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"WATER CONSCIOUSNESS IN SOUTH AFRICA: A SURVEY CONDUCTED WITH 10-13 YEAR OLD LEARNERS IN KLIPTOWN, SOWETO"

A report on a research study presented to

The Department of Social Work

School of Human and Community Development

Faculty of Humanities

University of the Witwatersrand

In partial fulfillment of the requirements

for the degree Master of Arts in Social Work

by

MARIE CAROLINE VON MARAVIC

March, 2016

DECLARATION

I, ……., declare that this research report is my own unaided work. It is submitted in partial fulfillment of the requirements for the degree Master of Arts in the Field of Social Development (by Coursework and Research Report) at the University of the Witwatersrand, Johannesburg.

It has not been submitted before for any degree or examination in this or any other university.

……

Signature

……..

Student number

……..

Date

ACKNOWLEDGEMENTS

Once driven by the desire to help people in a less favourable condition that I was in, social issues have always been an area of interest. Life circumstances however brought me to first accomplish other projects in life before coming to realise this one in March 2015.

During that precious time, I got to know plenty of wonderful and knowledgeable people, my lecturers, class mates and special friend Wilma Chibonore.

My full gratitude and thanks goes to my Research Supervisor Dr. Edmarie Pretorius who has accompanied and supported me during my whole research period in numerous ways. Her dedication to the Masters class 2015, deserves being explicitly mentioned.

In relation to my research a special thanks also to Thulani Madondo and his team for granting me permission to do research at Kliptown Youth Program (KYP).

I will take this opportunity to also thank my dear parents for having taught my brother and myself the values of life, which are to them: charity, honesty, ownership and responsibility for our own actions; which today still accompanies me in whatever I undertake, not to forget their steady moral support and endless love.

Also thank you to my aunt “sister Eustelle” from the congregation of “Our Lady of Perpetual Help” whose aim is to help the very poor. She opened my eyes through the numerous visits to orphanages, retirement centres and disability homes.

Thank you also to my aunt Marie Marceline Kiunka and my uncle Karl-Heinz Kiunka and their children Frederic and Philippe Kiunka. Without their financial support I would not be alive and be the person I am today. Their very environmental friendly lifestyle must in a way have influenced the topic of my research.

Thank you to Christiane and Michel Pernet Désiré for placing me in their daily prayers; he left us way too early – thank you to my uncle Joseph Marcel Désiré for being proud of me and giving me this special feeling and thank you to my dear brother who has always believed in me and given me moral support.

Last but not least, my special appreciation goes to my great and lovely husband, Alexander Michael von Maravic, who without complaining a single day shared my reality and gave me loads of moral support by staying by my side until late at night, cooked the best dishes whilst busy learning and writing, did the household and picked me up from the University library even at 11pm – thank you for your unconditional love.

ABSTRACT

The annual Conference of Parties (COP) held on the 7th-8th of December 2015 made it obvious; the environment is changing and urgent action is needed globally. Globally for the reason that damage done to the environment in one region, may have impacts in other regions. In regards to Africa and in specific South Africa, water as a finite resource is no more available as it was decades ago. This fact needs to be addressed with urgency, as human survival heavily depends on water – especially in Africa (UN Water, 2006). A part of the literature review will be dedicated to challenges related to water and its consequences for the African continent. The core of this study will be to highlight the importance of water for human beings and what can be done to raise awareness. Further, a quantitative study in Kliptown (a suburb area in Soweto suffering from water scarcity); by means of a survey was undertaken to understand more about children's behavior in regards to water. The purpose of the research was to raise the knowledge of 10-13 year old learners and members of the Kliptown Youth Program (KYP) on the value of water and to assess their awareness on environmental friendliness as well as their daily water management. The intervention took place at Kliptown, with members of the KYP; a nongovernmental organization supporting in lifting children out of poverty. A pre and a post questionnaire was conducted as well as short video clips shown to KYP members, explaining water scarcity and climate change; supported by some recommendations on how to save water in their current environment. Random sampling has been applied to 24 members out of the population of 119 grade 5-7 members, ranging between 10-13 years of age. Respondents were of mixed genders. Data collection of the survey was cross-sectional and has been performed by means of pen-and-paper. The whole intervention with the filling out of the questionnaires, including the video clips and short presentation took about 90 minutes. Data has been interpreted by using descriptive statistics. The outcome provided information on the environmental friendliness of KYP members aged 10-13, their knowledge on the importance of water as well as their pro activeness in regards to the environment and water. Further the study tried to find out whether there is a difference of responses in regards to gender. The outcome of the study will be shared with the Director of KYP to be informed and probably implement recommendations of the study. The outcome of the study revealed that children do not know much about water, however, are interested in knowing and doing more to get acquainted to the topic.

KEYWORDS

Environmental friendliness, environmental education, water related challenges, Conscientisation, Awareness-raising, Sustainability

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LIST OF ACRONYMS

AU – African Union

GDP – Gross Domestic Product

IUCN - International Union for the Conservation of Nature

KYP - Kliptown Youth Program

MDG - Millennium Development Goal

NGO - Non Governmental Organisation

RAA - Reasoned Action Approach

TM – Trans-theoretical Model

UNESCO - United Nations Educational, Scientific and Cultural Organization

UN - United Nations

UN Water - United Nations Water

CHAPTER ONE

INTRODUCTION AND OVERVIEW TO THE STUDY

1.1 Introduction

The world population is increasing and amongst creating a misbalance between demand and availability of freshwater; indigenous forests are being cut down for the needs of Human Kind; the ozone layer is being depleted due to high carbon dioxide emissions into the atmosphere and leading to global warming resulting in health issues; whole landscapes are being changed and natural habitats endangered and so with human security; as well as are the fauna and flora. Pollution of waters through discharges especially in developing countries belong to today's reality (UN Water Report, 2015; Adikari & Yoshitani, 2009) this list of changed circumstances on earth and the consequences evolving from them could continue. It has become evident that Man made environmental consequences are no more future talks but the lived reality (Clarke, 2002). Turning our focus on Africa, according to the Development Bank of South Africa (DBSA) (iWETs, 2012), besides power, energy and infrastructural issues, water and sanitation belong to the biggest challenges that impede economic growth in South Africa. Whereas South Africa disposes of various terrestrial natural resources and amongst it: water; this resource is now however at threat (Loubser, 2005).

The central argument of this report is to present in the literature review chapter the status quo on the South African water situation, the importance of water as well as the faced challenges. Further, emphasis will be put on Freire's (2000) theory of conscientisation in regards to (environmental) education with the aim to conclude on recommendations in light of raising awareness on environmental issues and in specific, water. The line of argument for focusing on water is the fact that water is crucial to the existence of life in manifold ways as well as to the ecosystem. The survey conducted in Kliptown was on the one hand to get data on children's' interaction with the environment and water but on the other hand to also spread the word on water and create and raise awareness about its importance and use. Especially children need to understand and create awareness for the situation as they are the ones growing into it, but

educator's can also enter a dialogue with them to start the process of critical thinking. Starting to living a sustainable life now might enable them benefiting from it in the future.

1.2 Statement of the problem and rationale of the study

Each region of the world has its challenges in regards to water. In Florida in the United States of America, they have water in abundance. They are trying to reduce energy costs by using water. For example, they are starting projects for business generating purposes where floating houses are being built and citizens can use their boats as means of transportation and show their social status (Lebelt, 2014). However, the majority - and Africa belonging to this portion of the world, will have to fear for its economy, health and existence. The consequence of water scarcity is specially knocking on Africa's door, as demand on water is ever increasing but freshwater is diminishing. This fact as well as the events of consequences which are already manifesting as statistics of the UN Water (2015) show and mentioned before; is the rationale for conducting this study.

In Africa: South Africa, Lesotho and Malawi for instance are countries that will be confronted with severe water scarcity by the year 2025 (Mutembwa, 1998). Yet the South African yearbook report of 2013/2014 talks of a demand-supply deficit of 17% by the year 2030 for South Africa. According to the same report, around 37% of South Africa's water is not reaching its end customer, from which 25,4 % were losses through physical leakage. But usage rate is already at 98% of the water supply capacity (Thelwell, 2014; Tibane & Vermeulen, 2015). Further points mentioned in the report are the ageing infrastructure, inadequate maintenance and repairs, slow reaction on water leaks and bursts, shortcomings in skilled labour as well as a culture of water wastage and the lack of education in the daily water use. All of these facts are weighing on South Africa's water sector and economy and therewith growth. Another point to be raised is the fact that still in the 21st century though water has become a fundamental right, it is not yet available to everyone. This is very true to South Africa. In 2012 approximately 10% of the South African households did not had access to piped water (Tibane & Vermeulen, 2014).

The primary aims of the study is to get to know about the interaction of 10- 13 year old learners of the Kliptown Youth Program (KYP) with the environment and their water management in their daily lives as well as to see if there is any difference between genders.

The reason for investigating this specific problem is that the preservation of the ecosystem deserves much more attention in the transforming regions, such as Africa, as water bears the potential risk of endangering regional and global stability, security and harmony (Mutembwa, 1998) and beyond that also impacts health.

Doing research in Kliptown, Soweto, was quite special in view of the ideological and historical significance Soweto has in regards to the promotion of education and awareness due to the uprising of 1976 by the yet disadvantaged and black students. Kliptown today is being a community that suffers from water scarcity; raising awareness and conscientizing 10 – 13 year old learners will benefit the community as a whole towards a sustainable water use and will contribute through the early preventive approach to sustainable development of the community.

Taking a participatory approach and acting together with governments and Non-Governmental Organizations (NGOs) as well as individually to start changing the situation by creating awareness is seen as a solution and is not negotiable. Creating a sustainable world where the people could benefit of the present as claimed by the Brundtland Commission without comprising the benefits of future generations should be the leading motto (Arnold et al., 2006).

1.3 Research questions and hypotheses

According to Creswell (2003) research questions are those that can emanate from the researchers personal or professional experience, from discourse in the media or academia as well as from political debates. These questions follow the aim of creating an answer to the problem to be studied. Hypotheses in contrast are predictions of the researcher in relation to numeric variables. Hypotheses are further subdivided into null and alternative hypotheses. The later further differentiated between directional and non directional hypotheses. The ones applicable to this study are of alternative nature.

1.3.1 Research questions

- How sensible are 10 – 13 year old learners of KYP about good environmental practices?
- How sensible are 10 – 13 year old learners of KYP about changing their daily water interaction behaviour?

1.3.2 Hypotheses

- The general environmental and water awareness of 10 – 13 year old learners of KYP is low.
- There is a difference in the awareness of different genders about the day-to-day use of water

1.4 Primary aims and secondary objectives of the study

Creswell (2003) defines this section as the purpose statement. In quantitative purpose statements the focal point is put on comparing the variables. The later can be either measured or observed; further characteristics are having two or more variations on a continuum of scale. Commonly used ones are: "[…] gender, age, socio economic status, and attitude and behavior[s] […]" (Creswell, 2003, p. 93)

1.4.1. The primary aim of the study was

- to create and raise awareness amongst 10-13 year old learners at KYP on the importance of water and the environment.

1.4.2. The secondary objectives of the study were to assess

- the level of environmental education of 10 – 13 year old members at KYP
- 10 – 13 year old KYP members in their interaction with water.
- whether there is a difference in answers given by male and female respondents in their environmental and water friendliness.

1.5 Brief description of the research design and methodology

In this research a quantitative approach with the goal to assess, measure and compare answers of 10 – 13 year old learners of KYP in relation to their environmental friendliness and water consciousness was followed. Further the study adopted a cross-sectional and group administered

survey design with a questionnaire as its means to collect data. The purpose of a survey design according to Creswell (2014) is to provide "[…] a quantitative or numeric description of trends, attitudes, or opinions of a population" (p. 155). The rationale for choosing this method is that generalisation from a sample to a population is possible; thus inferences can be made. From an economical point of view the survey design is an attractive method to be used, due to the rapid turnaround of data availability (Creswell, 2014).

1.6 Limitations of the study

Limitations are events that may influence a study negatively, and although limitations are common in research studies (de Vos, 2011), it is recommended that possible limitations need to be detected before starting the study (Jansen, 2012).

1.6.1. Sampling

It was known from the beginning of the study that the sample size would not be defined and fixed prior to the study as these were dependent on various external factors. These factors were: the availability of the researcher paired with those of the respondents, as the date of the intervention was one day prior to the start of school in 2016. Consent and assent forms were distributed by KYP and in the end only respondents between 10 – 13 years of age for whom both consent and assent forms had been signed participated in the study. Therefore it was not possible to involve all KYP members in the particular age group to participate in the research study.

Due to this kind of sampling, error sampling occurred due to unequal ratio between girls and boys and in order to be able comparing the analyzed data, the ratio was but in balance. In some of the charts division of the number of female respondents into two to obtain a 1:1 ratio was needed. Consequently, generalization of results was limited (Murray, 2003).

1.6.2. Attrition

Respondents may drop out on parental advice. This is a probability that might have happened as some of the questions asked in the questionnaire were related to parents / care givers / legal guardians (Murray, 2003).

1.6.3. Demand effect

Children might be responding more positively on questions as they know the context of the research they are taking part in and might therefore not give their subjective views but what they think is right to write (Murray, 2003). This effect is quite obvious in the questionnaire which limited the validity of the responses and to generalise results. Although children were kept reminded, that it was not about a matter of being right or wrong, rather than stating their belief. One of the examples that demonstrate it best is question B4 of the pre questionnaire.

1.6.4. Language

The questionnaire was in English, which might bear a threat to those whose first language is not English (Murray, 2003). This limitation has been counteracted by having one member of the KYP staff translating every question, nonetheless one or two respondents answered in a language different to English. Another limitation which however appeared in connection to the translation is that the researcher was not in control of what had been translated. The answers given by the respondents suggest that the translation at times was too thorough which at the end might had an effect on the neutrality of the answers given.

1.6.5. History

Depending on the time the questionnaire will be distributed, answers might be biased through media coverage of events related to water that might occur shortly before the questionnaire is distributed to the respondents (Murray, 2003). It is unlikely that the respondents were influenced; however, the translator could have been influenced.

1.7 Definition of key concepts

1.7.1 Environment

Whenever the term “environment” is mentioned in this study, the natural environment; meaning anything that is related to what humankind has not created e.g fauna and flora, air, water and space is being meant.

1.7.2. Environmental education

Environmental education has started back in ancient Egypt, where farmers were told where to best cultivate their crops. Today's understanding of environmental education comes from the 19th century and the era of industrialisation, where one nowadays would classify this time as a time of environmental destruction (Loubser, 2005). Different scientists and amongst Jean Jacques Rousseau since then contributed to environmental awareness and education. The term environmental education as such has been shaped by organisations such as the United Nations Education, Scientific and Cultural Organisation (UNESCO) and the International Union for the Conservation of Nature (IUCN). The biggest impact in regards to the environment was brought by the Brundtland Report. Environmental education as such came to South Africa in the 70's, with the Belgrade Charter and "[…] has become a new focus in industry training, and public education has become an important focus of environmental education work" (Loubser 2005, p. 54). This terminology will be used paired with Freire's theory of conscientisation.

1.7.3. Water and environmental awareness

What is meant by water and environmental awareness is the critical consciousness people and in this study, children should have and/or develop through environmental education. Being water and environment aware indirectly means taking responsibility in protecting water and the environment. This idea is highly related to the concept of sustainable development which promotes the care of the environment (Lélé, 1991).

1.7.4. Water related challenges

Water related challenges are natural or humankind made events that impacts water negatively. Examples of humankind related water challenges are accidents on oceans involving release of oil, chemical waste and normal waste discharge into rivers, lakes and seas. Natural calamities in contrast could be earthquakes with the consequence of floods flushing away materials into rivers; or contaminating freshwater. Then there are those water related challenges which are manmade to the extent that planet conditions have changed due to technological advancement and through it has favored specific epidemics e.g water-borne diseases (Adikari & Yoshitani, 2009).

1.7.5. Conscientisation

The terminology conscientisation in this study is inspired by the educator Paulo Freire who popularised the term. Besides "Conscientisation" meaning the social concept that has been

influenced by Post-Marxist theories (Reagan & Sinclair, 2006), it implies the action of pro active change with the aim of educating people (Freire, 2000).

1.7.6. Awareness-raising

Awareness as a term is rather vast; however commonly understood by civilization.
Awareness-raising is a process that enables communication and exchange to happen; with the aim to enhance bilateral understanding and to build up skills that are fundamental to create space for behavioural change. For this process to succeed, it is also important to pay attention to mutual needs as well as to interests of all the people involved e.g target audience (Sayers, 2006).

1.7.7. Parents

For simplification reasons, whenever "parents" is mentioned, care givers and legal guardians are meant as well and will not be explicitly listed. In a broader sense, they also are educators.

1.7.8. Kliptown Youth Program (KYP)

KYP is a registered NGO. There are about 400 children who are members of KYP. Their mission is "to provide opportunities that will enable our young people to rise out of poverty" (KYP, 2016).

1.8 Organisation of the Research Report

Chapter One provides an introduction and overview of the study, followed by **Chapter Two** which deals with the literature review on water as a right, as well as on the status quo of water in Africa and its main challenges. Further, Freire's Theory of Conscientisation is explored to emphasize the power of dialogue. With the Reasoned Action Approach (RAA) and the Transtheoretical Model (TM) the steps to achieve behavioral change are discussed with the aim to raise awareness. Finally, the human paradigm theory will be referred to in order to as well highlight the different elements that positively influence awareness raising when people participate. **Chapter Three** illustrates the research design and methodology applied during the research study and **Chapter Four** analyzes and presents the data collected and results obtained from the research study. The study report concludes with **Chapter Five** and engages with the main results and lists recommendations resulting from the study paired with the theories discussed.

CHAPTER TWO

LITERATURE REVIEW AND THEORETICAL FRAMEWORK OF THE STUDY

2.1 Introduction

Water is of tremendous importance to the planet earth as it is for its habitants living on it. However, recognition that water is a finite resource and therefore needs to be used sustainably is rather recent. Once can say that the awareness started in the late 80s with the Brundtland report (Loubser, 2005). In this chapter the importance of water and the challenges faced by the African continent with some specific example to South Africa will be highlighted. Thereafter the theory of conscientisation by Paulo Freire will be explained to stress the importance of critical thinking and awareness raising in developing countries to achieve change Theories and approaches to facilitate behavioural change will be discussed. The value of social change marketing as a solution to achieving awareness about water and the humanist paradigm as a theoretical framework will be adressed.

2.2 Water as a right

The human right to water, enforced in 2010 by the UN entitles every human being to have enough water to meet the basic needs such as water for drinking and cooking, hygiene and sanitation (UN, 2014). In South Africa, it is the Constitution and the Bill of Rights that preserves the basic right to the accessibility to water (Tibane & Vermeulen, 2015).

Unfortunately, today access to water is not equally distributed or accessible, though the Millennium Development Goals (MDG) target of halving the proportion of people without access to improved sources of water has been met (UN ORG, 2015). It has to be stated that access to water does not mean having running water in the households, but having to go somewhere nearby to fetch water. Nowadays still one in 10 people in the world lack access to safe water in order to meet their basic needs (Water ORG, 2016).

Because water is key to life and health of human beings, it is of paramount importance, that it is protected by law. The South African Government has implemented different acts such as the National Water Act (NWA) and the Water Services Act (WSA) to provide a framework in order to protect, control, conserve, develop and manage the environment and water properly (Water & Forestry, n.d.). The latter is a national responsibility, whereas managing water and sanitation is the responsibility of Water Services on a local level.

2.2.1 The National Water Act (NWA)

NWA stands for sustainability, equity and efficiency. Its goal is to substitute laws passed under the Apartheid era, as those were highly discriminatory. At the core of the Act no. 36 of 1998 stands the awareness, that water is finite and precious. It further encompasses the aspect of water sustainability by managing water resources as such. In addition, the act plans and provides guidelines for the implementation of objectives that are pivotal to human development and the transition to a green economy; it addresses the managing costs of the development of the water resources, and addresses the establishment of water institutions; such as catchments. These institutions act as facilitators and encourage the public; including the stakeholders in active participation. They operate at local levels and are funded by the government (Water & Forestry, n.d.).

Finally, NWA provides the instruments to achieve a balance between water protection and water utilization.

2.3 General benefits of water

Above all the benefits of water that will be listed, stands the fact that humanity, the technological development as well as our ecosystem as it is today, would not be existent without water. The graphic of the Water – Food – Energy nexus illustrates the interdependencies very well (UN Water Report, 2015).

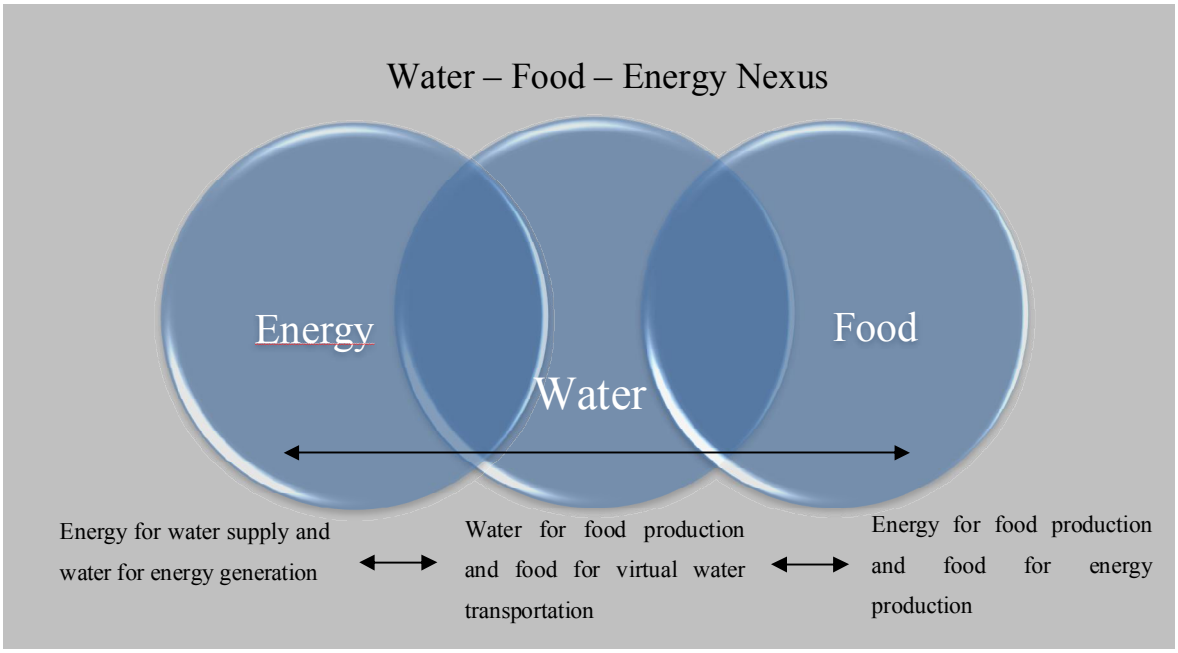


Figure 1: Water - Food- Nexus (UN Water Report, 2015)

2.3.1 Water for food

The right to adequate food has been enshrined in the Universal declaration of Human Rights of 1948 (UN ORG, 2014). As seen in the Water – Food – Energy Nexus, water is needed to grow crops as well as to produce it for a world population of approximately 7,4 billion people of whom 54,9 million are living in Africa (Worldometers, 2016). The water used to grow and produce crops is water that is also transported to the human body. Assuming normal food consumption, it would take approximately 3000 litres of water to produce the daily intake of one person from the harvest until it lands on our plate. Water is important for assuring food security.

2.3.2 Water for health and sanitation

Access to clean and thus safe drinking water, proper sanitation and hygienic conditions are indispensable for a healthy and fulfilled life and for the prevention of epidemics as well as pandemics caused through infectious diseases such as diarrhea, malaria, Japanese encephalitis, zika, cholera, schistosomiasis to mention but a few (Abelkitis & Lenehan, 2007; Adikari & Yoshitani, 2009). How well States prevent the quantity of mortality, morbidity and disability through infectious diseases is measured by the Disability-Adjusted Life Years (DALY) which collects data on the number of burden of disease cases registered, and measures the gap between the actual status and the ideal status. The ideal status implies being free of disease burden. Sub-

Saharan Africa and Asia are the ones with the greatest disease burden in life loses or disabilities through infectious diseases. Water is crucial to the well functioning of the body. An adult body consists of about 60% of water (Perlman, 2015). Some of the main benefits of water are that it

1. helps to transport oxygen and vitamins to the whole body

2. is needed for the production of hormones

3. lubricates joints and through that help to absorb shocks

4. helps the digestive process

5. eliminates body waste

6. helps in the regeneration and growth of body tissues

7. is needed for the well functioning of many organs such as the heart, lungs, kidney et cetera.

8. regulates our body temperature and skin moisture

2.3.3 Water for development

It was mentioned before that water is life sustaining, needed to grow and produce crops; as well as to manufacture machines, clothes and everything we can find in the environment which is manmade. Moreover, investment in the infrastructure of water can unlock potential and contribute to the growth of the economy and create social wealth. This is especially true for countries that have adopted a poverty-reduction policy, where it has been recognised for instance by the African Union (AU) that there is a link between water and poverty (UN Water Report, 2015). In East Asia and the Pacific region, where industries are growing, 48% of their Gross Domestic Product (GDP) comes from the industry sector. Linked to the industry is also the energy aspect in which water is needed to raise productivity. The raise in productivity on the one hand means the creation of employment which on the other hand leads to a stronger economy through the work and leads to a positive effect of raising social welfare (UN Water, 2006).

Access to water further enhances development in that children are not condemned to staying at home e.g because of hygienic conditions but are given the opportunity to go to school. School, which is the basic breeding ground for education then leads to chances of a secured income and

in addition leverages the probability of an equitable and inclusive society that is equipped to combat social ills (UN Water Report, 2015).

2.4 Water challenges – An African perspective

In some regions of the world such as the USA, parts of Europe, Russia and Australia water seems to be abundant, in other parts such as Africa, Asia and the Middle East it is scarce. Water scarcity is understood as the lack of access to enough water (UN, 2014). This is a challenge that humanity is faced with (UN Water Report, 2015). Further the UN Water Report (2015) states that, only 3 % of the worlds water availability represents freshwater on earth and of that, only 0,3% are directly available to mankind; of the 0,3% approximately 60%-70% is already being used for agricultural purposes.

However, today humanity has come to recognise that water is a scarce resource and that it plays a substantial role in enhancing sustainable development. The aim of each and every country in the coming years will be, to ensure that freshwater and coastal water are protected as well as the ecosystem, to be able to continuing ensuring the basic right to water (Wouters, 2005). Despite the wide recognition of the importance of water and the activities undertaken to redress the situation, South Africa for instance is facing challenges in regards to fair water accessibility, availability as well as the preservation of water quality (Tibane & Vermeulen, 2015; Education and Training, 2004). Some of the main challenges are listed below.

2.4.1. Water demand and accessibility

Not only population growth and urbanisation have led to an increased water demand which is putting strains on the African ecosystem (UN Water report, 2015), but also global trade and with it changed consumption patterns in food and energy; e.g. more meat consumption, larger homes, motorised vehicles. The rise in consumption has positive effects if managed and monitored correctly, however, if water is not well managed and monitored the reverse can also happen namely, unsustainability and water scarcity. Population increase for instance, goes along with shrinking resources per capita. Population increase also means higher water and also energy consumption for agricultural means and the production and manufacturing of goods as well (UN Water, 2006). Wheat and corn for instance are being produced for energy generation in the form of bio fuel; by doing that it will not only reduce water but it will also compromise food security

in a fast growing world (UN Water Report, 2015). The biggest demand for water in South Africa has been posed by the province Gauteng and surrounding, which is already being supported by water transfer schemes inter alia from the Lesotho Highlands. Other areas with rising water demand are Cape Town, the Western Cape, Port Elizabeth as well as the East London areas and Bloemfontein (Education and Training, 2004).
Linked to population growth is also urbanisation that is happening most rapidly in Sub-Saharan Africa. This stresses local freshwater resources especially in dry areas (UN Water Report, 2015) which lead to the assumption that fresh and safe drinking water in developing countries will continue to be a major issue due to large scale pollution and if adequate sanitation facilities are not provided given the human migration into cities. Water management in cities and especially in slum settlements will in this regards be even more challenging. It is forecasted that 2/3 of the world's population will be living in cities by 2050. The pace at which groundwater is being extracted, allows to suggest that cities will in the near future have to find other ways of supplying water; e.g desalination (Lebelt, 2014).

A problem which belongs to the legacy of the past South African history is the unequal distribution of water. Water distribution to the mining industry has always been of high quality and reliable in contrast to rural communities that received water from unreliable hand pumps. However, this issue is being addressed by the Department of Water and Sanitation (DWS, 2016).

2.4.2. Climate change

The earth's hydrological cycle has changed through the melting of glaciers, intensification of droughts and more severe weather events; better known as the climate change phenomenon. In South Africa, climate change has probably aggravated the variation in uneven rainfall, leading to even more arid regions.
The causes for climate change as often cited by scientists can thereby be found in high carbon dioxide emissions discharged into the atmosphere, leading to the greenhouse effect that increases the temperature on earth and leading to ozone depletion. Another factor influencing the hydrological cycle are industrial waste discharges that lead to warmer rivers, seas and oceans (UN Water, 2006).

Imbalance in the ecosystem through climate change bears the potential of straining water management and leading to costly investment into the infrastructure and green development (UN

Water Report, 2015). It represents a challenge to South Africa as it depends on rivers, dams, wetlands, rainfall and groundwater; however climate change and human intervention is impacting all of them.

2.4.3. Old infrastructure

Data that had been collected in 152 municipalities across South Africa proved that non-revenue water, meaning water that is being lost has reached 36,7%, and 24,4% being lost through leakages. Though the South African government for 2014/2015 has allocated R2,919 billion out of the total budget of R12, 480 billion to restructure the infrastructure, ailing infrastructure will need time to be eliminated. Meanwhile people may suffer from diseases that are in the old pipes, people need to walk long distances to get water and water continues to get lost. Many cities also do not have the necessary infrastructure to collect and/or treat waste water. According to an estimate of Corcoran et al. (UN Water Report, 2015) about 90% of all wastewater in developing countries are returned untreated into the environment which releases methane gases; inter alia a driver of green house effect and global warming.

2.4.4. Water governance

As seen before, water scarcity has different root causes, however the most obvious one is the issue of governance; governance meaning adequate management of resources by the government. According to UN Water (2006, p. 7), "… governance and politics are increasingly viewed as part of the problem and therefore as an essential part of any solution to water crises." Therefore, implementing well designed policies, e.g by including women in the decision making process in water management, as to now in greater parts of Africa they play an important role in carrying water home but are not yet part of an inclusive process, which is regarded as essential in order to discontinue gender inequities (UN Water, 2006). Combating corruption is another challenge to address. According to the MDG outcomes, poorly designed policies and other reasons were main contributors to why MDG goals were not met. The issue of governance is however also linked to poor policy implementation and monitoring and evaluation practices due to unskilled labour (UN Water, 2006). South Africa compared to other African nations has stepped up in this regard and showed commitment to meeting national and international development goals linked to water. On a national level, the National Water Act (NWA) as well as the Water Services Act (WSA) in South Africa have set an adequate legal framework to

address the water problem. Internationally, looking at the recent past, there have been a few agreements such as the UN Millennium Declaration, the MDGs, the Johannesburg Plan of Implementation and recently the legally binding Paris agreement that will come in force in 2020 to limit climate change and environmental degradation (European Commission, 2016).

2.4.5. Agriculture

Agriculture is in fact the backbone of Africa, and a central sector to the enhancement of socio-economic development in South Africa. However, the sector is highly dependent on rainfall, which in past years has become unpredictable. Yet South Africa is impacted by climate change which negatively influences the livestock and livelihoods of South Africans, but the vulnerable part of the society is mostly affected. According to the South African yearbook 2014/2015, approximately 60% of its freshwater is used for agricultural and irrigation purpose, 25% for urban requirements and 15% for other shared sectors (Tibane & Vermeulen, 2015). In Figure 2 South African water use per sector is illustrated.

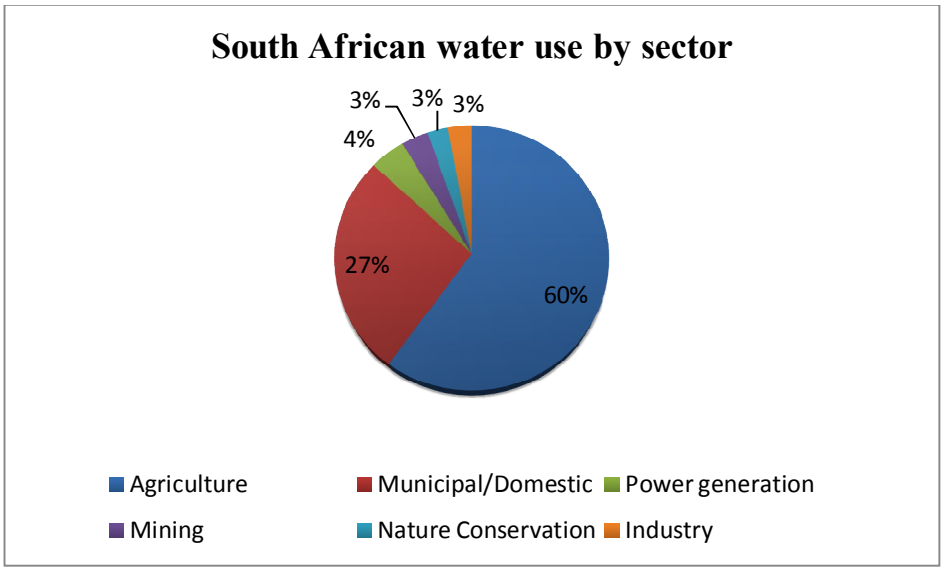


Figure 2: South African water use by sector (DWA, 2013)

The challenge to reach agricultural success is unfortunately bound to other factors such as changing consumer and dietary patterns, change in the global market, climate change, population growth as well as unqualified personnel or skill shortages (Tibane & Vermeulen, 2015). Further challenges are the need to produce food of better quality and increased quantity, as 70% more

food will be needed by 2050 and still using green technologies to assure sustainability and enhance local and national economies.

2.4.6. Capacity building

Capacity building represents a challenge in that skilled people that are able to deal with the water problems are scarce, to the extent that the South African government is relying on foreign resources to train locals (Tibane & Vermeulen, 2015). However, it needs to be mentioned, even if the local people are not skilled in terms of tertiary education, they do bring strong local knowledge of the water system to the table, which is highly valuable especially when foreign skills are being imported to the country. In order to reach the best results, a strong collaboration should be fostered. South Africa is in special need of managers, process engineers as well as scientists competent in designing, planning and implementing solutions to increase water availability, water quality and access (Education and Training, 2004).

However, the promotion of capacity building goes hand in hand with governance. The government needs to prepare the environment for capacity building to take place. This will not only equip people with the knowledge needed for good water practice, but will also empower them in making better choices.

With reference to capacity building, RandWater is going to train 15,000 plumbers and artisans (Randwater, 2016). This is a measure taken to reduce the ratio of non revenue water and failures to do adequate assessments of water challenges.

2.4.7. Water pollution

Industrialisation has brought good things such as technological advancement but it was also to the detriment of the environment. It is no secret that industrial activities do not always comply with the regulations and that it is easier to pay a fine than to remedy the situation (UN Water Report, 2015). The result of past industrial success can nowadays be seen in the rapid degradation of the environment as well as the polluted and contaminated water resources (UN Water Report, 2015).

Especially in the developing world, industries discharge their chemicals in seas and rivers as well as on fertile soil, contaminating and destroying the ecosystem. South Africa is in this regards facing eutrophication issues; as a consequence of polluted return flows into surface run offs – especially of the mining industry, but also from other industrial chemical discharges such as

phosphorus, nitrogen and silicon (Education and Training, 2004). When the ecosystem is destroyed, it means at the same time, the destroying of humankind, as humankind lives in that environment where everything is discharged into. Discharging phosphorus into seas results in aqua marine species eating it, which is then fished for human consumption and as such entering the human food chain. Further, thermal pollution favors harmful algae and acidification and eutrophication of water resources. All of the mentioned limiting, and impacting food and water security.

According to the UN (2013, para. 1), "Water security is defined as the capacity of a population to safeguard sustainable access to adequate quantities of acceptable quality water for sustaining livelihoods, human well-being, and socio-economic development, for ensuring protection against water-borne pollution and water-related disasters, and for preserving ecosystems in a climate of peace and political stability."

2.4.8. Water related diseases

Water is needed for life sustaining reasons as well as for sanitation to live a healthy life. According to the UN Water (2006) 1,7 million lives are saved each year because of improved access to drinking water, sanitation and hygiene. Though the MDG goal of access to improved water has been reached, this is not the case for sanitation. However, this is crucial in eradicating or limiting water related diseases and mortalities. Open defecation for instance is practiced by 15% of the world's population; Africa accounting for 40%, lead by Ethiopia (WHO, 2012). This number represents a real challenge in improving water quality. Moreover, there are concerns that sewage systems cannot fully remove pharmaceuticals and personal care products which lead to the assumption that they enter the environment afterwards (UNEP, 2014). Water borne and vector diseases can easily spread through bad water quality. Hereafter an overview of the different commonly found water diseases in Africa and South Africa.

(1) Water-borne diseases

These diseases impact people through consumption of contaminated water bearing pathogenic microorganisms e.g diarrhea disease including Cholera, typhoid, dysentery and hepatitis. It is an endemic infection for which people have to be aware and careful of in the long term due to the high mortality rates it can cause, especially in young children. Water borne diseases are the

major morbidity and mortality causes for children not reaching their 5th birthday. In South Africa, the mortality rates of children below the age of five ranges between 65 to 70 people per 1000 birth given. Most of the causes occurred though diarrhea. Diarrhea which is mainly caused by the e-coli bacteria found in drinking water (DWA, 2013).
South Africa has experienced several epidemics of this kind. The Cholera outbreak in summer 2000/2001 had infected more than 110.000 people; over 250 people died (Abelitis & Lenehan, 2007).

(2) Water-washed diseases

These diseases when contaminated water is consumed, affects the gastrointestinal tract, resulting in diarrhea. Another form can affect the skin and body surface (e.g scabies, trachoma, conjunctivitis). This is a challenge when open defecation is still in practice and the provisions and awareness of hygenic conditions low (Abelitis & Lenehan, 2007).

(3) Water-based diseases

These diseases are caused by flat worms called Schistosomiasis. Transmission mainly occurs in water. Schistosomiasis belongs to the most ignored and underestimated parasitic diseases in South Africa. The Mpumalanga and KwaZulu Natal provinces are particularly affected with this Bilharzia parasite that affects organs (Abelitis & Lenehan, 2007).

(4) Water-vectored diseases

The transmission of these diseases are caused by insects that breed or byte near water (e.g the Malaria mosquito and Tsetse fly). According to the World Bank (2015), 90% of the deaths caused by water-vectored diseases are found in Sub-Saharan Africa of whom 78% are children under the age of five. Control of these diseases is necessary through better management of water resources in order to reduce the vector potential (Abelitis & Lenehan, 2007).

2.4.9. Groundwater depletion

Groundwater is seen as a strategic resource and therefore plays a fundamental role in terms of water supply and management in periods of drought (Tibane & Vermeulen, 2015). Groundwater is used for drinking but also for irrigation. According to UNEP (2014, p. 109), the hazards groundwater is exposed to are "[…] pollution from agricultural and urban areas, solid waste, on-site wastewater treatment, oil and gas extraction and refining, mining, manufacturing and other resources." (Another challenge with groundwater today is the act that aquifers have been

overexploited worldwide; in coastal regions even leading to salt intrusion which poses a threat to communities relying on groundwater.

2.5 Water related projects in South Africa

The South African government has allocated R15,5 billion for 2015/2016 for the water infrastructure development compared to R10,2 billion in 2013/2014 (Tibane & Vermeulen, 2015) which shows that action is needed and that this has been recognised. Further, numerous projects have been started to assure access to water and improved water quality (DWS, 2016). In line with projects, programmes such as the "Blue Drop Programme and Green Drop Programme" have been implemented. The first one certifies an exceptional drinking water quality and the later measures the performance of waste water treatment. Further the initiative "No Drop" has been launched in 2014 to encounter the leakage problem, which can be observed along the motorway in Johannesburg. Next to saving water and raising awareness another aim of the No Drop initiative was to create jobs which was successful; as 200 plumbers were trained to fix leaking pipes and did it in schools, households and public building (Tibane & Vermeulen, 2015). All the listed programmes show that South Africa is putting effort in raising awareness on water; however it would be interesting to evaluate the outcome of the launched programmes, topic which is not covered in this study.

2.6 Environmental education and Paulo Freire's theory of Conscientisation

The section above explained the challenges of water to demonstrate its relevance in the world, but at the same time highlighting the problems faced by Africa and South Africa. It seems that individuals are not able to directly influence industries on not discharging their waste into water resources, therefore, this has to be managed by policies. However, critical awareness can be created as to reach every single household. With Paulo Freire we have a philosopher and pedagogue who promoted dialogue within his education style; highlighting the values of freedom, democracy and critical awareness. Towards the end of his life, he even started an approach on "eco-pedagogy" (Gadotti & Torres, 2009).

Paulo Freire is known for having influenced development education and he is as well known for his theory on conscientisation, where he had a great influence especially in Brazil on literacy campaigns, but also all over the world (Reagan & Sinclair, 2006). Freire was especially apprehensive about the high number of illiterate people which he saw as an impediment to development as well as to democratic mentality, but had the conviction that change is possible, as he sees in everyone the potential to engage critically. Perceptional change is also an anticipated outcome of this study. The culture circles he founded were quite famous for encouraging active participation, and uplifting skills; mostly intended for adult education. In those circles, content was presented by visual means such as pictures and slides; further, the topics covered the ones relevant to the realities of the participants. Freire was convinced about the fact that interest arose because the topics were related to their realities which supported consciousness. Vygotsky refers to this phenomenon as the "zone of proximity" (David et al., 2010). The zone of proximity advances that people can excel when put in a more performing environment. Following the learning by doing and imitation principle, the under performer could reach the level of the performer (Gadotti & Torres, 2009). In Freire's theory, education plays a fundamental role in the transformation of a society. To him, giving help alone doesn't solve the root cause; it is development education in form of conscientisation that represent its basic element to sustainable change. Education is thereby the process of developing consciousness that according to Freire emits power for transformation and empowers (Reagan & Sinclair, 2006).

Conscientisation also means actionism. People should be proactive and take their life in hands and not be waiting for the society or government to help them out. He sees in dialogue the instrument to achieving conscientisation, however, conscientisation also demands change in habits towards an issue which in return demands action and critical thinking. Freire sees in educators the facilitators in order to engage in this dialogue. Still today, his theory is of great relevance (Freire, 2000) and can easily be applied in schools or communities– as experienced in this study.

As just mentioned, Freire attributes a high relevance to educators. Bronfenbrenner for instance takes it further and is of the view that especially children are affected by everything in their environment (positively as well as negatively). His bio-ecological model of development

explains child development and in this context also possible change in attitude and behavior, which will be seen later on with Fishbein and Azjen. Bronfenbrenner's model is divided into spheres: the Micro, Meso, Exo and a Macro sphere; together performing in the Chrono sphere. All four are interdependent in driving development. At the core of the model stands the child - as an active force. The Micro sphere is the immediate circle in which the child grows up; representing the family, home et cetera. It bears the closest relationships with its surroundings and communication is bi-lateral; anything said or done affects or benefits the child directly. The next one is the Meso sphere. It interconnects with the context of the Micro sphere as well as of the Meso sphere. The Meso sphere does not function independently from each other. For positive change to take place, all Meso levels need to work together or one need to balance one another. For example, if a child is not given any information at home of how to save water, school with peers or teachers can compensate and vice versa. As for the Exo sphere, it doesn't involve the child itself but decisions made on that level that can impact the child's view to a specific topic. This sphere represents the broad support needed for families to offer the best possible framework. An example in that regards could be e.g. training offered at work to parents on best environmental practices at home; which will impact the parent and indirectly the child. The last layer of the model is the Macro sphere that gives the framework of all other layers in which all of that can operate. Those are for instance: values, cultural orientation as well as law and regulations made in regards to better environmental care (Keenan & Evan, 2009; Donald et al., 2010).

2.7 Selected approaches to achieving behavioural change

We have just seen with Freire and Bronfenbrenner how education and the environment matters in achieving change. This section will explain a theoretical approach of influencing behaviours.

2.7.1 Reasoned Action Approach

Behaviour theories and approaches in general have the goal of explaining the process and moreover under which circumstances behavior may change. Behavioural change is frequently used in health interventions in regards to predict behavior or to manage risks. Two of the most common approaches used within health interventions, in criminology or other socially relevant areas are the Reasoned Action Approach (RAA) as well as the Trans-theoretical Model (TM)

which will explain that change in awareness raising under specific conditions is possible (Lezin, 2016; Fishbein & Ajzen, 1975).
The RRA was developed in the 60's by Martin Fishbein and later revised by M. Fishbein and Icek Ajzen. The focus of their approach lied on measuring and detecting the reasons for change in attitude and intentions which leads to certain behaviours. An intention understood as a plan (as it may not be carried out) to behave in a certain way in a certain situation under certain circumstances. To be able to understand the intention that is perceived as a major factor of behaviour, the RAA studies the attitude in relation to that behaviour; including the subjective norm and external factors that could be influential to certain behaviour (Fishbein & Ajzen, 1975).

Our attitudes and norms as Fishbein and Ajzen (1975) mention are determined by a mix of two linked elements; firstly our beliefs that a result will generate a positive impact on their behaviour, secondly our assessment on whether the result was worthwhile. This being said; the attitude of KYP members will be forged by whether or not they think the information shared with them is relevant to their daily lives or not, further whether or not learning something new would help them in the future. In addition to the two factors mentioned, another factor which is past experiences may also play a role and determines whether KYP members would take a positive attitude towards the water topic or not. As if past experiences were to be negative, the likelihood of change in attitude would be minimal or absent unless the present experience reverses the negative one. Subjective norms; meaning our attitude, awareness of something and beliefs that is also formed by external factors such as 3rd opinions from the micro, meso, exo and macro environment as developed by Bronfenbrenner, is also to be considered in behaviour change. It is up to the individual to decide to which extent one would like to adopt another view about a topic or even take into account following an unpopular view or behaviour e.g not to be mindful about water.

The crux about RAA is that the better it is understood how attitudes and norms shape intentions, the better interventions can be designed and positive influence exercised. In order to achieve the latter, the term of social marketing is often used which will be explained in paragraph 2.8.

2.7.2 Transtheoretical model (TM)

The Transtheoretical Model (TM) offers a six steps process for change, where each of the steps needs to be passed through to arrive at behavioural change. Applying it to the KYP members would mean that during the precontemplation stage, KYP members were not aware or concerned about the water topic and also did not consider changing any habit. The second step which is the contemplation phase brings critical thinking into play by the information shared with them during the session held; depending on how they evaluated the intervention, based on the elements discussed in the previous approach of RAA, KYP members may or may not engage in the following steps which are preparation, action, maintenance until they reach the termination phase which would mean a successful behavioural change. Below is a graphical and short explanation of the model (Prochaska et al., 1998).

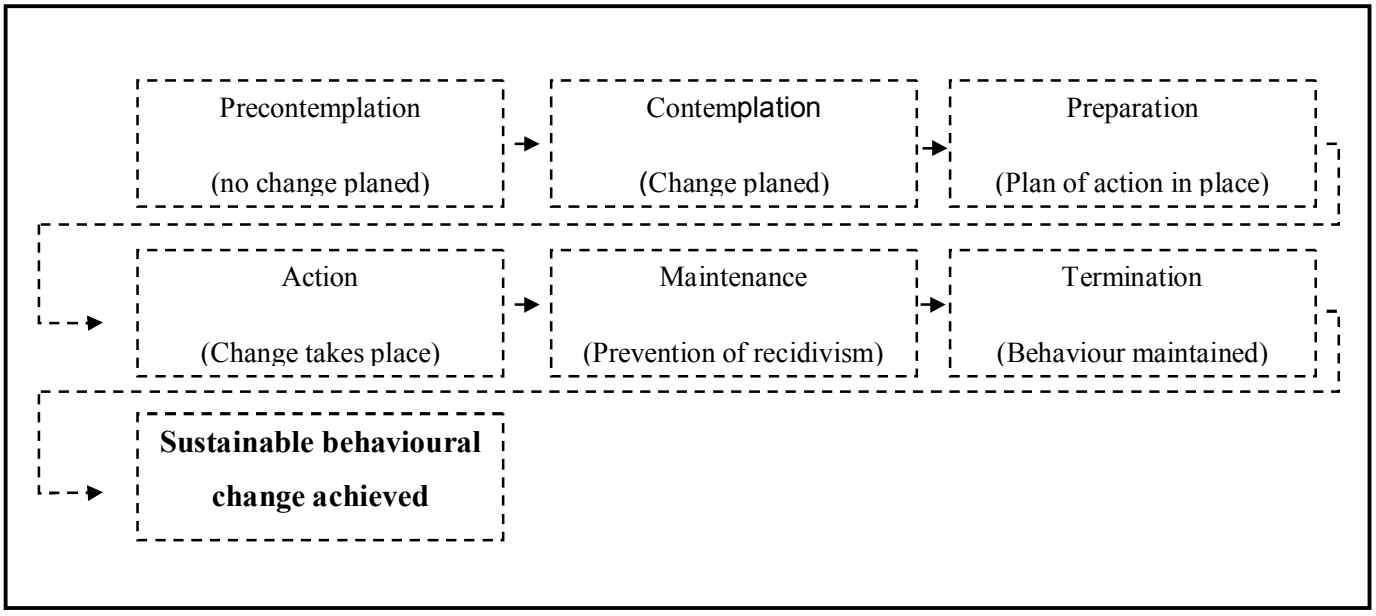


Figure 3: Transtheoretical Model (Prochaska et al., 1998).

2.8 Social change marketing as part of public awareness-raising

Promoting awareness can be defined as the action of promoting information on a specific topic. In this regards, academia often employs the term of information literacy (Sayers, 2006). The aim of promoting information literacy is always to exercise positive influence over attitudes and beliefs and to conscientize. In this study the awareness-raising effort was about promoting the awareness on the significance of water in general.

Public awareness-raising depends to a great portion on mass communication as a vehicle to transport and exchange messages as well as on what is called social change marketing. The objective of social change marketing is to promote well perceived ideas for the benefit of the public. The challenge that social change marketing encounters is however not to be seen in the instruments and how to implement them, but rather how to get the people to change their behaviour and achieve behavioural change. Behavioural change is though known to be the most ambiguous undertaking in human life (Sayers, 2006).

2.8.1 Challenges of getting the message across

Communication has been described by John Fiske (1982) as being one of those activities that everyone uses and knows about but that no one can define competently. However, communication depending from which perspective one is looking at it can have very different meanings; thus communication is interdisciplinary. In regards to challenges in getting the right message across, Stuart Hall introduced us to the terms coding and decoding (During, 1993).

It was mentioned previously that the difficulty with social change marketing is to get people to change their behaviour. An impediment to achieving this could for instance be seen in communication and the coding and decoding process as explained or described by Hall. If a message is being conveyed but the recipient, in this study the KYP members do not receive its meaning and decode it the way it was meant, the message will fail. Some of the challenges as Sayers (2006) mentions might be the absence of a common language, illiteracy, hearing impediments, not well framed messages or questionnaires, cultural differences; as not being in the same context and decoding the message differently and according to past personal experiences made as well as distraction.

2.8.2 Techniques and approaches for raising public awareness allude

Public awareness is dependent on good communication but as important are the techniques used to achieve success. Sayers (2006) alludes to the following:

- *Personal communication* is a good way to reach small groups e.g communities. Techniques frequently used are presentations, workshops as well as public meetings. The intervention at KYP was based on Freire's concept as well as on the techniques of personal communication.

- *Structured trainings* are a good approach of educating the target audience. Trainings can thereby be given in educational institutions in general, libraries and companies.

- *Enhancing information literacy* in schools, hospitals and universities is an action to consider. In this regards, it is important to find out more about the behaviour of the target audience; understand through which channel they receive information and find information, how they use specific media, and what their preferred way of communication is, in order to increase the acceptance of the message to be delivered to them.

- *Use of Mass media communication* is important to assure a widespread communication. Examples are various printings (Newspaper, Posters, brochures, leaflets, pamphlets), online media (websites, blogs, social media), Radio and Television. An example to mention is posters of the campaign "No Drop" which are to be seen along Johannesburg's motorways.

- *Use of traditional activities* to pass on messages

- *Public Relations (PR)* is understood as the "planned and sustained effort to establish and maintain goodwill and mutual understanding between an organization [awareness-raising campaign] and its publics [audience and stakeholders]" (Sayers, 2006, p. 52); thereby a commonly used strategy is the making use of celebrities as a spokesperson for creating attention on a topic of urge. PR ensures that a campaign generates positive response; being credible is thereby the maxim.

- *Advocacy and lobbyism* are important approaches to consider as governments in their role as governing bodies are well placed to help the population. It is common practice to meet government officials to foster the relationship and then seek for support. Further, the formation of strategic partnerships and alliances can be of great value, as those have the financial means and image to influence and leave a lasting and positive impression on the population (Sayers, 2006).

2.9 Humanist paradigm – participatory development

The humanist paradigm, understood as a micro approach focuses on people and community. At its core stands the value that people should decide for themselves, thus taking their own lives in hands as also seen before with Freire. This paradigm became prominent in the post-Apartheid era in South Africa, as much confidence was put in it to address the injustices of the past (Davids et al., 2009). This paradigm will be used to work on recommendations consisting of the following four building blocks of the people-centered-approach which are discussed here after.

2.9.1. Public participation

Within the people-centered-approach, public participation is fundamental to the approach and it is also a democratic right. The core idea behind this is that people must actively, and out of their own free will participate in what is needed to be changed. During apartheid, the majority of the South African population was oppressed and despite participation and collectiveness being characteristics of the African culture, people often still find it difficult to actively and deliberately participate (Davids et al., 2009). Public relations could be used as an instrument to promote public participation and bring about the transformation towards a greener society.

2.9.2. Social Learning

Social learning refers to the critical awareness of Freire's theory on conscentization to genuinely generate positive change for one self as well as for others which empowers to change the situation and on a longer term society (Davids et al., 2009). Critical awareness can as well be created through the techniques and approaches of awareness-raising mentioned in the paragraph

2.9.3. Empowerment

Within the people-centered-approach empowerment means the power to change or influence. Empowerment understood in the South African context is about participation. It is through participation that empowerment is then created (Davids et al., 2009).

2.9.4. Sustainability

Sustainability is defined as the "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (World Commission on Environment and Development report 1987, as cited in Davids et al., 2009, p. 22). The thought behind this is improved quality of life through social justice and ecological health as well as to

position future generations with a better starting point. Lélé for instance refers to sustainable development as having the concern for the natural environment as well as redressing the destructive patterns of the past and of society in general (De Beer & Swanepoel, 2000).
For sustainable development to take place, it will require the support of governments as well as the public (Midgley, 1995).

2.10 Role players

Role players in this context are individuals or institutions that can influence the water awareness situation. These refer to the responsible water departments within government as well as educators. Educators in terms of anyone that is able to share knowledge e.g teachers, parents, siblings, NGO's, companies, the general public.

2.10.1. Government

When it comes to changing a condition, it is not only important to educate, but to also support by providing a framework. Support in developmental issues can best be given by governments as they have the required instruments to achieve the goals as well as they have the authority to legislate and execute. Advocates of the statist approach, who view the government as the facilitator of development, have the conception that governments are responsible for their citizen and should fully act in their advantage to reach social well-being. Further, governments have the relationships to mobilise local as well as international support (Midgley, 2014).

2.10.2. Educator

We live in a system where our functioning depends on individual interactions and where our individual action may have consequences for others, as we are all according to the ecological concept of Bronfenbrenner interdependent (Keenan & Evans, 2009; David et al., 2010). This is one of the reasons why each and everyone, should take responsibility and drive towards an ownership culture for their own actions towards self, but especially towards society as a whole.
As already mentioned, Paulo Freire argues that dialogue is an important force to drive this interaction. Dialogue is something that anybody can engage with and practice. Especially when it comes to children who are still in their development phase and are being moulded as Vygotsky and others would name it (Keenan & Evans, 2009) and where knowledge is constructed.

Vygotsky for instance came to the observation that parents, caregivers et cetera have the potential to educate but that they need to do it intentionally (David et al., 2010). It is that intention that can make the difference in transforming societies.

2.11 Summary

Chapter Two illustrated the importance of water for the human body as well as the economy but as well revealed its implications for food security, political stability, longevity rates, literacy and gender equity In order to encounter all these facts and enhance consciousness about the problems that go with water, different measures have been presented. Freire showed with his Concientization Theory that education can be the key to raise awareness even amongst an illiterate population. The selected approaches to behavioural change showed that change is dependent on past experiences but that it as well is a conscious process that first needs to be initiated by the individual to arrive to behavioural change. Together with social marketing and public relations the initiation step can support the change process. The humanist paradigm underpinned the idea of having to initiate a step and emphasizes the participative approach where people can engage and take influence over actions; as to change their behavior. Though the process starts with every individual, external help is needed to support this change process which can best be given by educators – understood as everyone who emits knowledge- as well as governments who have the means to support the necessary activities. The next Chapter will be looking at the research methodology contemplating the pro's and con's of the quantitative approach as well as discussing the procedure of the survey going forward.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter gives a detailed insight into the design and methodology applied to the study. First the reason for choosing the quantitative design will be explained, followed by the procedure of selecting and describing the population. Then the research instrumentation will be discussed in detail, highlighting its advantage and disadvantages. Thereafter the process for the roll out of the design will be explained as well as the methods of data collection and analysis. Validity and reliability of the study as well as the ethical considerations adhered to will be presented.

3.2 Research approach and design

Research design according to Gravetter and Forzano cited in Morgan and Sklar (2012) represents the plan to implement the strategy of how to go about something. Others like Ferreira (2012) views research design as a concrete way of how to tackle a research problem. Mouton for instance refers to it as a blueprint of how to begin a research (Fereira, 2012). To summarise, a research design is a plan which provides guidance to accomplish a specific task under certain circumstances (Seabi, 2012). The plan itself contains detailed information on how to best answer the research question. Whereas the aims of a research design, is to provide credibility or validity.
The research approach of this study is quantitative, non-experimental; as the study results cannot show a true cause-effect relationship as the researcher was not in control of variables e.g the sample did not comprise two different groups of one with and one without placebo effect; but of one homogeneous group. Consequently, the approach is of descriptive and interpretative nature. In quantitative studies the researcher is interested in the in breadth information of a larger sample, in contrast to going into detail as it is done in a qualitative approach (Seabi, 2012).

Survey designs as it was employed in this study are typical to the quantitative approach. A group of participants is chosen and managed by the means of a test or questionnaire. In this study a questionnaire has been used.

Surveys are very often used in the educational field to measure achievements of e.g teaching practices. Further they are efficient as many variables can be used at low cost and time. And as samples are taken from a large population, the data gathered can easily be generalised to gain a representative picture or even a pattern. The advantage of a survey conducted in a group, where the researcher is present, is that respond rates can be better, longer questionnaires are more likely to be tolerated as the researcher might positively influence the audience, and the researcher can observe the attitudes of the respondents. The disadvantages are that it is more costly than the online or telephone surveys through all the print outs, it is more time consuming in the event that the researcher is also present which had been the case in this study. Also, a non representative sample might be the result if not enough respondents are being sampled and the ratio between gender is uneven (Seabi, 2012; FAO, n.d).

3.3 Population, Sample and sampling procedure

A population is the target group the researcher is interested in and from which respondents will be drawn (Morgan & Sklar, 2012). As it is not possible to include all the relevant people into a study, only a part is chosen which is qualified as a sample. In this study, learners from KYP, only aged 10 – 13 have been sampled by means of availability and because they are in what Piaget refers to as the concrete operational stage of developmental where logic is being developed (Donald et al., 2010). According to Morgan & Sklar (2012) a sample is a representative group of people chosen from the population. The type of sampling used amongst the KYP members was simple random probability sampling. This technique is quite common when it comes to quantitative methods "[…] as it increases the representativeness of the sample group […] and increase[s] the generalizability of results" (Morgan & Sklar, 2012, p. 70). The sample size of this study involved 24 learners, eight boys and 16 girls from a total of 119, ten to thirteen year olds. The sample had not been stratified before, meaning that the selection of the sample did not happen based on certain characteristics of the participants (Creswell, 2003).

All of them were evidently of black origin, though one child mentioned being white. Members of KYP are school going children living in deprived circumstances who gets support from KYP in form of nutrition, access to facilities such as computers, internet and e-learning possibilities; as well as recreational space.

The procedure of random probability sampling used was:

Step 1: Definition of the population to be studied.

Step 2: Creation of a list and identification of the KPY members to be involved.

Step 3: Use of random process to select KPY members. This process was taken over by KYP officials.

The 10 – 13 year olds have been explicitly chosen as they represent a critical mass, in that they could share and discuss the information heard with their social environment and by that taking over responsibility to educating the smaller ones at school and in their community. In this context, Jean Piaget, talks about the concrete operational phase, where logic is being developed as well as generalisation from the specific to the broader is possible. Skills that are needed to engage in social interaction with others (Donald et al., 2010).

3.4 Research instrumentation

A research instrument is a tool used to collect data to get the answers the researcher wants to address or solve in the study. The advantage of using surveys is that several topics can be included, depending on what the researcher wants to investigate on. Also, there are various means of administering it. The form of survey applied to this study was a self designed questionnaire which has been fully administered by the researcher and delivered by hand. Questions in surveys are mostly closed-ended, however open-ended questions can also be applied. To add, a questionnaire as the word implies, is a set of structured questions and very often of statements that respondents read and then answer. It needs to be designed the way that no external help is needed to be able answering the questionnaire (Kalof et al., 2008).

The questionnaire has been fully managed by the researcher with the assistance of a KYP employee who translated all of the questions from English into Isizulu, which was the first language of the respondents.

As each research instrument; questionnaires have their strengths and weaknesses which are discussed below.

Questionnaires are versatile as they can be used by heterogenic groups, they are environment independent, and are not limited to any time lines and can incorporate multiple variables. Questionnaires are in addition simple to create and handy to work with and if requested can be done anonymously. Questionnaires are further cost efficient in regards to time and material and data are easy to process (Survey Design, n.d).

However, questionnaires also have their limitations. As a characteristic of the quantitative method, it does not provide enough in depth information for qualitative output, as data are more superficial and generic. Moreover, illiterate people are systematically excluded in terms of their reading, writing and comprehension skills (De Vos et al., 2011). An important consideration with regards to questionnaires is that they must be carefully designed, and much effort was put in by the researcher during the planning phase as the way questions are structured and written have a strong effect on the decoding and question answering process of the respondents. Some of the key values that have been taken into consideration whilst designing the questionnaire of this study were:

- Use of appropriate language for the target group
- Use of clear and short sentences
- Use of one idea per question
- Expression of same ideas in different questions to ensure content validity
- No use of biased questions
- Adherence of relevance to the aim of the questionnaire
- Avoidance of negative formulations (De Vos et al., 2011)

This study has two types of questionnaires; a pre and a post questionnaire. The pre questionnaire was more to assess the learner's knowledge and interaction with the environment. The pre questionnaire contained 22 questions. The post questionnaire consisted of only 4 questions and should be seen as a mini evaluation of the session undertaken with them**.**

3.5 Pre-testing of the research tool

The pre-testing is an important step to take during the survey to eliminate errors and make adjustments. Doing pre-testing aims to ameliorate the face and content validity, as well as it

provides estimation, on how long respondents will take to answer the questionnaire and if the answers to the Research questions are being given (De Vos et al., 2011). After the questionnaire was developed, it was given to a grade six learner (12 year old boy) from a primary school to complete. The purpose was to make sure that the use of language and type of questions asked were clear and appropriate to the age and level. Only a few amendments had to be done e.g male and female have been substituted by the respective symbols. Due to time and logistics constraints it was not possible to pre-test with the members of KYP. However a site visit was undertaken to examine the conditions and environment in which the study took place.

3.6 Methods of data collection

The data collection method has to be determined, dependent on the kind of research to be undertaken. For this type of study survey and experiment methods could be the ones to be considered. Further, the method to be chosen is to some extend also reliant on the sample. It is in addition to be said that surveys belong to the most popular form of data collection method within the discipline of Social Sciences (Kalof et al., 2008).
In this study, the survey method has been preferred over the experimental one.

Data for this study has been collected by means of a questionnaire which belongs to the structured tools. Data collection thus happened by means of a pen - and - paper which were provided by the researcher. As the room in which the participants did not contain any tables, clipboards were provided.

Group administered surveys are challenging when it comes to find the right venue and a schedule that fits the maximum of the sample. Further, respondents might affect data validity of the questionnaire if they do not understand the question but feel too shy to raise their voice and ask (De Vos et al., 2011). This concern raised by De Vos has also been experienced during this study. The researcher was fully dependent on KYP to organise the respondents required.

The process of data collection took place in the following way:

1. Consent and assent forms were first checked against the present participants.

2. The researcher explained the purpose and the process of the research and made clear that it was an anonymous intervention; meaning no names are to be written onto the questionnaires. After having asked if everyone was still happy to participate, the pre questionnaire was distributed.

3. Until the end of the pre questionnaire the process was the same for all the 24 questions and statements on the questionnaire; the researcher read aloud question by question and after each of the question asked if further explanation was needed. Thereafter the KYP official would translate and also explain the said into Isizulu.

4. Whilst the KYP official was translating, the researcher also had the chance of observing the children, which for the discussion and finding part of this study will be relevant.

5. After the pre questionnaire, a short PowerPoint presentation on the importance of water, factors that endanger water as well as the consequences of polluting water was presented. After that, the questionnaires were collected and then two short video clips on water scarcity and climate change followed by some information switching back to the PowerPoint presentation on how to save water and why it is important to save and not to pollute water was shown.

6. After the presentations, a very short post questionnaire with four open ended questions was distributed to get a feeling of what information caught the attention of the children.

7. After the respondents had finished answering the post questionnaire, the papers were collected.

8. In order to respect the ethical use of incentives, only at the end of the survey, the children and KYP officials were given some sweets as a small token of appreciation to thank them for their participation and respective support. This was not known to them until the end of the study.

3.7 Method of data analysis

According to Seabi "Quantitative research employs empirical methods to explain phenomena, by collecting numerical data, which are commonly analyzed with statistically based methods" (Seabi 2012, p. 82).

In regards to descriptive statistics, "most surveys describe the incidence, frequency and distribution of the characteristics of an identified population" (Seabi 2012, p. 88). Further, descriptive statistics as explained by Morgan & Sklar (2012) belongs to the non-experimental techniques that are used to describe variables. When it comes to evaluate the variables, researchers have the possibility to either rely on mechanical or computer based utilities. In this study, the data collected was entered into a computer based utility – Excel – and was manually analyzed.

When talking about data collection and analysis, it needs to be mentioned that there exists four types of data that can be collected in social research; namely Nominal, Ordinal, and Numerical which are divided into Interval and Ratio (Fink, 2003). In this study, the collected data are of nominal nature. "Nominal scales have no numerical value and produce data that fit into categories."(Fink 2003, p.28).

The survey contained four sections; namely the section on environmental knowledge which shall demonstrate how environmental friendly KYP members are, the second section is about the level of water awareness, the third section is on the children's daily interaction with water and the fourth section shall indicate the children's pro activeness towards water.

Hereafter are the steps undertaken to process the collected data in order to arrive to a statistically evaluable data set.

1. Excel as a computer based utility was used as it bears a multitude of functionalities to manage, summarize and visualize data.

2. The pre questionnaire was coded with P1 – P24 representing all 24 participants; the post questionnaires was coded M1-M24 and do not relate to the pre questionnaire.

3. Questions as well as the different variables from the survey were entered into an Excel sheet and named "Raw Data-PRE" and "Raw-Data-POST" respectively.

4. Data were entered line by line and some answers were subsumed and others named differently e.g answers given for the profession KYP members would like to exercise were Police and the researcher changed it to "Policeman". Free text answers have been categorized in order to be able processing the data. This was the case for section E (Pro active water management) of the survey.

5. After all data entries, a cross check was done to exclude input errors.

6. The analysis started by building ratios, comparisons and percentages as well as averages by the means of the AVERAGE, COUNTIF, SUM and DIVISION excel commands and also by linking the sheets to the different answers given in the survey. There after numbers had been obtained, charts within excel created.

3.8 Validity and reliability

3.8.1. Validity

Validity is obtained when the research tool measures what is set to be measured accurately, meaning the concept. In this study, content validity has been checked by a 12 year old boy to see if the content and language of the questionnaire is appropriate to the age group. The core questions to be asked after having designed the questionnaire are:
Firstly, is the concept of the study being represented in the questionnaire? Secondly is the amount of item that represents the concept representative and accurate enough? As a rule, questionnaires should only be distributed to the selected population when the pre-testing of the questionnaire has been proven to be valid and reliable (De Vos et al., 2011).

This study followed the suggested procedure by De Vos.

3.8.2. Reliability

Reliability is the other concept which a research tool needs to deliver on. Reliability refers to a characteristic of something that has proven to be consistent in the past and which consequently will be for the future. In the research context, it concerns instruments that have had the same outcome when used repetitively. It deals with the question, how well is the concept being measured (De Vos et al., 2011). This part will be thoroughly looked at the Chapter five.

3.9 Ethical considerations

According to Neumann (2011) ethical consideration is an ethos to be followed by each and every researcher and which lies within the behavior of the researcher. Heath et al. (2009) refer to the personal code of ethics, representing the moral values as well as the codes of ethics itself, which provides guidelines to adhere to. Ethics means to know what is morally right to do and to care about other people's feelings as well as ensuring respect towards the person (Heath et al., 2009). Katlof et al. call upon the researcher's "[…] professional and moral obligation […]" (Katlof et al., 2008, p.46).

Though Heath et al. (2009) write on ethical youth practice, this practice can be applied to any research undertaken. Ethical research has two core values at its centre: "the pursuit of scientific knowledge and the rights of those being studied or of others in society" (Neumann 2011, p. 143). The researcher is the one taking full accountability for the design of the study, so with also the full ethical responsibility to adhere to. Heath et al. (2009) point out that there are two approaches in ethics: the rules based approach and the approach based on situations. In this study the latter applies. It puts the focus on the very specific situation to then come to a judgment whether ethical or not. The following ethical principles were relevant to this study.

3.9.1. Avoidance of physical as well as psychological harm

A fundamental principle amongst researchers is to never cause any kind of harm to any participants or even endanger them at any time of the study. Further, risks are to be mitigated by anticipating them. Psychological harm in form of producing high-anxiety scenarios are to be avoided or professional assistance need to be provided upfront. Further, unnecessary stress shouldn't be put on the participants (Neumann, 2011).

3.9.2. Informed consent

Related to the previous point mentioned, not harming a participant within a study means informing him/her at any time over the research topic properly e.g the cause of their participation, why their participation is important, what the outcome and use will be and also about the importance of valid and reliable data. In youth research this is often done by means of a participant information sheet, specially designed for the youths and in a way to catch their attention and explain the purpose. People can then decide for themselves if they would like to participate or not. This consent has to be clear and not misleading and make sure that they have

been informed meaningfully prior to the study start (Neumann, 2011). It should be made clear to young people that opting out of the study is at any time possible even though the assent has been signed. In regards to young people involvements in research, this part is viewed critically (Health et al., 2009). Appendix A contains the fact sheet and appendix B the assent form.

3.9.3. Legal consent with youth under 16 years of age

When it comes to research in schools, teachers- in order to avoid negative push back from parents prefer to have the parent's consent. A letter is often sent to the parents, informing them that a research will be undertaken and that they are executing force on behalf of the department, allowing parents by this means to withdraw their child from the study (Heath et al., 2009). Challenges in regards to doing research with youth arise in that "the gaining of research access is often dependent on the goodwill of institutional gatekeepers" (Heath et al., 2009, p. 31), influenced by "[…] factors such as pressures of time and institutional inconvenience […]" (Heath et al., 2009, p. 31).

A participation information sheet has been also sent to the parents/caregivers/legal guardians of children aged 10 -13 who are members of KYP to inform them about the survey and to request their proved consent by signature. See Appendix C.

3.9.4. Anonymity

With anonymity, the researchers aim is to protect the participants' identity. The survey will assure anonymity in that there will be no names written on them, so that answers cannot be tracked back to a specific child. But full anonymity, in the sense that even the participation in the study remains anonymous, can however in a classroom set up not be guaranteed (Katlof et al., 2008).

3.9.5. Confidentiality

Confidentiality is the act of keeping information secret, away from others. Participants, who do not wish any details on their person to be communicated or passed on, should be held confidential and kept anonymous. Thus results that are confidential are only presented on a summative basis and in a way that characteristic which could be associated to an individual or specific group are not divulged or retraceable anymore (Neumann, 2011).

3.9.6. Use of incentives

According to Heath et al. (2009) popularity in rewarding youths for their participation in a study is increasing, though some opponents might see this kind of action as bribe or even encouraging a culture of having to always give back when wanting something.

3.10 Summary

The aim of Chapter Three was to discuss the quantitative design methodology which represents the framework of the study. Thereby focus was put on the choice of the research instrumentation, weighing the pro's and con's, the sampling procedure was laid out, the method of data collection as well as method of data analysis thoroughly discussed. Further, the importance of data reliability and validity, the pre testing and ethical considerations have been highlighted. The next Chapter describes the results of the study.

CHAPTER FOUR

RESULTS OF THE STUDY

4.1 Introduction

In this chapter the results from the survey based on descriptive statistics methods is presented. A brief description of the sample based on section A of the survey is given, followed by the presentation of the survey results. Data are presented in text, table and chart format. Mainly Pie Charts and bar graphs have been used. Pie charts are useful; to show parts of a whole, when categorical data are in use and to emphasize findings; whereas small differences cannot be shown. In contrast, bar graphs are used for direct comparison.

4.2 Demographic profile of the respondents

The profile of the participants in the survey will be presented. Of 119 possible KYP members in the age group 10-13 years, 24 participated in the survey. For a better visual comparison, some results have been divided by two.

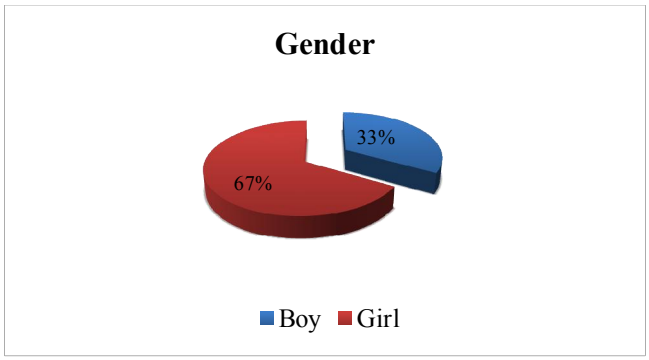


Figure 4: Section A - Distribution of gender

In Figure 4, gender of respondents is provided. Of the 24 respondents, eight were boys and 16 girls, representing a ratio of 1:2 respectively and translating into 67% being girls and 33% boys.

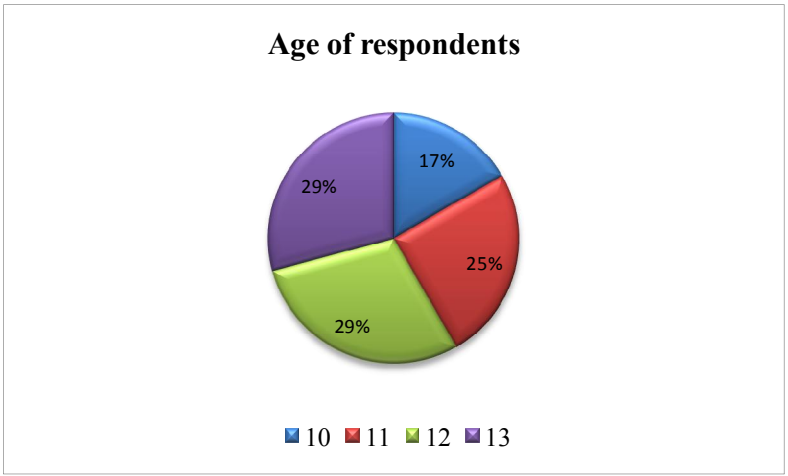


Figure 5: Section A - Age of respondents

Figure 5 shows all respondents were aged between 10 and 13, the average age being 11,7.

All of the respondents belonged to the black community, with the exception of one respondent stated being white. However, the researcher did not notice any so-called white person in the room where the survey was conducted. Respondents stated having in average 5,2 siblings, whereby it was not clear whether the respondents included themselves in the numbers.

In order to have an idea of how much parents act as a role model and how much communication happens in the micro environment of children; respondents were asked about the profession of their parents. Responses are presented in Figure 6 and Figure 7.

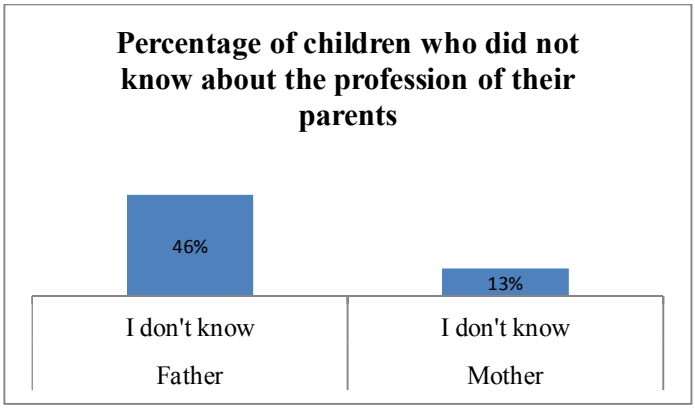


Figure 6: Section A - Percentage of children who did not know about the profession of their parents

Figure 6 shows to what extent children knew about the profession of their parents. 46% of the respondents did not know about the profession of their male parent and only 13% did not know about the profession of their female parent.

The observation made during the intervention was that respondents knew more about their female parent that their male parent; which was then also reflected in their answers shown above in figure 6.

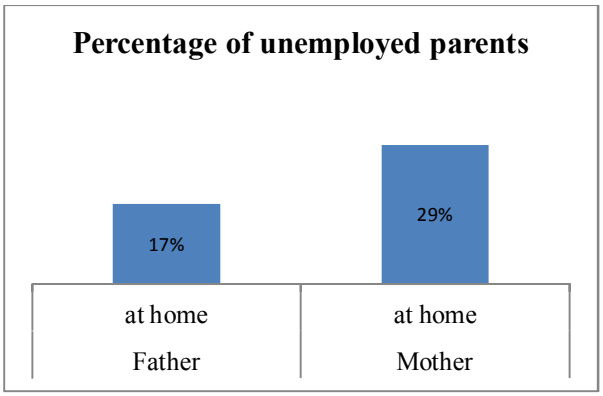


Figure 7: Section A - Percentage of unemployed parents

Figure 7 shows the percentage of unemployed parents amongst the respondents, whereas being at home has been interpreted as not being employed. 17% of the respondents stated their male parent to be at home versus 29% for their female parents.

In order to see their ambition level, respondents were asked for two professions they would like to exercise after they would have finished school; the first choice entry would be what comes first to their mind and what they wish to do. The second choice entry should give an indication on how sure they already are about their choice of profession and which could indicate their early identification with the profession.

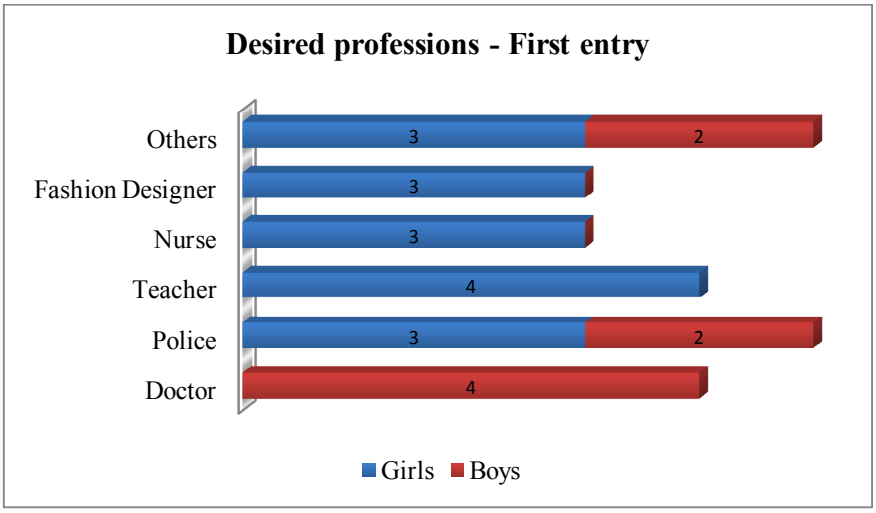


Figure 8: Section A - Desired professions of KYP members - First choice

Figure 8 shows the first choice professions by gender. The first profession choices given were being a teacher and doctor followed by policeman and nurse and Fashion Designer. Out of the answers given, only one would like to do a similar profession to that of their parents; the female parent was a sweet maker and the daughter would like to become a baker.

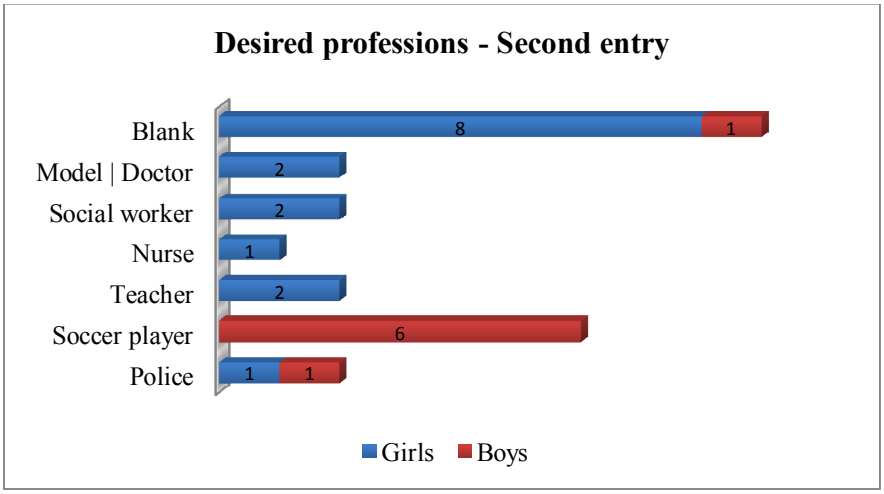


Figure 9: Section A - Desired professions of KYP members - Second choice

Figure 9 shows the second entry choice by gender. For the second entry choice for instance, not everyone entered a profession which could be interpreted as them having a clear vision of what

they would like to become. The relation of boys to girls leaving the second entry blank was one boy compared to four girls; applying the ration of 1:2

4.3 Environmental knowledge of respondents

In this section of the survey the level of environmental knowledge KYP members have, was assessed.

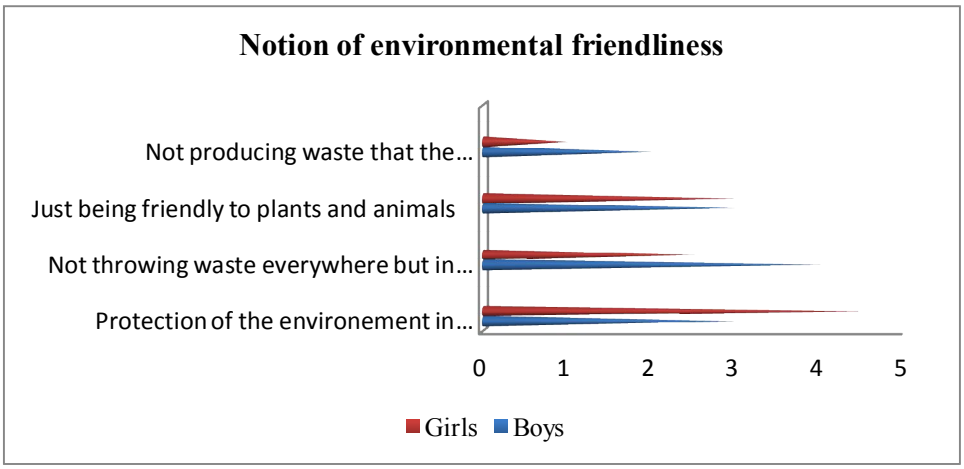


Figure 10: Section B question 1 - Notion of environmental friendliness -

Figure 10 illustrates what KYP members associate with environmental friendliness.

Most of the children would however associate environmental friendliness with the protection of the environment as well as not throwing waste everywhere. The later answer was merely given by male respondents and the first by female respondents. The less common answer was “not producing waste that the environment cannot deal with”. However another question of the questionnaire which relates to that one is Question B1. Answers to the question if the protection of the environment is important to KYP members were all with the exception of one female respondent answered with a “yes”.

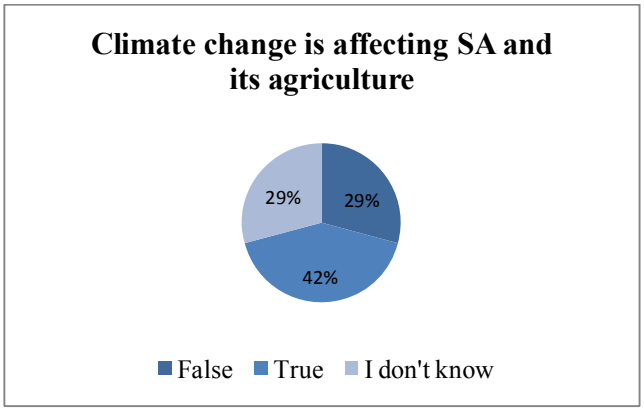


Figure 11: Section B question 3|1 - Affect of climate change in South Africa and its agriculture

Figure 11 shows the overall percentages in answers between "False, True and I don't know" when asked if climate change is affecting South Africa.

The share of answers given when asked for the effect of climate change on South Africa's agriculture was thereby mixed. The majority approved the statement with 42%; however 29% of the respondents did not know the impact and as much stated climate change is not affecting South Africa.

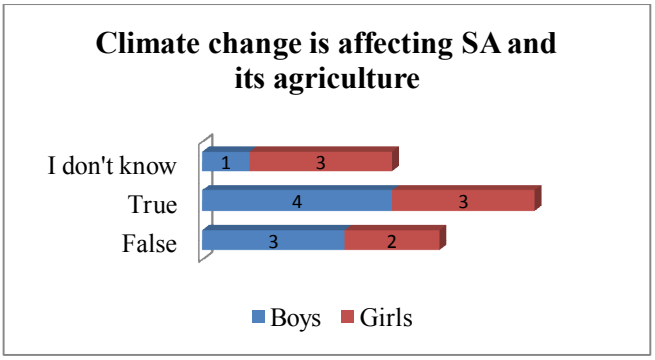


Figure 12: Section B question 3|2 - Affect of climate change in South Africa and its agriculture by gender

Figure 12 shows a ratio of 1:1 on the number of respondents by gender when asked if climate change was affecting South Africa.

"I don't know" was given by three female respondents as opposed to one male respondent. Comparing the given answers "I don't know" with those that answered "False"; it appears to be that male respondents are more likely to give a "wrong" answer rather than stating they do not know as compared to the female respondents; unless they were very convinced that climate change is not affecting South Africa .

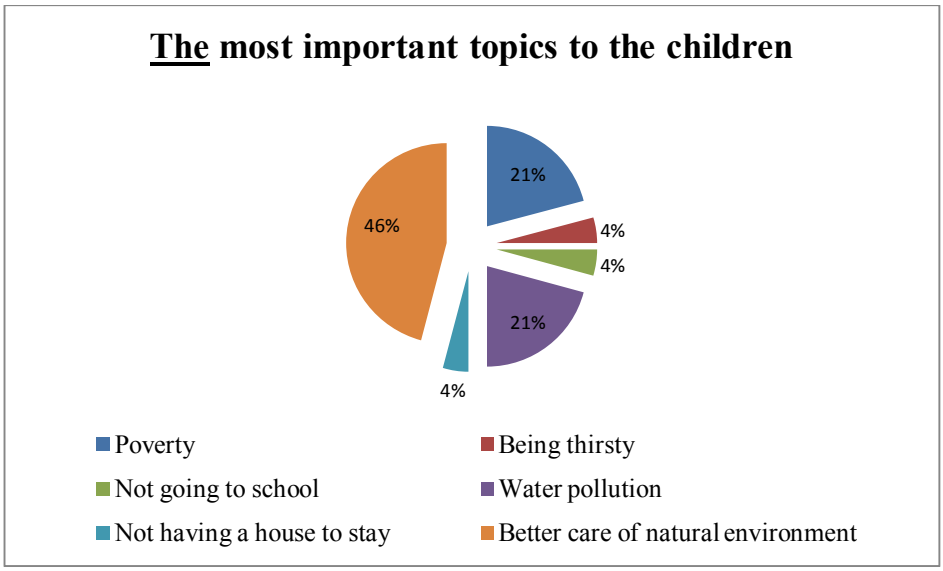


Figure 13: Section B question 4 - The Most important topics to children

Figure 13 shows a pie chart representing the most important topics to KYP children.

The fourth question of the pre questionnaire intended to find out, which of the existing South African problems e.g poverty, thirst, hunger, school absenteeism, water pollution, no inside toilets, no house to stay in as well as the better care of the environment, KYP members would rate as the most sensitive ones to them. During the intervention, the children were asked to mark all the important topics to them, thus multiple answers were possible. After that they were asked to only mark the most important one with an "A". Thereby, the most popular answer given was "Better care of the natural environment". However, whilst transcribing the data into excel, the researcher noticed that "poverty" as a prior answer marked with "A" was crossed out to then mark "Better care of the environment" with an "A". The data could constitute a demand-effect in terms of limitations encountered.

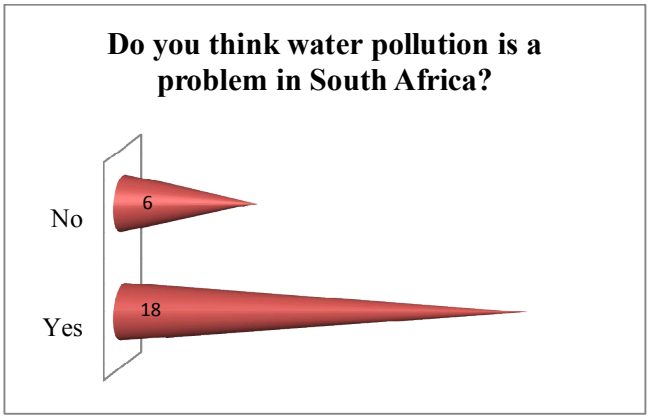


Figure 14: Section B question 6|1 - Water pollution a problem in South Africa?

Figure 14 displays a bar graph where KYP members were asked if they would consider water pollution being an issue in South Africa. Six children responded with "No" and 18 with "Yes". Around a little less than 1/3 answered that water pollution is not a problem in South Africa.

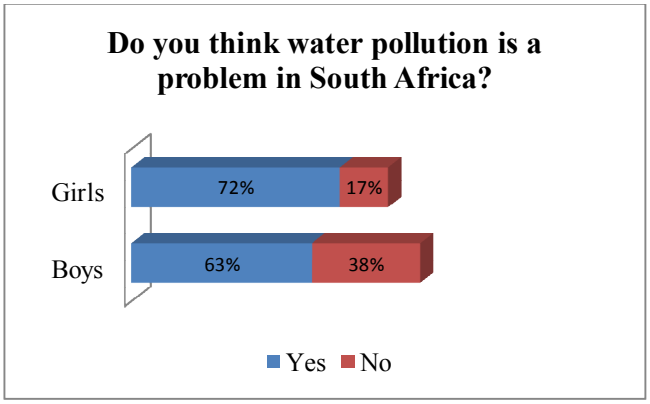


Figure 15: Section B question 6|2 - Gender overview - Water pollution a problem in South Africa?

Figure 15 represents a graph by gender on whether water pollution is a problem in South Africa or not. Around 17% of the female respondents think that water pollution in South Africa is not a problem as opposed to 72% who think water pollution is an issue, whereas 38% of the male respondents think it is not as compared to 63% of the same gender who thinks water pollution is relevant to South Africa. From this graph the conclusion could be drawn that respondents do not know much about the water quality in South Africa.

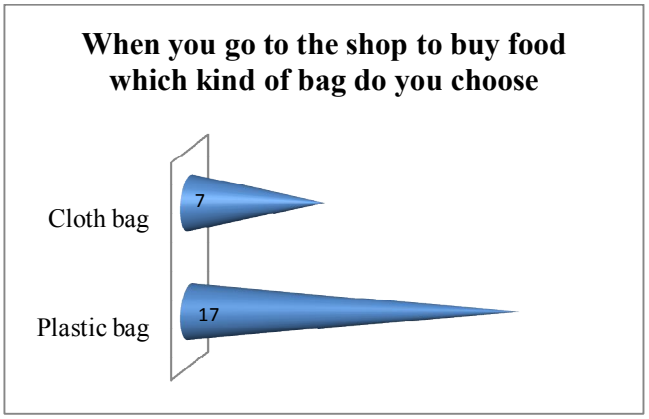


Figure 16: Section B question 7|1 - Choice between plastic and cloth bag

Figure 16 compares the answers given in favour of cloth bags as opposed to plastic bags.

Question B7 of the pre questionnaire is very relevant to get an indication on how big the environmental friendliness of KYP members are. The children were asked if they had the choice between a plastic and a cloth/material bag which one they would chose. The majority answered in favor of the plastic bags, which in return would assume that those respondents do not know much about the effect of plastic in the environment nor the sustainability.



Figure 17: Section B question 7|2 - Choice between plastic and cloth bag by gender

Figure 17 shows the percentages of male and female respondents voting for the plastic and material bag. Of the female respondents, 72% would choose a plastic bag whereas 50 % of the male respondents would choose it. As for the cloth bag, only 17% of the girls would opt for it

whereas 50% of the boys would choose it. Looking at the percentages by gender, female respondents arguing for the plastic bags were 12 percentage points higher than for the male respondents.

4.5 Respondent's Water awareness

In this section KYP members' awareness about and knowledge of water and its usage are presented.

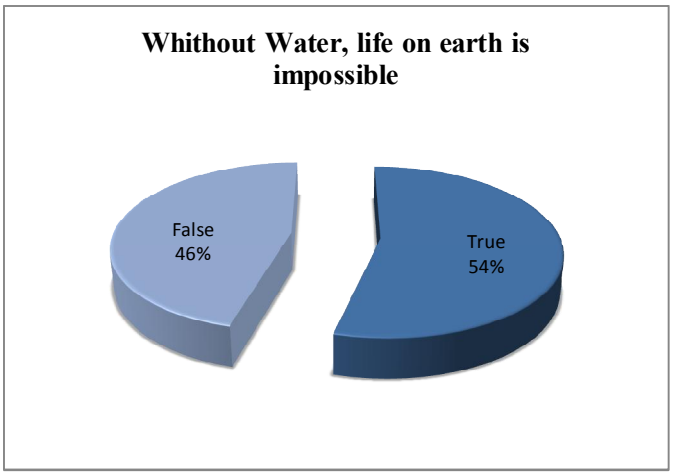


Figure 18: Section C question 8|1 - Life on earth without water is impossible

Figure 18 shows a pie chart with representing the knowledge of respondents of how much they know that life on earth depends on water. To the question if life on earth is possible without water, 46% responded that it is possible and 54% responded with it is not possible.

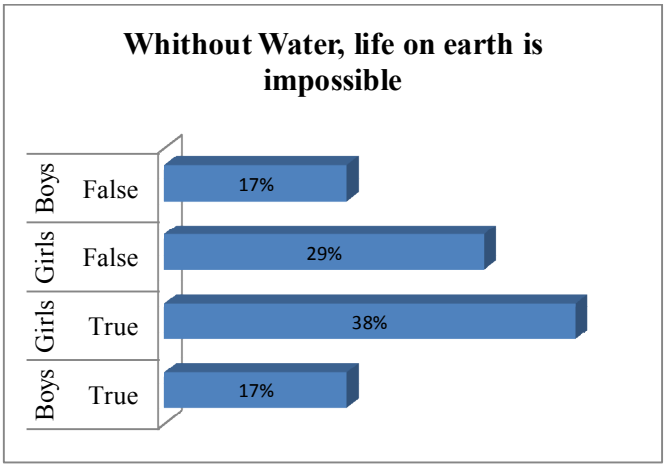


Figure 19: Section C question 8|1 - Gender overview - Life on Earth without water is impossible

Figure 19 shows the differences in gender to the question if life on earth is also possible without water. Of the given answers, 29% of the girls stated that life on earth is possible without water as opposed to approximately 37% who think it is not (Because of rounding effects, the graph shows 38 instead of 37). Looking at the male gender, 17% believe that life on earth without water is possible; whereas 17% also stated it is not.

The goal of question C8 was to assess whether KYP members know how important water is to human life and that without it life on earth is impossible. Though the majority positively answered the question still 46% of the sample of which 29% were girls and 17% boys with a ratio of 2:1 respectively thought that without water life is still possible on earth.

The specialty about question C9 is that all answers given are correct. Letting the KYP members chose as many answers as they want delivers a notion of their knowledge of water awareness in the sense of what they know water is used for.

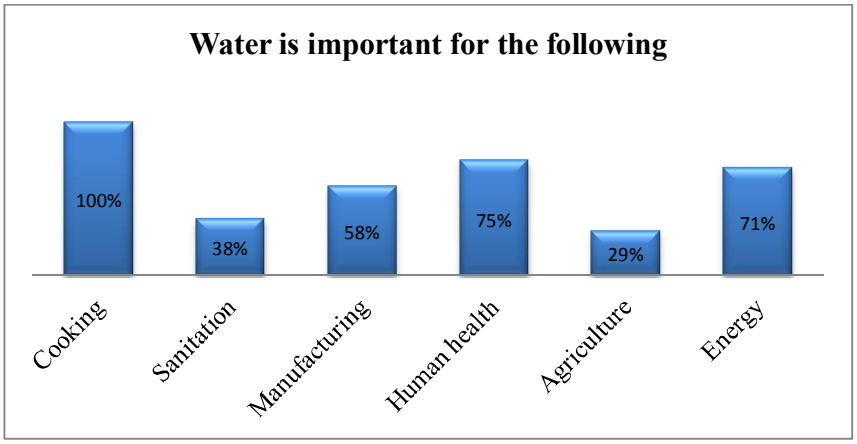


Figure 20: Section C question 9|1 - Importance of water by category

Figure 20 shows the frequency of answers given by all 24 respondents on the importance of water by category.

All respondents knew that water is needed for cooking, followed by human health and for energy generation. The least given common answers were agriculture, sanitation and manufacturing.

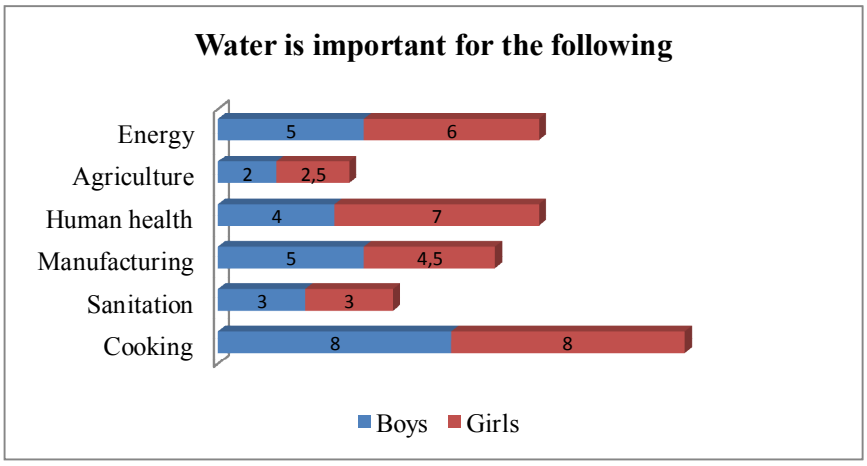


Figure 21: Section C question 9|2 - Importance of water by category and gender

Figure 21 shows the frequency of the importance of water per category by gender.

The applied ratio was1:1 to show a better comparison in answers. In average, female respondents mentioned all of the topics slightly more frequently than the male respondents did.

Questions C10, C11 and C14 aimed at knowing if KYP members are aware that water access is not evenly distributed or accessible in South Africa. Figures 22 – 24 will describe the answers given here after.

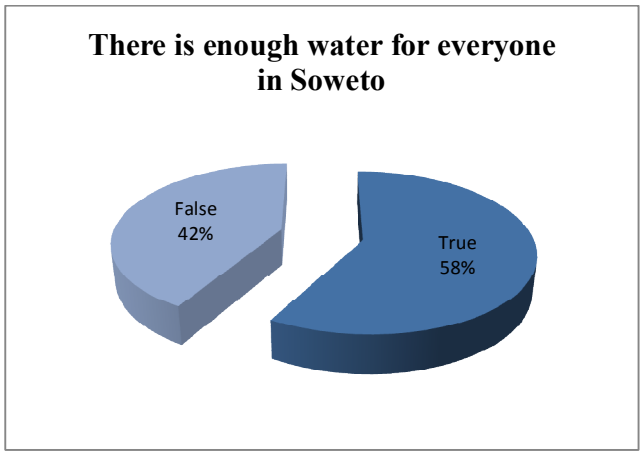


Figure 22: Section C question 10 - There is enough water for everyone in Soweto

Figure 22 shows the proportion of answers given to the question if there is enough water for everyone in Soweto. Of the whole population, 58% think there is enough water whereas 42% does not share this view.

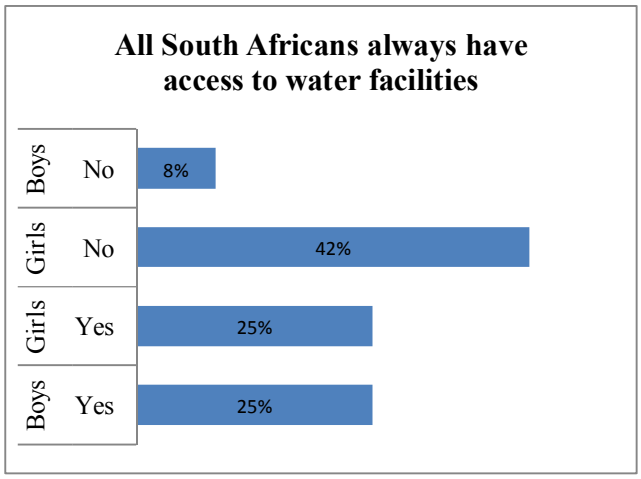


Figure 23: Section C question 11 - Access to water given to all South Africans?

Figure 23 shows the differences in answers given by gender when asked if all South Africans have access to water facilities. Boys and girls believing that all South Africans have access to water responded with 25 percent points each; whereas 42% of the girls and 8% of the boys do not believe in an equitable access to water of all South Africans.

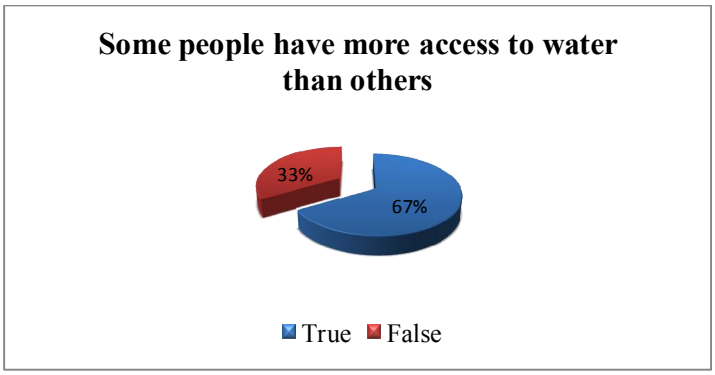


Figure 24: Section C question 14 - Inequity to access to water?

Figure 24 shows the respondents' answers on the fairness of water allocation

Of the whole population, 67% would think that water is unevenly distributed and 33% would think it is not.

The answers given for figures 22-24 show the tendency that the belief that there is enough water in South Africa is shared by the majority, whereas female respondents replied with more skepticism than the male respondents. Results also show that there is awareness in the inequitable distribution.

4.6 Respondents' Daily interaction with water

Section D deals with the determining of how KYP member interact with water in their daily lives as well as their pro activeness regarding water and how it is used. The latter will be presented in more detail in 4.7

Children were asked how they would deal with the situation if they see a leaking tap. To make it more concrete and ensure a certain level of honesty in their answers; the children were also asked to mention a name of a person to whom they would report if they see a broken pipe.

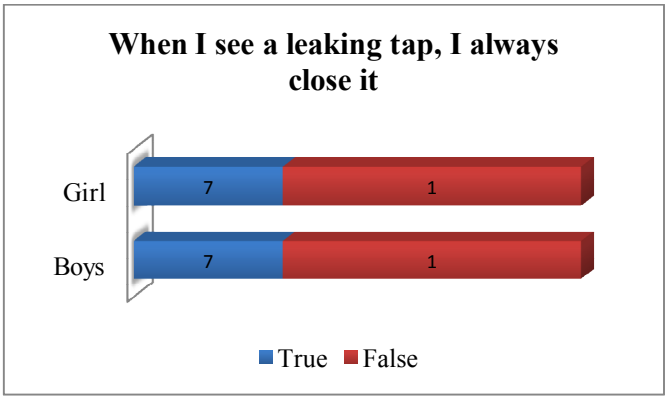


Figure 25: Section D question 15 - Closing of tap when open

Figure 25 show a 2:1 ratio; in order to have a better visual comparison in responses of girls and boys and if they close the tap if they would see it leaking.

Answers given for Chart D15 were balanced. Boys and Girls respectively answered in the ratio of 7:1 in favour of closing a tap should they see it leaking.

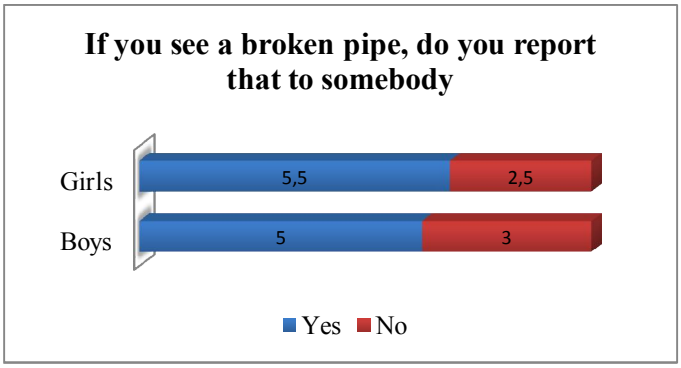


Figure 26: Section D question 16A - Reporting of broken pipe

Figure 26 shows a bar graph by gender. Respondents were asked if they would report a broken pipe to somebody.

All the respondents that answered they would report a broken pipe also entered at least one contact person, answers were rather proportional.

Question D17 which asked KYP members if they would be aware that they should be saving water in their daily activities was the only question of the whole questionnaire that has been answered with unity by both genders. All answered they are aware.

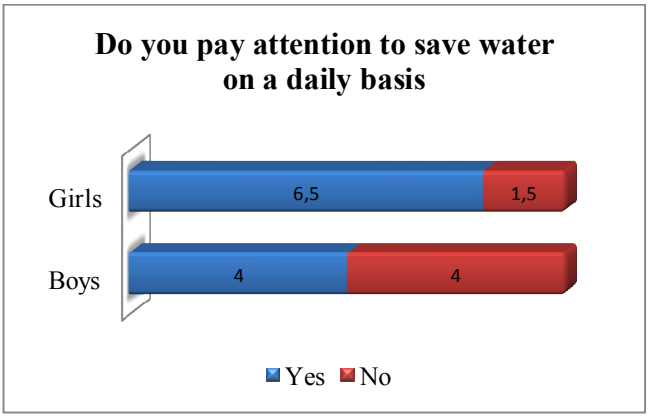


Figure 27: Section D question 18 - Paying attention to water on a daily basis

Figure 27 shows the answers given to the question if KYP members would pay attention on a daily basis to save water. However, despite knowing that water needs to be saved, 1.5 female respondents compared to 4 male respondents would not pay attention to their daily water footprint as shown in the chart above.

4.7 Pro- active water management by respondents

This section aimed at finding out how active KYP members are in protecting the environment.

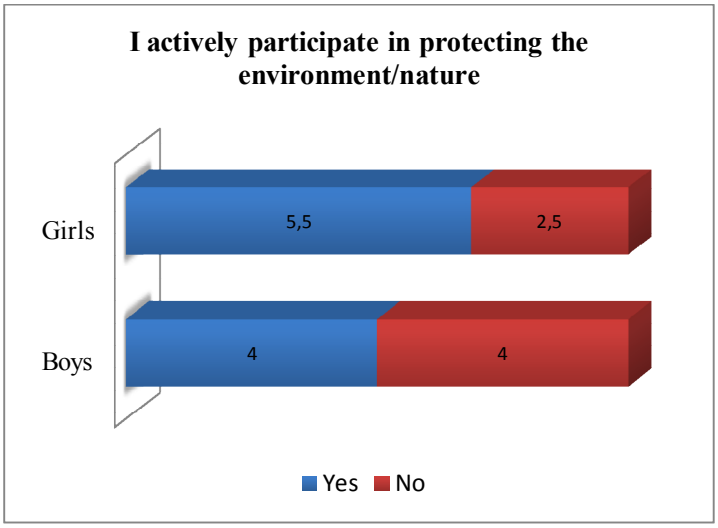


Figure 28: Section E question 20A - Active participation in environmental protection by gender

Figure 28 shows the willingness by gender to participate in the protection of the environment.

The respondent number has been again divided by two to obtain a better comparison. About 5,5 girls, compared to four boys state to actively participate in the protection of the environment, whereas 2,5 girls and 4 boys would not.

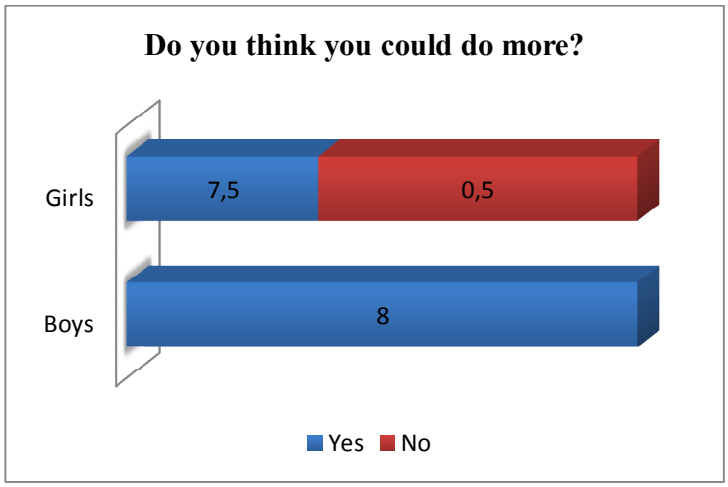


Figure 29: Section E question 20C - Do you think you could do more?

Figure 29 shows the responses to the question if KYP members could do more to protect the environment. Boys unanimously said they could do more, however 0,5 girl representing 1 person only stated she could not do more.

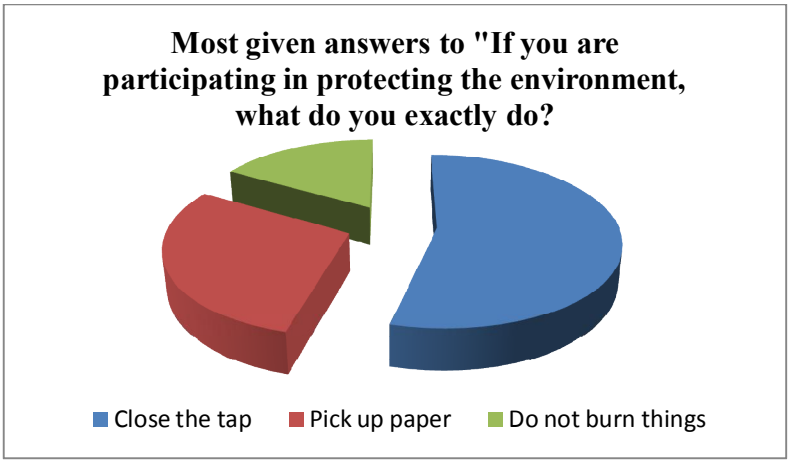


Figure 30: Section E question 20B - Type of environmental participation to the environment

Figure 30 shows the most common answers given by KYP members if they participate in the protection of the environment. Answers have been grouped in order to be able visualizing them.

Closing the tap was the most popular answer, followed by picking up paper as well as burning up things. Some isolated answers were not taken into consideration.

The last questions of the pre questionnaire; namely E21 and E22 aimed at finding out about the children's interest in how comfortable they would be in changing their behavior to pay attention to saving water and if they would like to participate in a water related project. All respondents, with the exception of one female respondent affirmed it would be easy for them to change their behaviour. Further, when children were asked if they would like to participate in a water related project, all with the exception of one female respondent confirmed they would be eager to.

4.8 Respondents Responses to Post questionnaire

The focal interest of the post questionnaire was more an evaluation of the intervention and to try and establish what children could retain, rather than assessing the awareness or knowledge of KYP members on water or the environment after the intervention. The idea behind it was to suggest that the answers that are given are answers that the children remembered and were genuinely interested in. These might be worthwhile exploring in other presentations in future. The post questionnaire did not take into account the different gender and age ranges. The figure below shows a range of answers given to the respective questions. The answers shown have been phrased slightly differently in favour of a good syntax, as sometimes whole words were missing and written in phonetic sounds e.g water was written like "wotha" or to pick up something was written like "to piki up something". A few members also seemed to be dyslexic especially with the letter "f". Some answers given have not been able to analyse as the researcher did not understand what the child was trying to write or the handwriting was not readable; these ones have been marked in grey in the table.

During the post intervention, the respondent number remained at 24 and no one dropped out

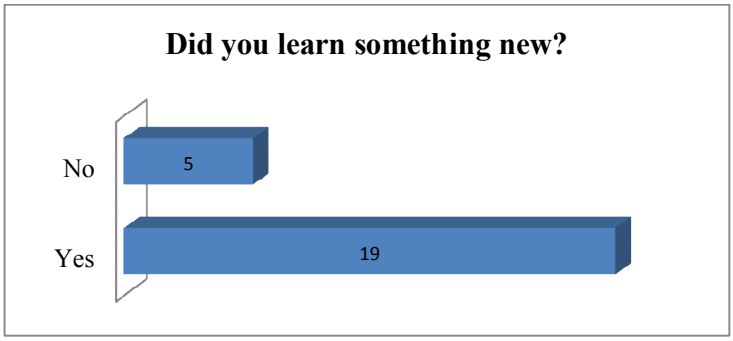


Figure 31: Post questionnaire question 1a - Did you learn something new ?

Figure 31 shows a bar graph with the variables "Yes" and "No" to the question whether KYP members learned something new. Out of the 24 respondents, 19 stated they learned something new and five did not.

To make the question more specific, children were asked to state what was new to them and had the chance to enter three answer choices.

Table 1: Post questionnaire question 1b - What was new to you?

If you learned something, state what was new to you			
Members	**Answer 1**	**Answer 2**	**Answer 3**
M1	n/a	n/a	n/a
M2	If there is a tap running - close it	If there is a broken pipe - call an adult	If it is raining - put the plants out to water
M3	Picture of an open tap	Picture of a man closing the tap	n/a
M4	n/a	n/a	n/a
M5	Close the tap	Not to burn wood and coal	Watering plants
M6	n/a	n/a	n/a
M7	To save water	To know that water saves life	n/a
M8	n/a	n/a	n/a
M9	To learn how to close the tap	n/a	n/a
M10	n/a	n/a	n/a
M11	I learned that is important to save water	To close the tap when I opened it	
M12	I did someone they are really	and state hand and the presenter	sand waters
M13	Water pollution	Agriculture	Climate
M14	Air pollution	Saving water	Light pollution
M15	To save water	To know how we save water …	And that water saves life
M16	I learned more about water	I learned more about pollution	And I learned some other things
M17	Water pollution	Land pollution	Thermal pollution

M18	Water is needed to cook	n/a	n/a
M19	I learned about water pollution	I learned about air pollution	I learned to take care of water
M20	I didn't know what climate change is	I didn't know that I must take care of water	I know that we should close the tap when it is open
M21	I learned how to save water	I learned why it is important to save water	
M22	n/a	n/a	n/a
M23	If it's raining we have to put the bucket outside	I didn't know what is a climate change now I know 100%	And when the tap is leaking close it
M24	If it is raining put the bucket out to water the plants	If we get a paper you must pick it up	You can wash with your bowl or bucket

Table 1 shows an array of answers given by all 24 respondents on what they learned during the intervention and on what was new to them. Columns containing "n/a" stands for no answers given. The most common answers have been given about saving water and prevent wastage. Other answers given were not specifically related to the video or information shared, but to the statements which they had to answer in the questionnaire.

Respondents were further asked if they would be interested in knowing more about the water situation in South Africa. All respondents wanted to know more except of one.

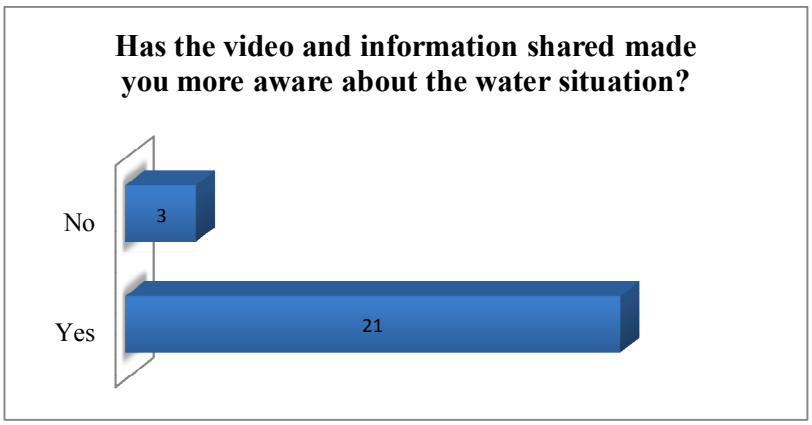


Figure 32: Post questionnaire question 3a - Awareness on water raised through video and information shared?

Figure 32 shows how relevant KYP members sensed the information shared with them. Question 3 of the post questionnaire aimed at finding if the session conducted was worth doing, in regards to the water topic. Of the 24 respondents, 21 were convinced that the information shared was worth the intervention; however three of the respondents did not find the intervention helpful.

As a follow up question of 3a, KYP members were asked to state what they found interesting about the intervention and information given to them. The assumption behind asking the question goes in alignment with Freire's concept that if interest has arose; people would tend to remember the information and engage with it.

The shared figure here after shows the range of answers given.

Table 2: Post questionnaire question 3b - Which information was interesting to you?

Which information was interesting to you?		
Members	**Answer 1**	**Answer 2**
M1	n/a	n/a
M2	n/a	n/a
M3	Be information interesting	n/a
M4	You must save water	If you see that the tap is open - you go and close it
M5	To drink lots of water	To water plants
M6	To close the tap	To pick up plastic
M7	To save water	To know that water saves life
M8	Carbon dioxide	The situation
M9	To close the tap	To pick plastic bags in the floor
M10	I going to the home	n/a
M11	Save water	n/a
M12	To remind to close the tap ...	The presentation has made me aware about water
M13	To know more about water	Agriculture and climate
M14	Save water	You need water to cook
M15	I want to save water because we must save water	Air pollution
M16	I liked all the information	I liked the information about the ice cream
M17	That 6000L can fill up many houses	n/a
M18	When you cook you should not waste water	Save water when you wash yourself
M19	Water pollution	Air pollution
M20	That we will be better if it rains	With water people have a saver life
M21	Saving water	How people live
M22	You need water to cook	n/a
M23	I have to save water so that I can live	That we will be better when we save water
M24	Climate change	We need water to grow plants and live

Table 2 shows a list of answers given by all 24 respondents on the information they personally found interesting to hear about.

Similar to question 1b, the answers given reflect a mixture of the statements in the questionnaire, information from the video as well as information shared via PowerPoint and the examples given by the KYP translators.

The final question of the questionnaire was meant to positively influence the children's action in that they should go and spread the word.

Table 3: Post questionnaire question 4 - Message to be passed on to others

Message to be passed on to others	
Members	**Answer**
M1	Water
M2	I went to buy some ice cream. I choose the small ice cream.
M3	... Says sisters
M4	I would like to tell my mother and my brothers that they must not play with water. They must save water.
M5	To not waste water, drink lots of water, water your plants, please close the tap
M6	I learned how to help people to close the tap, because I did not know how to close the tap.
M7	I will like to tell them to save water when they are cooking something.
M8	They were talking about situation and carbon dioxide. Do not smell at the car because the smoke is not good and we saw one was walking at the road when he saw the ice cream.
M9	I learned to close the tap…
M10	My mother parents in the home. My father I go in the home.
M11	I will tell my parents and friends it is important to save water because others don't have enough water.
M12	I pass on to others and my sister sad to you message you like made you video has shared more
M13	agriculture, climate, water, water pollution
M14	Save water and if you make a fire the air will come inside and you will get sick
M15	The boy wastes water and opens his mouth to talk warawara and is not good to waste water and water is best for life.

M16	I would tell then .. I was very happy to see the video but was about ice cream
M17	I would like to tell my family about that 6000L can fill many houses that's the thing I would like to tell my family.
M18	I will like to tell my mother I see the smoke of the car. I saw it there on the video
M19	I learned about water pollution that we must save water for a better life. Because we can't survive without water. Other people don't have water.
M20	That people please take care of water because some people don't have water. It doesn't mean when you have water you must use it very badly. It very wrong people. Let try to save water. Save water people please.
M21	I want to tell everyone to be aware and they must use water wisely
M22	grandparents, parents, neighbours
M23	Air pollution is not okay to people and we musn't play in polluted air because we can get sick and go to hospital
M24	I went to buy some ice cream it jumped to me to buy one. I chose the smiling ice cream.

Table 3 shows a range of answers given to the question "What would you like to pass on to others (parents, grandparents, brothers and sisters, friends or neighbors) after having watched this short video and heard the information shared with you?

4.9 Summary

The aim of Chapter Four was to objectively describe the data collected through the questionnaires; the method used here fore was already laid out in Chapter 3.7.

Data received went beyond the information to be collected. The survey for instance revealed that KYP members were not comfortable in writing in English and that some would write letters of the alphabet e.g the "f" just the other way around or mix up "d" with a "b". In general it has to be mentioned that KYP members did not know about the importance of water for the agricultural sector and sanitation, that climate change is impacting South Africa, and that South Africa has a water pollution problem and most importantly that life on earth without water is not possible. Whereas answers given by gender could not define a trend, the same applies in regards to age.

The biggest discrepancies in regards to age and where education in favour of the eldest one might have had an impact in the answers given when comparing the two groups against one and another is that the youngest ones tended to share a view of a more equitable South African water distribution than the older ones had.

The main findings of the survey will be presented in Chapter Five.

CHAPTER FIVE
DISCUSSION OF FINDINGS

5.1 Introduction

Whereas chapter four emphasized on describing the results from the data collected by means of charts and tables, this chapter intends to elaborate on the main findings of the survey in relation to with the achievement of the primary aim and secondary objectives and hypotheses. A conclusion and recommendations resulting from the study, will also be presented.

5.2 Main findings

Awareness-raising about water needs to be fostered with children, as the survey revealed that their awareness is low and knowledge is rather limited. Further, awareness-raising for children requires special attention to facilitate progress in societies as " 1) children eventually grow into adults, with the capacity to apply the knowledge they have learned at school, and 2) the process of education itself tends to continue long after the initial awareness-raising campaign has concluded" (Sayers, 2006, p. 50). This applies throughout the lifespan of individuals and across cultures, race, class and boarders. Whilst dealing with this target audience, it was important to consider their age, the grade they were in, their living conditions as well as their language. There were a few guidelines that needed consideration in order to keep them interest in the topic, leaving a good impression for them to finally build on that positive experience and to raise awareness. These were that the message to be retained should:

- be short, crisp and simple
- be transparent and credible
- have appropriate content
- be visualized and mind pictures easy to create
- be repeated in combination with some new information for attaining the termination stage of the Transtheoretical model.

Based on the results of the survey, the main findings of this study were:

⇨ Finding#1: KYP members know they should save water know but do not attend to it

- ⇨ Finding#2: KYP members would be willing to change their behaviour towards saving water
- ⇨ Finding#3: KYP members would like to engage in water or environment related projects
- ⇨ Finding#4: KYP members would like to know more about the water situation in South Africa
- ⇨ Finding#5: However, KYP members do not know enough about water and the water situation in South Africa
- ⇨ Finding#6: Language could represent a barrier to some KYP members to achieving sustainable change, if information were only to be passed via printings

The research question of this study was to find out how sensible 10-13 year olds are to environmental friendly practice as to how willing would they be to change their behaviour. This question has almost been unanimously answered positively. Except for one respondent, all others respondents indicated that it would be easy for them to change their attitude. Reflecting on the Reasoned Action Approach (RAA) and the Transtheoretical Model (TM) discussed in Chapter Two, this would assume that KYP members believe in their skill to adapt their attitude towards water saving attitude and consider the outcome relevant to them. Their subjective norm (which is influenced by outer stimuli and past experiences inter alia; the presentation held on the day of the intervention) can be assumed as being positively influenced which is another sign that KYP members could pass to the 3rd stage, the preparation stage of the TM Model. Crucial to achieving sustainable behavioural change, is the fact that the members expressed interest in wanting to know more about the water situation in South Africa.

5.3 Achievement of the primary aim and secondary objectives

5.3.1. Achievement of primary aim

The primary aim of the study was to raise awareness on the importance of water and saving water amongst 10-13 year old learners. This aim has been reached with the intervention itself on January 12th, 2016 at 3:15 p.m. Based on the post questionnaire which was meant to be an evaluation of the session it can be further argued that the intervention was worthwhile doing as the majority of the KYP members stated having learned something new and being interested in

knowing more about water. They were also capable of putting down what message they would like to pass on to their parents, friends, neighbours and relatives.

5.3.2. Achievement of secondary objectives

The secondary objectives were to assess the level of environmental education in terms of their environmental best practice, their daily interaction with water as well as to notice if there were big differences between the genders.

In terms of their environmental best practice it needs to be said that KYP members would state that the environment is important to them but the knowledge of sustainability is not yet obvious. This became clear when asked the question which kind of bag they would prefer, a plastic or a cloth/material bag; where the majority answered plastic bags.

Concerning their interaction with water it appears that all of them knew that they need to save water, however some stated that they would not attend to it. Further, 23 respondents stated being told to be reminded not to waste water. The question to be asked in relation to children not attending to the matter even though they know they should not waste water is, if children are being told the reasons and consequences of wasting water to assist them in understanding the importance of saving water It was evident that knowledge about the importance of water and the situation on water in South Africa is not common knowledge as quite a number of respondents answered that it is possible to live without water on earth and that climate change is not affecting the agricultural sector in South Africa.

The gender differences however were overall marginal. One of the four observations whilst analysing the data was that male respondents would rather tend to give a wrong answer than stating that they do not know the answer. This was the case for question B3 of the pre questionnaire. Another bigger difference in response was whether to choose a plastic or cloth bag, half of the male respondents answered for the cloth bags. The third observation was that more male respondents opposed to female ones would consider water pollution not being a problem in South Africa and female respondents stated being less active in participating in the protection of the environment.

The hypothesis on the general knowledge on environmental and water awareness of 10 – 13 year old learners of KYP is low, has been proven to be true, whereas the a significant difference in

gender cannot be confirmed. As for the difference in the awareness between genders about the day-to-day use of water, only a marginal variation could be observed from the data collected and analysed.

5.4 Recommendations

5.4.1. Recommendation#1 to finding#1

The recommendation to be pronounced in light of the fact that KYP members are told to save water but do not attend to it is to raise awareness on the threat that may arise out of not caring about water; thereby focusing on the severity of the situation. Further giving the children examples of what can easily be done could improve the statistics. The root cause of children not attending to it could also be that they do not have a role model in their micro and/or meso environment whom to follow or imitate. As seen with Freire as well as Bronfenbrenner, educators are the ones that could take on being the role models in this regards. It is therefore of high importance to include the topic of water in school curricula in order to create water awareness. Another technique which can be used by governments to raise awareness of children is the use of celebrities who often act as role models or idols in order to pass on crucial messages.

5.4.2. Recommendation#2 to finding#2

Finding#2 shows that there is interest and the belief that there is a need for behavioural change; even if only indirectly known to the children. Having answered they would be willing to change their behaviour also resumes that they have recognised the importance and that the information given made sense to them. To argue again with the Reason Action Approach, without intention there is no change; KYP members yet showed intention. The effect would be that those children would act as ambassadors if they were kept reminded on a regular basis. Through them it could be possible to achieve behavioural change on a small scale and little by little also converting other members to adopt environmental friendly behaviour. The recommendation would be to organise information sessions with video clips that would raise water awareness with the children and use them as mediators to transport messages even by making them role models e.g as Water Information Officers.

5.4.3. Recommendation#3 to finding#3

Related to finding#2, big interest is being showed to get involved in water related projects. As 90% of what is being said and done is being remembered, opposed to only 50% of what is being said and heard (Sayers, 2006), the recommendation would be to engage children in small scale projects in their neighborhoods making them leak detectives in order to improve the future environment.

5.4.4. Recommendation#4 to finding#4

The fact that KYP members would like to know more implies that they do not feel well informed or know enough yet. The root cause could thereby be that school curricula are not well framed around the South African situation, further teachers as well as parents not being sufficiently informed themselves. The fact that children were apparently more aware of what their female parent's profession was, could lead to the recommendation saying that structured educational training needs to be given to female parents and the content of school curricula has to be adjusted to include awareness about the value of water.

5.4.5. Recommendation#5 to finding#5

Finding#5 goes along with finding#4. Here numerous activities as proposed in section 2.8.2 (Techniques and approaches for raising public awareness) could be adopted. In regards to KYP members, personal communication in the form of presentations, the use of mass media and interactive online games (as they are provided with computers at KYP) as well as drama activities could be helpful in sharing knowledge with them.

5.4.6. Recommendation#6 to finding#6

A challenge that was faced throughout the survey was clearly the language barrier. English did not seem to be the comfort or preferred language spoken by the KYP members. Syntax mistakes, as well as dyslexia were noticed. This leads to the question of how to best eliminate this barrier in order for children to be able to fully participate in educational trainings and other events in aiming at enhancing their knowledge and skills. The recommendation pronounced would be as exercised by Paulo Freire, to use small group circles where children would meet regularly discussing a topic of their interest or where other children with better English skills would be helping the weaker ones or that the awareness are presented in the mother tongue of members.

To enable the creation and development of well-designed solutions, it would be helpful to know what the water footprint of children living in urban areas is and who have running water in their homes. Would they be as willing to change their attitudes and consumption patterns as those who have less water?

5.5 Conclusion

To conclude on the above findings and recommendations, the analysis showed that the intervention was the right thing to do as KYP members barely knew about the benefits and importance of water for human functioning and the ecosystem. However to keep them remembering about the importance of water, regular information needs to be passed on to them as a sustainable strategy to reach awareness and transform societies. The post questionnaire as well revealed that it was worthwhile conducting the survey combined with the info session, as the children did grasp information from each media (questionnaire, PowerPoint presentation and video clips). As this survey has been conducted with children that already have little water for their daily consumption or even no running water in their homes; it would be interesting to further investigate on a comparison of the water footprint of children from the urban area from the same age range.

To conclude in general on the water situation, it has been largely acknowledged that water touches and affects so many aspects of life; starting from health to wealth over human security aspects and mass exodus.

The challenge in South Africa as mentioned before, is however one of governance on many ends.

Water governance is recognized to be an issue due to lacking evaluation and monitoring services, due to lack of capacity building and skilled resources, decaying infrastructure and lack of advocacy; inter alia resulting in inefficiencies in water allocations as well as inequitable water allocations. Related to the governance issue, is the problematic of corruption which also needs to be dealt with rigorously (UN Water, 2006).

Though water plays a fundamental role for human beings and the ecosystem and that human kind has recognised its benefits and importance, the management and water related services still lacks recognition in the perception of the population and at governmental level. In this way instead of

water promoting social welfare and contributing to economic development and a balanced ecosystem, the contrary is happening (UN Water Report, 2015). This is where public relations as an instrument in raising awareness need to come in play to achieve large scale behavioural change and a “green” mindset. Further, as seen with the RAA, we need to better understand the attitudes and norms that shape the intentions of children to be able designing and implementing adequate actions.

The way forward is to emphasize the role of proactive governments in regards to implementing adequate social policies for an inclusive society as well as to enhance awareness-raising to achieve transformation of societies towards green citizenship with the aim to promoting water and foster well-being (Midgley, 2014) but also encouraging all citizens on taking on responsibility and ownership for a better future.

REFERENCES

Abelkitis, L.; & Lenehan, A. (2007). Child-centered course for teachers to promote basic health and hygiene awareness in rural communities. (1400/1/07). South Africa: Gezina

Adikari Y.; & Yoshitani, J. (2009). *Global Trends in Water-Related Disasters: an insight for policymakers*. Paris: United Nations Educational, Scientific and Cultural Organization.

Bibliotheksportal. (2015). Quantitative Befragung. Retrieved from http://www.bibliotheksportal.de/themen/marketing/primaerforschung/quantitative-befragung.html#c6893

Clarke, J. (2002) *Coming back to earth. South Africa's changing environment*. Houghton: Jacana Ltd.

Creswell, J.W. (2003) *Research Design: Qualitative, Quantitative and Mixed Methods approaches*. UK: SAGE Publications.

Creswell, J.W. (2009) *Research Design: Qualitative, Quantitative and Mixed Methods approaches*. USA: SAGE Publications.

Creswell, J.W. (2014) *Research Design: Qualitative, Quantitative and Mixed Methods approaches*. USA: SAGE Publications.

Davids, I., Theron, F., & Maphunye, K.T. (2009). *Participatory Development in South Africa. A Development Management Perspective*. (2nd ed.). Pretoria: Van Schaik Publishers.

De Beer, F. & Swanepoel, H. (2000). *Introduction to Social Development studies*. Cape Town: Oxford University Press.

De Vos, A. (2011). *Research at grass roots. For the social sciences and human service professions*. (4th ed.). South Africa: Van Schaik Publishers.

Department of Chemical Engineering. (2004, May 2-6). *Manifesto on education and training related to water treatment and supply in South Africa*. Pretoria.

Department of Water Affairs, DWA (2013). Strategic overview of the water sector in South Africa. Retrieved from http://nepadwatercoe.org/wp-content/uploads/Strategic-Overview-of-the-Water-Sector-in-South-Africa-2013.pdf

Department of Water and Sanitation, DWS (2016). Water is lie, sanitation is dignity. Retrieved from https://www.dwa.gov.za/projects.aspx

Donald, D., Lazarus, S., Lolwana, P. (2010). *Educational Psychology in social context*. Ecosystemic applications in southern Africa. (4th ed.). Cape Town: Oxford University Press Southern Africa.

During, S. (1993). The Cultural Studies Reader. London: Routledge

European Commission (2016). Climate action. Paris agreement. Retrieved from http://ec.europa.eu/clima/policies/international/negotiations/future/index_en.htm

Eurostat (2015). Water use in industry. Cooling for electricity production dominates water use in industry. Retrieved from http://ec.europa.eu/eurostat/statistics-explained/index.php/Water_use_in_industry

FAO (n.d). Advantages and disadvantages of survey methods. Retrieved from http://www.fao.org/ag/humannutrition/33251-0a0b0928c3532ed36c3b6624d54d73f86.pdf

Ferreira, R. (2012). *Writing a research proposal. In Complete your thesis or dissertation successfully: Practical guidelines.* Cape Town: Juta.

Fink, A. (2003). *How to manage, analyze, an interpret survey data. The survey kit 2*. (2nd ed.). California: Sage.

Fishbein, M., & Ajzen, I. (1975). *Belief, Attitude, Intention and Behavior: An Introduction to Theory and Research*. Reading, MA: Addison-Wesley

Fiske, J. (1982). Introduction to Communication Studies. London: Methuen

Freire, P. (2000). *Cultural Action for Freedom*. Boston: Harvard Educational Review.

Gadotti, M.; & Torres, C.A. (2009). Paulo Freire: Education for Development. Development and change. *Forum 2009*, 40(6).doi:10.1111/j.1467-7660.2009.01606.x

Grobler, D., Jacobs, K. & Maenhout, A. (2012, April). Improving Water Education and Training skills in South Africa. Retrieved from http://www.aquadactics.org.za/wp-content/uploads/2015/11/2012-05_iwets_final.pdf

Heath, S., Brooks, R., Cleaver, E. & Ireland, E. (2009). *Researching Young People's Lives*. London, UK: Sage.

Introduction to quantitative research. (2010). Retrieved from http://www.sagepub.com/upm-data/36869_muijs.pdf

Jansen, J.D. (2012). *The quality of doctoral education in South Africa: A question of significance. In Complete your thesis or dissertation successfully: Practical guidelines.* Cape Town: Juta.

Keenan, T. & Evans, S. (2010). *An introduction to Child Development*. Los Angeles: SAGE Publications Inc.

KYP (2016). Welcome to Kliptown Youth Program. From poverty to opportunity. Retrieved from http://www.kliptownyouthprogram.org.za/

Le Grange, L. (2002). *Towards a language of probability for environmental education in South Africa*. South African Journal of Education, 22 (2), p.83-87

Lebelt, A. (2014, April/May). Lebensgefährte Stress. So werden Sie mit ihm glücklich. Neue Erkenntnisse, neue Methoden. *Zeit Wissen*, 2014 (3), 42-49.

Lélé, S.M. (1991). *Sustainable Development*: a critical review. World Development, 19(6).

Lezin, N. (2016). Resource Centre for Adolescent Pregnancy Prevention. Theories & Approaches. Retrieved from http://recapp.etr.org/recapp/index.cfm?fuseaction=pages.TheoriesDetail&PageID=517

Li , J. (2013). Quantitative Data analysis techniques for data-driven marketing. Retrieved from http://www.iacquire.com/blog/quantitative-data-analysis-techniques-for-data-driven-marketing-2

Loubser, C.P. (2005). Environmental Education. Some South African perspectives. Pretoria: Van Shaik.

Morgan, B., & Sklar, R. (2012). *Sampling and research paradigms. In Complete your thesis or dissertation successfully: Practical guidelines.* Cape Town: Juta.

Midgley, J. (2014). *Social Development. Theory and Practice*. London: SAGE Publications Ins.

Midgley, J. (1995). *Social development: The developmental perspective in Social Welfare*. Sage.

Mutembwa, A. (1998). Water and the potential for resource conflict in South Africa. University of Cambridge.

Neumann, W.L. (2011). *Social Research methods. Qualitative and Quantitative approaches*. (7th ed.). Boston: Pearson.

Perlman, H. (2015). The USGS Water Science School. The water in you. Retrieved from http://water.usgs.gov/edu/propertyyou.html

Prochaska, J., Johnson, S. & Lee, P. (1998). The transtheoretical model of behavior change. In S. Schumaker, E. Schron, J. Ockene & W. McBe (Eds.), *The Handbook of Health behavior Change*, (2nd ed.)New York: Springer

Randwater (2016). Retrieved from http://www.randwater.co.za/Pages/Home.aspx

Reagan, C. & Sinclair, S. (2006). *Engaging development – learning for a better future? – the world view of development education. In 80:20 development in an unequal world.* (rev.4th ed.), 80:20 Educating and acting for a better World. Ireland.

Seabi, R. (2012). *Research design and data collection techniques. In Complete your thesis or dissertation successfully: Practical guidelines.* Cape Town: Juta.

Schulte, C.F. (2004, May). Education and training related to water treatment and supply in South Africa. Biennial Conference, Cape Town.

Survey Design. (n.d). Chapter 8. Survey research. Retrieved from http://www.sagepub.com/upm-data/43589_8.pdf

Tibane, E. & Vermeulen, A. (2015). Government communications. South Africa Yearbook 2013/14. Retrieved from http://www.gcis.gov.za/content/resourcecentre/sa-info/yearbook2013-14

Thelwell, E. (2014). South Africa's looming water disaster. Retrieved from http://www.news24.com/SouthAfrica/News/South-Africas-looming-water-disaster-20141103

The Pell Institute. (2015). Evaluation toolkit. Analyze quantitative data. Retrieved from http://toolkit.pellinstitute.org/evaluation-guide/analyze/analyze-quantitative-data/

The World Bank. (2015). The World Bank. Malaria. Retrieved from http://www.worldbank.org/en/topic/health/brief/malaria

UN Water. (2015). *Water for a sustainable world*. Paris: United Nations Educational, Scientific and Cultural Organization.

UNEP. (2014). Ebook Geo5. *Environment for the future we want*. Retrieved from http://www.unep.org/geo/GEO5_ebook/index.html

UN ORG (2015). We can end poverty. Goal 7. Retrieved from http://www.un.org/millenniumgoals/environ.shtml

UN ORG. (2014). International decade for action. Food security. Retrieved from http://www.un.org/waterforlifedecade/food_security.shtml

UN. Water Scarcity (2014). International decade for action. Water scarcity. Retrieved from http://www.un.org/waterforlifedecade/scarcity.shtml

UN-Water. (2013). Analytical Brief on Water Security and the Global Water Agenda. Retrieved from http://www.unwater.org/topics/water-security/en/

UN Water. (2006). Water a shared responsibility. The united Nations World Water Development Report 2. (2006/3)

Water ORG (2015). Water crisis: Women & Chidren. Retrieved from http://water.org/water-crisis/water-facts/children/

Water ORG (2016). Water crisis: Water & Sanitation. Retrieved from http://water.org/water-crisis/water-sanitation-facts/

WHO (2012). World health Organization. Water Sanitation Health. Retrieved from http://www.who.int/water_sanitation_health/monitoring/jmp2012/fast_facts/en/

Worldometers (2016). Current world population. Retrieved from http://www.worldometers.info/world-population/

Wouters, P. (2005).*Water security: What role for international water law?* In: Dodds, F., Pippard, T. *Human & Environmental Security. An agenda for change.* UK, USA: Earthscan.

APPENDICES

Appendix A - Clearance certificate

Research Office

HUMAN RESEARCH ETHICS COMMITTEE (NON-MEDICAL)
R14/49 von Maravic

CLEARANCE CERTIFICATE	PROTOCOL NUMBER: H15/09/45
PROJECT TITLE	Assessing Grade 5 to 7 learners' awareness about water challenges in South Africa: A survey conducted in Kliptown, Soweto
INVESTIGATOR(S)	Ms C von Maravic
SCHOOL/DEPARTMENT	Human & Community Development/Social Work
DATE CONSIDERED	16 September 2015
DECISION OF THE COMMITTEE	Approved unconditionally
EXPIRY DATE	7 January 2018

DATE 8 January 2016 CHAIRPERSON J. Rees
(Professor J Rees)

cc: Supervisor : Dr E Pretorius

DECLARATION OF INVESTIGATOR(S)

To be completed in duplicate and **ONE COPY** returned to the Secretary at Room 10005, 10th Floor, Senate House, University.

I/We fully understand the conditions under which I am/we are authorized to carry out the abovementioned research and I/we guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I/we undertake to resubmit the protocol to the Committee. **I agree to completion of a yearly progress report.**

C von Maravic
Signature

12/01/2016
Date

PLEASE QUOTE THE PROTOCOL NUMBER ON ALL ENQUIRIES

Appendix B - Permission letter from KYP

Kliptown Youth Program
"From Poverty to Opportunity"

49 Station Road, Kliptown
P.O Box 127 Kliptown 1812
Tel: 011 528 8670
Mobile: 073 391 4033
Fax: 086 698 9802
Email: kliptownyouthprogram@gmail.com
Web: www.kliptownyouthprogram.org.za
NPO: 059-907 / PBO 930034122

18 December 2015

Attention: Non-Medicine Ethics Committee

Re: Confirmation Letter

To whom it may concern

I (Mr Thulani G. Madondo, Executive Director at Kliptown Youth Program) would like to confirm that we have permitted Caroline von Maravic to conduct a research with our members. The topic of Caroline's research is about assessing Grade Five to Seven learner's awareness about water challenges in South Africa. We believe that this research will be relevant not only to KYP and its members but also to the community at large as Kliptown is currently facing water crisis.

KLIPTOWN YOUTH PROGRAM
49 Station Road, Kliptown 1812
18 -12- 2015
011 528 8670 / 078 391 4033
NPO 059-907 / PBO 930034122

With warm regards

Thulani Madondo

Executive Director, Kliptown Youth Program

072 471 1283

Board Members: Mr D Creighton, Mrs J Leclezio, Mrs A Barkeman (Boston USA), Mr T Madondo (Executive Director), Mrs Mr S Gqibani, Ms Ryana Dolphin, Ms I Chadwick and Mr P Johannsen (Boston, USA)

Appendix C

Participant information sheet for members of the KYP aged 10 -13 years

Good day dear KYP members,

My name is Caroline von Maravic, I am doing my Master of Arts degree in the field of Social Development at the University of the Witwatersrand. To obtain the degree I have to do a research study, and I would like to invite you to take part in the study. The purpose of the study is to find out what Grade 5-7 learners know about the importance of water, how water can be saved and the challenges around water in South Africa.

This is how it will work:

1. You will be asked to complete two different question sheets. After the first question sheet, we are going to watch a video on water scarcity and I will give you some information on how you can save water. After the activity, you will be asked to complete another very short question sheet.

2. Please note that this is not a test and you do not have to write your name on the question sheets, as this is completely anonymous. This means that the answers you give cannot be linked to you.

3. All the questions will be read aloud and explained before you tick your answer. If you have any questions, you can ask me at any time.

Please do understand that you can choose if you want to be involved in the study. If you agree to participate, you are free to stop your participation at any time and tell me that you do not want to go on with it. You can also refuse to answer any questions that you do not want to answer. You will not be punished or treated differently if you do not participate in the study.

Seeing that you are younger than 18 years, I would like to ask permission from you and your parent/caregiver/guardian for you to participate in the study. There are separate forms for your parent/caregiver/guardian to complete.

It is not believed that there will be any negative risks to participate in the study and there will not be any direct benefit to you or your parent/caregiver/guardian.

If you have any questions about the study, please sms me on my mobile number 0049 173 72 324 72 (I am not living in South Africa) or e-mail me on caroline.von_maravic@siemens.com You can also contact my supervisor, Dr. Edmarié Pretorius on 011 717 4476 or e-mail her on Edmarie.Pretorius@wits.ac.za if you have any questions regarding the study. We will answer them to the best we can.

If you want to receive the result of the study; I can share it with you on request.

Thank you for taking the time to consider participating in the study.

Yours Sincerely

Caroline von Maravic

MA student in the field of Social Development
Department of Social Work
School of Human and Community Development
University of the Witwatersrand
1 Jan Smuts Ave
Johannesburg
2000, South Africa

Appendix D

Assent form for members of the KYP aged 10 -13 years

I agree to take part in the study on the importance of water, how water can be saved and the challenges related to water in South Africa. I understand that I am participating freely and without being forced to do so in any way. I also do understand that I can stop my participation at any point if I want to and that this decision will not in any way affect me badly. I understand that I will not benefit directly from participating in the research study.

Please mark one of the following sentences with X.

Yes, I want to participate in the research…….

No, I do not want to participate in the research…….

Name of KYP member …….

Signature of KYP member …….

Date: …….

Appendix E

Participant information sheet to parents/caregivers/guardians of members of Kliptown Youth Program (KYP), aged 10 – 13 years

Dear parent/caregiver/guardian

My name is Caroline von Maravic, I am doing my Master of Arts degree in the field of Social Development at the University of the Witwatersrand. To obtain the degree I have to do a research study, and I would like to invite your daughter/son and other young people in grades 5-7 to take part in the study. The purpose of the study is to find out what Grade 5-7 learners know about the importance of water, how water can be saved and the challenges around water in South Africa.

Permission for doing the research at KYP has already been received by the Director of KYP – Thulani Madondo. Since your child is younger than 18 years, I would like to ask your permission and consent before he/she participates in the study.

This is how it will work:

1. Your child will be asked to complete two different question sheets. After the first question sheet, we are going to watch a video on water scarcity and I will give the participants some information on how you can save water. After the activity, he/she will be asked to complete another very short question sheet.

2. Please note that this is <u>not</u> a test and he/she <u>does not</u> have to write his/her names on the question sheets, as this is completely anonymous. This means that the answers he/she gives cannot be linked to him/her.

3. All the questions will be read aloud and explained before he/she tick the answers. If he/she has any questions, he/she can ask me at any time.

Please do understand that your child's participation in the study is voluntary. The choice to participate is yours and theirs alone. If you give your permission for your child to participate, he/she is free to stop his/her participation at any time and tell me that he/she does not want to go on with it. Your child can also refuse to answer any questions that he/she does not want to answer. Neither you nor your child will be punished or treated differently if he/she does not participate in the study.

It is not believed that there will be any negative risks to participate in the study and there will not be any direct benefit to you or your child.

If you have any questions about the study, please sms me on my mobile number 0049 173 72 324 72 (I am not living in South Africa) or e-mail me on caroline.von_maravic@siemens.com You can also contact my supervisor, Dr. Edmarié Pretorius on 011 717 4476 or e-mail her on Edmarie.Pretorius@wits.ac.za if you have any questions regarding the study. We will answer them to the best we can.

If you want to receive the result of the study; I can share it with you on request.

Thank you for taking the time to consider participating in the study.

Yours Sincerely

Caroline von Maravic

MA student in the field of Social Development
Department of Social Work
School of Human and Community Development
University of the Witwatersrand
1 Jan Smuts Ave
Johannesburg
2000, South Africa

Appendix F

Pre Questionnaire for members of the KYP, aged 10 -13 years

Introduction

This is an anonymous questionnaire where you do not write your name on the question sheet and where your data will be kept confidential, meaning not showing it to anyone. Please try to answer the questions as realistic as possible. If the question is not clear to you, kindly raise your hand and the question will be explained to you. It is important that you really write down what YOU think and NOT what you think is right to answer.

Instructions to answer the question sheet

Wherever you have boxes, kindly tick off the one that fits your situation or circle the answer.

Please try to answer **all** the questions.

Date: …/…/2016

A. Background Information

Please mark the appropriate boxes with X

What is your age? 10☐ 11☐ 12☐ 13☐

Are you a boy or a girl?  ☐  ☐

Which ethnic Group are you? Black ☐ Coloured☐ White☐ Asian☐

What work does your father/male caregiver do? ……...

What work does your mother/ female caregiver do?……..

What work would you like to do when you leave school?

1. **…….**

OR

2. **…….**

How many brothers and/or sisters do you have?
Please tick the appropriate box(es).

Brothers: 1 ☐ **2** ☐ **3** ☐ **4** ☐ **More** ☐

Sisters: 1 ☐ **2** ☐ **3** ☐ **4** ☐ **More** ☐

B. Environmental knowledge

1. **What do you think "environmental friendliness" means?**
Please circle your answer; more than one answer can be circled.

a. Protection of the environment in which we live
b. Not throwing waste everywhere, but in the bin
c. Just being friendly to plants and animals
d. Not producing waste that the environment can not deal with

2. **Is the protection of the environment/nature important to you?**
Please tick a box.

a. Yes ☐ b. No ☐

3. Climate change is affecting South Africa and its agriculture.
Please tick a box.

a. True ☐ b. False ☐

4. Which of the following listed topics are important to you? Tick the boxes.
Remember, this is YOUR level of importance and NOT what you think is important to answer. More than one answer can be ticked.

a. Poverty ☐
b. Not having enough food ☐
c. Not having enough to drink ☐
d. Not being able going to school ☐
e. Water pollution ☐
f. No inside toilets ☐
g. Not having a house to stay at ☐
h. Better care of the natural environment ☐

5. Kindly state first with yes or no if you have ever heard about the listed types of pollution; and then tick the appropriate box to state where you have learned about it. You will be given an example to each type of pollution by the presenter during the class.

You can tick more than one box answers.

1. Noise pollution: Yes ☐ No ☐ | School ☐ KYP ☐ Home ☐ Friends ☐ TV ☐
(e.g: noise from air planes)

2. Air pollution: Yes ☐ No ☐ | School ☐ KYP ☐ Home ☐ Friends ☐ TV ☐
(e.g smoke produced through the coal industry)

3. Water pollution: Yes ☐ No ☐ | School ☐ KYP ☐ Home ☐ Friends ☐ TV ☐
(e.g products like plastic; paper; fluid products thrown into rivers)

4. Land pollution: Yes☐ No☐ | School☐ KYP☐ Home☐ Friends☐ TV☐
(e.g waste that is not thrown into the bin but anywhere in the environment)

5. Light pollution: Yes☐ No☐ | School☐ KYP☐ Home☐ Friends☐ TV☐
(e.g light that is so bright that you can not see the stars in the sky anymore)

6. Thermal pollution: Yes☐ No☐ | School☐ KYP☐ Home☐ Friends☐ TV☐
(e.g warm water from power plants that are flushed into rivers and lakes)

7. Visual pollution: Yes☐ No☐ School☐ KYP☐ Home☐ Friends☐ TV☐
(e.g graffiti that has been put on historical monuments or walls)

6. Do you think water pollution is a problem in South Africa?

Please tick a box.

a. Yes ☐ b. No ☐

7. When you go to the shop to buy food and you have a choice about the kind of bag they will put your food in, would you choose a plastic or cloth/material bag?

Please circle your answer.

a. Plastic bag
b. Cloth/Material bag

C. Water awareness

8. Without water, life on earth is impossible.

Please tick a box.

a. True☐ b. False☐

9. Tick what you think is true. You can place as many ticks as you think is important. Water is important for the following:

Cooking ☐ Human health ☐
Sanitation ☐ Agriculture ☐
Manufacturing of goods ☐ Production of energy ☐

10. There is enough water for everyone in Soweto.

Please tick a box.

a. True ☐ b. False ☐

11. Do you think all South Africans always have access to water facilities.

Please tick a box.

a. Yes ☐ b. No ☐

12. Did you know that the first 6,000 litres of water per month are free to households in South Africa?

Please tick a box.

a. Yes ☐ b. No ☐

13. Soweto has difficulties to provide everyone in Soweto with water.

Please tick a box.

a. True ☐ b. False ☐

14. Not having enough water in South Africa can result in some people having more access to water and others less access to water.

Please tick a box.

a. True ☐ b. False ☐

D. Daily interaction with water

15. When I see a leaking tap, I always close it.
Please tick a box.

a. True ☐ b. False ☐

16. A) If you see a broken water pipe, do you report that to somebody?
Please tick a box.

a. Yes☐ b. No☐

B) Please write down, to whom you would report it.

Answer:……

17. Are you aware that in your daily activities you should save water?
Please tick a box.

a. Yes☐ b. No☐

18. Do you pay attention to save water on a daily basis?
Please tick a box

a. Yes☐ b. No☐

E. Pro active water management

19. Do your parents/legal guardian/caregivers or teachers remind you not to waste water.
Please tick a box.

a. Yes☐ b. No☐

20. A) I actively participate in protecting the environment/nature.
Please tick the box

a. Yes☐ b. No☐

B) If you are participating in protecting the environment, what do you exactly do?

1. …….
2. …….
3. …….

C) Do you think you could do more?
Please tick a box.

a. Yes☐ b. No☐

21. Do you think it will be easy for you to change your attitude to become more aware to save water.
Please tick a box.

a. Yes☐ b. No☐

22. Would you like to participate in a project to save water for a better future? Please tick a box.

a. Yes ☐ b. No ☐

THANK YOU for your participation in completing the questionnaire!!!



Appendix G

Post Questionnaire for members of the KYP, aged 10 -13 years

Introduction

This post question sheet is also an anonymous one and your answers will be kept confidential; please try to answer **all** the questions. It is important that you really write down what YOU think.

Instructions

Step 1: Watch the short video on water and listen to the presentation and ideas about how to save water in your daily live.

Step 2: Question by question will be read aloud by the presenter, only answer the questions then.

Step 3: Kindly read the questions carefully on your own. If the questions are not clear to you, kindly raise your hand and the presenter will explain it to you.

1a) Did you learn something new?
Please tick a box.

Yes☐ No☐

1b) If yes, state what was new to you:

I. …….

II. ……

III. …….

2. Would you like to know more about the water situation in South Africa?
Please tick a box.

Yes ☐ No ☐

3a)Has the video and information shared with you made you more aware about the water situation?
Please tick a box.

Yes ☐ No ☐

3b) Which information was interesting to you?

I……

II……

3c) Which information made you worry?

I……..

II……

4) Which message would you like to pass on to others (parents, grandparents, brothers and sisters, friends or neighbours) after having watched this short video and heard the information shared with you?

……

……

……

……

THANK YOU

