 |
| Waste services | 15 |
| Grand Total | 176 |

APPENDIX P: Editing Certificate

25 October 2022

SUMAYA ABARDER

Faculty of Business and Management Sciences
Cape Peninsula University of Technology
District Six, Cape Town

CERTIFICATE - EDITING OF MASTER'S THESIS

I, the undersigned, herewith confirm that the editing of the Master's thesis of Sumaya Abarder, "PERCEPTIONS OF YOUTH ON WASTE MANAGEMENT IN KHAYELITSHA, CAPE TOWN, SOUTH AFRICA", has been conducted and concluded.

The finalised thesis was submitted to Sumaya Abarder and cc'd to Dr de la Harpe on 25 October 2022.

Sincerely



Professor Annelie Jordaan
DTech: Information Technology
Ph: 065 990 3713

Member: SATI 1003347



South African Translators' Institute (SATI)