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How can experiences of environmental education at the *Maretlwane Wilderness School* result in Transformative learning?

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Declaration of Own Work

I, Samantha Jones, student number 0607173M confirm that the work for the following dissertation with the title:

A Case Study: How can experiences of environmental education at the *Maretlwane Wilderness School* result in Transformative learning?

Was solely undertaken by myself and that no help was provided from other sources as those allowed. All sections of the paper that use quotes or describe an argument or concept developed by another author have been referenced, including all secondary literature used.

Date: Signature:

Abstract

The aim of this study was to determine the extent to which experiences of environmental education at the Maretlwane Wilderness School resulted in transformative learning for the participants. The research question was if the Wilderness School experience could result in changes in perceptions and behaviours toward the environment, in other words did transformative learning occur. The participants of this case study were 14 and 15-year-old boys from St. John's College who attended a month-long Wilderness School in the Magaliesberg. The boys were asked to complete questionnaires and participate in focus groups. The staff at the Wilderness School and parents of the participants were also given questionnaires to complete. The findings of this case study are that environmental education can result in transformative learning, however, if the changes are to be long term then 'bridges' need to be built connecting the different places of environmental learning and living. The natural environment where environmental education experiences take place need to be linked to the urban schools and homes of the participants. This research is important as Environmental Education is often seen as a way of addressing the environmental challenges that society faces today, however, it needs to be environmental education of a particular kind if we want to see changes in the way that people interact with the world around them. It is hoped that this study will inform educators and practitioners of environmental education so that programs can be improved upon and result in environmentally literate citizens that can participate in their communities.

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Table of Abbreviations	
EE	Environmental Education
CEE	Critical Environmental Education
ESD	Education for Sustainable Development
TL	Transformative Learning
SLE	Significant Life Experience
TSL	Transformative Sustainability Learning
UNESCO	United Nations Education, Scientific and Cultural Organisation
UNEP	United Nations Environment Program
SADC	Southern African Development Community

Chapter 1 - Introduction

Environmental action is increasingly needed in today's world where the issues facing us become larger daily with little done by governments, industry and society (O'Brien, 2012). As the need for action becomes more and more urgent, so education is seen as a central part of the solution. In 1977, the world's first intergovernmental conference on environmental organisation was organised by the United Nations Education, Scientific and Cultural Organisation (UNESCO) and the UN Environment Program (UNEP) 265 delegates and 65 representatives and observers took part in the conference. The Tbilisi declaration was adopted, this declaration noted the importance of environmental education in the preservation and improvement of the world's environment as well as in the sound and balanced development of the world's communities (GDRC, n.d.). Environmental education plays a key role in bringing about the change that is required to move towards a more sustainable society (Frisk and Larson, 2011). There are different approaches to teaching Environmental Education, however, the overall goal is to transform learners into those that have an understanding of the environment, have feelings and concern for the environment, an ability to identify and then solve environmental problems and lastly spur active involvement in working towards the resolution of environmental education (Hungerford and Volk, 1990). The aim of this research was to determine how an environmental education experience impacts the lives of its students in terms of their perceptions about the environment and their behaviour towards it. Does it result in a lasting transformation?

In order for transformation to occur some sort of experience is required (Kollmuss and Agyeman, 2002). This is often done through fieldwork, a defining feature in the discipline of Geography. It is also recognised as a fundamental teaching and learning strategy in developing skills essential to geography education. Wilson and Leydon (2017) argue that the value of fieldwork lies in its ability to engage students with the real world which is quite difficult to do in the usual classroom setting (Wilson and Leydon, 2017). Fogle (2015) adds to this in an online article he states that: "We need fewer exams and more wilderness in Education." He argues that instead of pumping time and money into exams, we should focus on wellbeing and encouraging children to connect with the natural world (Fogle, 2015). Wilson and Leydon *et al* (2017), do not discuss connecting with nature, but rather argue that there are benefits to fieldwork, in whichever form that may take, and through their readings point to the benefits of fieldwork; it teaches a range of skills, such as problem-solving, leadership, teamwork, organisation and communication skills. Outdoor Adventure Education, which draws on the benefits of fieldwork but adds in the natural environment and physical challenges has an impact on adolescent self-perception, behaviour and their perception of self-worth (Garst and Schneider, 2001). The benefits of fieldwork and outdoor experiences may not be tested in exams but are rather skills that one needs to have as geographers and as active citizens in society. Environmental educators draw on the concepts of fieldwork and outdoor adventure education as well as an experience in nature to foster environmentally responsible behaviour (Kollmuss and Agyeman, 2002).

This research is important as Environmental Education has the following goals:

(1) To foster clear awareness of, and concern about, economic, social, political, and ecological interdependence in urban and rural areas.

(2) To provide every person with opportunities to acquire the knowledge, values, attitudes, commitment, and skills needed to protect and improve the environment.

(3) To create new patterns of behaviour of individuals, groups, and society as a whole towards the environment (GDRC, n.d.).

Thus it is important to see if environmental education does result in a transformation of perceptions and behaviour, and more specifically what aspects of EE result in the change (Davidson, 2001).

This is necessary as many schools have outdoor education components with a variety of aims, often with a focus on character development but also an appreciation of the natural world. I believe it is important for this research to be conducted as much money, time and effort is put into environmental programmes and excursions at schools. It is worth examining what it is that makes these experiences successful if we are to improve in how we teach learners about the environment and especially if we aim to encourage behaviour change. If schools are conducting these programs, it is worth investigating further so that they can be modified if need be so that students can benefit, and the school's objectives can be met.

I chose to conduct this research as I am a teacher at the school and also have an interest in Environmental Education. I teach Geography and am a proponent of teaching boys about the natural world and also their role in it. Sustainability is also a part of the Geography curriculum and they are required to understand issues such as climate change, ozone depletion, and urban heat islands. Not only do they need to understand these issues, but they also need to be able to explain ways in which people can address these issues in sustainable ways. I also believe that not only should they understand it but they should also participate in actions to make a difference. Thus, I was curious about the ways in which adolescents learn about the environment and what factors may or may not influence their behaviour towards the natural environment.

I am fortunate to teach at a school that allows students the opportunity to experience the natural environment for an extended and in-depth period. Therefore I aimed to determine whether or not this experience would influence the boys' environmental behaviours. As noted earlier, the main aim of the program is not to influence environmental behaviour but to explore character development and allow the boys an opportunity to experience independence. However, environmental concerns do play a role in the lessons taught at the camp and some of the behaviours expected of the boys thus I was curious to see if this Wilderness School acted as a catalyst in changing and transforming the boys' perceptions and behaviours.

The study was conducted at a Private Boys school in Johannesburg in which the Grade 9 boys attend a month long Wilderness School (28 days) in the Magaliesberg. The Wilderness School follows the objectives of the Maretlwane Trust. These are:

1. The property is to be held in its natural state for the benefit of the youth of South Africa and to the Glory of God. The use of the property should be guided by principles of conservation and sustainable use.
2. To provide outdoor education in and for the environment – an education which is holistic and therefore integrates the intellectual, physical, emotional and spiritual development of young men and women. Learning should focus, where possible, on the conservation and sustainable use of the Magaliesberg and broader conservation initiatives.
3. A sacrificial element should result in a desire to share the resource with as many children as possible incorporating boys and girls from diverse schools including previously disadvantaged predominantly black schools.

4. As far as possible, to operate a residential Wilderness School in which it is recognised that the duration of time spent in nature has a significant impact on the character development of a young person.
5. To create other opportunities to provide diverse outdoor educational experiences and maximise the educational potential of Maretlwane and other mountain properties. If this creates the need to develop additional facilities they should have minimal environmental impact.
6. Maretlwane should be an inclusive and welcoming place, and its overall philosophy should be shaped by Christian values including the home grown cornerstones of trust, thinking of others and sustainable living.

The Maretlwane Mission statement that outlines the aims and values is as follows:

"Maretlwane Wilderness Company provides holistic and diverse outdoor educational experiences for young people in a safe, welcoming and inclusive way. Programs are designed to integrate the intellectual, physical, emotional and spiritual development of young men and women, while at all times promoting and encouraging adoption of sustainable utilisation and conservation practices. Age-appropriate programs are safe, yet mentally, physically and emotionally demanding and aligned to the developmental trends of the group. While learning outcomes are highly individual, the broader focus is on development of character, resilience, independence, group inter-dependence, trust and empathy."

The vision statement acts as a roadmap showing what the company wants to become and how they will get there, essentially the direction for the company's growth.

"*To become a SADC centre of excellence in the provision of innovative, holistic, outdoor educational programs focused on challenging young men and women of all backgrounds to grow intellectually, physically, emotionally and spiritually while upholding our core values of sustainability, inclusivity and quality."*

1.1 Research Problem

The aim of this project was to determine to what extent the Maretlwane Wilderness School experience transforms the students' perceptions about the natural environment and their behaviour towards the environment once they are home in the city. Pro-environmental behaviour is defined as "behaviour that consciously seeks to minimise the negative impact of one's actions on the natural and built world (e.g. minimise resource and energy consumption, use of non-toxic substances, and reduce waste production)" (Kollmuss and Agyeman, 2002).

Maretlwane is the name of the farm where the Wilderness School takes place. The farm is named after the Grewia Bush which is found extensively over the farm and is called Maretlwa in Sotho. The school is an educational camp located near Mooinooi in the Magaliesberg Mountain Range. In order to achieve this aim, the research investigates four inter-related questions:

- What are the boys' perceptions about the environment (How do they think it should be valued, managed and protected) prior to the Wilderness School Experience?

- What specific activities/experiences produce a change of understanding or feeling within the students?

- In what ways do these perceptions change after the Wilderness School experience?

- To what extent do the behaviours of the boys change once they have returned home?

1.2 Conceptual Framework: Transformative Learning Theory

I have chosen to frame my study within the context of transformative learning theory. The argument is that transformative learning develops autonomous thinking (Mezirow, 1997) and this may in turn change a student's behaviour. Transformative learning theory is predominantly used in adult education theory but there are examples of it being applied to younger students. Elsey (2011) as well as Walker and Molnar (2013) have shown this to be the case.

Mezirow (1997, 5) argues that "Transformative learning is the process of effecting change in a frame of reference." Adults, he (Mezirow, 1997) argues, have acquired a coherent body of experiences, associations, concepts, values, feelings, conditioned responses – frames of reference that define their life world. Frames of reference are the structures through which we understand our experiences. We need to realise that we have strong tendencies to reject anything that doesn't fit within our current frames of reference. This is something that we need to be willing to change. To take steps to be able to re-evaluate our frames of reference and perhaps change them if need be. This is difficult to do as our frames of reference are not merely points of view instead they are more habits of mind (Mezirow, 1997). Habits of mind are "broad, abstract, orientating, habitual ways of thinking, feeling and acting influenced by assumptions that constitute a set of codes. These codes may be cultural, social, educational, economic, political or psychological" (Mezirow,1997, 5). The argument is made that it is easier to change ones' points of view but not nearly as easy to change one's habit of mind or frame of reference. In order to do so, a number of different learning 'methods' need to be implemented. So how do we then transform our frames of reference? This is done through critical reflection on the assumptions upon which our interpretations, beliefs and habits of mind or points of view are based – self-reflection can lead to significant personal transformations (Mezirow, 1997), this process often occurs after a 'disorientating dilemma'. The group of 54 grade 9 boys aged, 14/15 are put in a very new and challenging position. They are in a new environment, away from all the modern-day appliances and creature comforts that they are used to. They are removed from their parents, siblings and even their normal friendship groups. This experience can be seen as a 'disorientating dilemma' that can result in transformative education.

Max Elsey (2011) argues that there are many difficulties facing schools in the USA, issues that aren't dissimilar to the South African context. There are pressures over results, cutting of staff and budgets as well as influences from family and communities that prohibit or at least negatively influence the ability of principals and superintendents to meet the mandated expectations. Thus, Elsey (2011) states that one way of attempting to meet the need of linking the personal growth of students as well as the development of core curriculum values is through Transformative Learning Theory.

Transformative Learning Theory, originally developed by Mezirow (1999, 2000) is an adult education theory that requires pedagogies that are simultaneously rational and imaginative in structure and practice. Transformative Learning is said to be rigid due to the 10 phases that are required in order for transformation to occur.

- A disorientating dilemma,
- Self-examination with feelings of guilt or shame,
- A critical assessment of knowledge and assumptions,

- Recognising one's transformative process is unlike what others experience,
- the exploration of options for new roles, relationships,
- Planning action,
- Taking action, gaining knowledge and skills for successful implementation,
- Trying out new roles,
- Building competence and self-confidence in new roles and relationships,
- The reintegration of new perspectives into daily life (Elsey, 2011, p. 1).

These 10 phases as outlined above are considered to be complex and Elsey (2011, p. 1) states that many educators have struggled to implement transformative learning successfully, in terms of implementing all 10 phases. Overall Elsey (2011, p. 1) states that "Transformative Learning (TL) operates within the intrinsic and extrinsic poles the self we draw upon daily to solve the problems of living life. These unique elements work in concert to help us make sense of our world."

Elsey (2011) gives an example of how transformative learning can be applied to middle school children and not just adults as Mezirow argues. The author argued that the lessons of transformative learning have taken place through the staging of *Cinderella* by the students at the school. He argues that the theme of the story supports Mezirow's principles as well as the additional challenges faced by students such as; text analysis, imaginative staging, the words and music or the songs, the effect of the rehearsal process and the ability to communicate successfully with adults and peers. The challenges, he argues are the fundamental building blocks to personal development and are identical to those an adult would face in a similar situation and thus the theory can be applied to younger students.

With reference to the Maretlwane Wilderness School, students are not producing one production. However, there are numerous similarities between the tasks needing to be completed. Boys will need to work together to solve problems that they encounter, they will need to overcome their own fears and anxieties in order to complete certain tasks and they are in constant communication with their peers and mentor. These challenges, like those experienced by the students producing *Cinderella*, are the same 'fundamental building blocks to personal development' (Elsey, 2011). This project aims to determine if these building blocks are experienced by learners at the Wilderness School and whether or not transformative education occurs through the experience. In addition it may also be useful to pull on the theory of meaningful learning in nature outlined by Brody (2005) in which he highlights the importance of Acting (experience), Thinking (knowledge) and Feeling (attitudes and values) and how these elements are necessary in order for meaningful learning to take place. This is important in my research as I am interested in knowing which of these areas has the greatest influence on the pro-environmental attitudes and behaviours that the boys may develop. The literature points to the fact that knowledge alone is not going to elicit real transformation, so will a combination of knowledge, with doing and feeling make a change? My understanding of these terms is that acting refers to having an experience in the environment, getting out of the classroom and into the spaces that we are trying to teach about. Thinking/knowledge is the information that one has about environmental systems and how they work, what issues are facing the world at the moment and then the feeling. One has to be able to have empathy with the 'other', other people or animals that may be negatively impacted by our actions. Even if an individual isn't personally impacted by a drought or deforestation, it would be beneficial to have empathy for those that are impacted and to then change ones' behaviour.

1.3 Argument and Overview

Working within this theoretical framework, this paper analyses the data gathered to develop one primary intervention in debates on environmental education. The overall argument that is developed in the remaining chapters is that environmental education can result in transformative learning, however, if the changes are to be long term then 'bridges' need to be built connecting the different places of environmental learning and living. The natural environment where environmental education experiences take place need to be linked to the urban schools and homes of the participants. This argument is important as Environmental Education is often seen as a way of addressing the environmental challenges that society faces today, however, it needs to be environmental education of a particular kind if we want to see changes in the way that people interact with the world around them.

This argument is substantiated in the five remaining chapters. The next chapter presents a literature review that covers a variety of themes such as attempting to find consensus on a definition of Environmental Education, how theories of space and place influence understandings of one's environment, and then a look at how environmental education is taught, with a focus on transformative learning and how it is implemented. Lastly, there is a critique of the implementation of EE as Frisk and Larson (2011) as well as O'Brien (2012) argue that there is a large disconnect between the teaching of environmental education and the action that is supposed to occur as a result of it.

The methodology covers the methodological approaches used in this research and provides a more detailed explanation of the aims and sub-questions of this research. A discussion of the limitations is provided and a more in-depth discussion of the Wilderness School Experience. The Data collection follows in which the results of the study are synthesised and an analysis of the results is provided. Finally a conclusion is made that draws on the literature review and suggestions are made as how to possibly improve the experience.

Chapter 2 - Literature Review

In a time of constant change and with many environmental issues facing the world as a whole, environmental education is a way in which a more sustainable world can be created (Frisk and Larson, 2011). Environmental Education (EE) has travelled a fairly long and complex road. The meanings and definitions that are linked to EE have at times been poorly defined and this sparked debate on terminology (Brody, 2005). In addition, Brody (2005) argues that EE has also lacked a sound conceptual framework to inform its methodologies. This review of the literature will discuss the defining of environmental education and its history, theories of space and place and what is meant by the environment, followed by the approaches that are used to teach environmental education. This is done in order to determine how environmental education is defined and taught, so that the practices that occur in the Wilderness School can be located in the existing literature.

2.1 Defining Environmental Education

Dube (2014) argues that the early concept of EE was relatively narrow. This was because it was based on the concept of 'the environment' being concerned with the biophysical aspects of the environment, with little attention paid to the human dimension. This she argues is especially true in the context of high school teachers in South Africa, as many of them regard EE as being exclusively focused on conservation and protection of natural environments rather than seeing the greater picture of sustainability (Dube, 2014). Dale and Newman (2005) make a similar point, arguing that environmental education, or rather sustainable development education needs to go beyond environmental and ecological sciences. They contend that these disciplines break down when confronted with problems that cross traditional disciplines and involve multiple stakeholders and occur on multiple scales, for example: climate change, consumption patterns, the vicious cycle of poverty, environmental degradation and their interlinkages have no simple solutions. Instead a more sustainable approach is required, one that considers social, economic and political control systems that are ultimately the source of the problems that the world faces (Dale and Newman, 2005).

Hungerford and Volk (1990) and Cole (2007) make the point that environmental educators must not only foster an awareness of environmental issues and problems but also develop the skills to solve these problems, and inspire a willingness to make effective decisions as action-orientated citizens or in the words of Hungerford and Volk (1990) create an environmentally responsible citizen. This is someone who "has:

(1) An awareness and sensitivity to the total environment and its allied problems,

(2) A basic understanding of the environment and its allied problems,

(3) Feelings of concern for the environment and motivation for actively participating in environmental improvement and protection,

(4) Skills for identifying and solving environmental problems and

(5) Active involvement at all levels in working toward resolution of environmental problems"

(Hungerford and Volk, 1990, p. 258).

Smythe (1995) agrees with these elements in creating an environmental citizen (Smythe, 1995). The key similarity between all these authors is that environmental education should result in environmental citizens that are active in the world, that their knowledge takes them beyond just knowing but that they are able to act in the world, as Genc (2015) would state, an environmentally literate society. Davidson (2001) and Dale and Newman (2005) draw on the work of Freire (Friere,

1970) in understanding how meaning is made and how this is more than just learning but is rather a process which results in human agency.

> "Friere's 'practice of freedom' is a process of action and reflection by which men and women interact critically and creatively with reality, and thereby discover how they can participate in the transformation of their world. This is a concept of education as liberation, as a nurturing of human agency within the everyday world of structures and constraints (Davidson, 2001, p. 11)".

The problem with all these definitions and descriptions of EE and environmental citizens that Anna Cole (2007) questions, is the definition of 'environment'. She argues that while teaching at a school in New Mexico her students participated in activities such as watershed monitoring, ecosystem exploration and multi-layered mapping and many other interesting and fascinating topics. Despite this, she realised that her curriculum, and all the field-based work she did, held a dominant set of cultural values and norms that she had held from previous teaching jobs in white, middle-class schools. These norms and standards didn't fit the new situation she found herself within. "I failed to include the subtle and pervasive ways race, class, history, land ownership and management had shaped and framed local ecological and biological systems" (Cole, 2007, p. 36). Instead she realised that "environments are cultural, social and political constructs where the struggle for meaning and definitions of place determines human interventions and ways of engaging with those places" (Cole, 2007, p. 36) thus the definition of 'environment' may be considered too narrow in many definitions of environmental education. This may be true in the definition used by Genc (2015, p. 105) "that the environment is the habitat in which living things maintain their reciprocation and interact with each other throughout their lifetimes".

Dube (2014) argues that perhaps the newer Education for Sustainable Development (ESD) tries to incorporate the complex nature of the 'environment' in some way. According to UNESCO (UNESCO, 2012), ESD entails an increased focus on sustainability, with a focus on all three pillars of sustainable development; the environment, society and the economy. Dale and Newman (2005) make the point that the epistemology of sustainable development literacy is derived from environmental and ecological literacies with the addition of an emphasis on the interrelationship between human and natural systems. They argue that the core of sustainable development is that it views human activity systems within the global ecological network. Stevenson (2008) explains that ESD has developed over time, emerging from the prior 'nature study' to 'conservation education' and then 'environmental education'. This progression, by some such as Smyth (1995) has led to two advancements; a more positive orientation than EE and the shift away from only environmental concerns to incorporate social and economic development alongside the environment (Stevenson, 2008). There are however criticisms of ESD, González-Gaudiano (2008) argues that the emergence of ESD has been full of controversy. There are many different views regarding ESD, those that believe that it is a superior version of environmental education, and others that see it as a rhetoric that will hide the value of nature in order to further the interests of the rich (González-Gaudiano, 2008). Others argue that there are difficulties with defining the term 'sustainable' and current understandings are said to be "fuzzy" and this may be problematic in trying to teach education for sustainable development (Stevenson, 2008).

Dale and Newman (2005) argue against the criticism of sustainable development and a lack of a firm definition. They argue that the lack of a definitive definition allows for a process of reconciliation of the three imperatives, as outlined by the Brundtland Commission's definition, the ecological imperative to live within global biophysical carrying capacity and to maintain biodiversity, the social imperative to ensure the development of democratic systems of governance that can effectively

propagate and sustain the values that people wish to live by and lastly the economic imperative to ensure that basic needs are met worldwide. The argument is made that this definition remains general enough to allow for sustainable development to be interpreted differently in specific socio-geographic situations and to be sufficiently responsive in the face of unpredictability and uncertainty (Dale and Newman, 2005). Overall it is clear that the authors favour the idea of sustainable development literacy as it builds on environmental and ecological literacies, the main difference is that sustainable development includes and highlights the interrelationship between human and natural systems, and the premise that these two systems are dynamically interdependent and cannot be considered in isolation, especially when needing to resolve critical issues.

Another understanding of sustainability that is quoted by González-Gaudiano (2009, p. 49) is that sustainability is intrinsic to authentic human consciousness and when used …

> "as a frame of mind is not simply the issue of our attitude towards the environment but represents perspective on that set of the most fundamental ethical, epistemological and metaphysical considerations which describe human beings; a perspective which is both theoretical and practical in that it is essentially concerned with human practices and the conceptions and values that are embedded in them".

The benefits of this understanding he argues, are that it brings the affective and cultural components of education back into education, this then has the potential for values and experiential education. I agree with this as being a positive move because, as González-Gaudiano (2008, p. 49) explains "our relationship with nature, whatever its kind, is an important aspect of our own identity." Despite the possible benefits of ESD, Dube (2014), shows that many teachers of EE, especially in South Africa still focus on the natural environment with little appreciation for context. Stevenson (2008) outlines some possible reasons why teachers struggle to implement ESD. One such reason is that in order to learn to live within ecological limits without human suffering there must be an uncovering of ideologies and power relations, thus initiatives are often highly political and many educators may feel very uncomfortable with this. In addition, the concept of 'environment' as explained by Cole (2007) continues to be enormously complex and not dealt with accordingly. This is problematic as an appreciation of space and place is necessary when attempting to teach students about 'the environment' as Cole (2007) has pointed out, their experiences will influence their engagement with the area and what they get out of the lessons and activities.

Despite these critiques, all agree that at some level of environmental education or education for sustainable development is an important aim if we are to address the complex issues that face our world (Hungerford and Volk, 1990) (Frisk and Larson, 2011). So, the question then is, how are the aims of environmental education to be achieved? What practices need to be put into place to 'create' environmental citizens? Palmberg and Kuru (2000) state that different environmental education programs (field trips, hiking, camps and adventure activities) aim to develop students' affective relationships to the natural environment, their environmental sensitivity and outdoor behaviour as well as their social relationships. These are done through allowing students to have personal experiences with the natural environment (Palmberg and Kuru, 2000). These places and spaces in which students' have experiences are important to consider.

2.2. Theories of Space and Place

Just as there are debates about the term 'environment', Massey (1994) argues that the concepts of space and place are more complex than originally thought. She draws on the work of Lefebvre, arguing that space is socially produced, that is, it is "created out of the vast intricacies, the incredible complexities of the interlocking and the non-interlocking, and the networks or relations at every scale from the local to the global (Massey, 1994, p. 265). She adds that it is not static but that it is constantly shifting. In an interview, she says that instead "of space being [viewed as] a flat surface it's like a pincushion of a million stories: if you stop at any point in that walk there will be a house with a story." (Massey, 2013). As there are different understandings of space, so are there different understandings of place. Massey also sees places as areas of interactions that are social in nature and unique for all people within these 'places.' As she explains: "each 'place' can be seen as a particular, unique, point of their intersection. It is, indeed, a meeting place. Instead of thinking of places as areas with boundaries around, they can be imagined as articulated moments in networks of social relations and understandings, but where a larger proportion of those relations, experiences and understandings are constructed on a far larger scale than what we happen to define for that moment as the place itself, whether that be a street, or a region or even a continent. And this in turn allows a sense of place which is extroverted, which includes a consciousness of its links with the wider world, which integrates in a positive way the global and the local" (Massey, 1994, p. 154).

Rooted within this understanding, a number of studies have been undertaken to determine how students make use of spaces, places and the environment in a more complex manner. A study conducted by Pike (2011) which investigated children's experiences of their local environments and their learning aimed to gain a better understanding of space and place and the environment as understood by children. She found that children use a variety of spaces and places and also for different reasons to the intended purpose, for example many children used shopping areas not only to shop but also areas to 'hang out'. Overall Pike (2011) found that children's experiences in their local environment were valuable in and of themselves but also in contributing to their learning. This included cognitive and affective learning as their experiences contributed to the development of knowledge of spaces and places and an understanding of physical and human processes (Pike, 2011).

In his article entitled "The best of both worlds: a critical pedagogy of place", Gruenewald (2008) analyses and brings together elements from two different schools of thought: critical pedagogy and place-based education to rework them into an idea put forward as a critical pedagogy of place. In both concepts place is extremely important. He argues that "place… foregrounds a narrative of local and regional politics that is attuned to the particularities of where people actually live, and that is connected to global development trends that impact local places" (Gruenewald, 2008, p. 308) and is a definition used by critical pedagogy. On the other hand he argues that place-based education lacks a specific theoretical tradition and no clear definition of place although 'place' does feature more prominently in more recent literature. Although place is important in both literatures, Gruenewald (2008) argues that each focus on different places. Place-based approaches seem to associate themselves with the outdoor, environmental, ecological and more rural education whereas a critical pedagogy emphasises social and urban contexts and often neglects the ecological and rural entirely. Despite his critique of the two traditions, he does acknowledge that some authors have taken this dichotomy into account in their studies.

Gruenewald (2008) uses the work of Freire (Freire, 1995) as a way of bringing critical pedagogy and a pedagogy of place together. Friere (1995, p. 90) states,

> "People as beings "in a situation" find themselves rooted in a temporal-spatial condition which mark them and which they also mark. They will tend to reflect their own "situationality" to the extent that they are challenged by it to act upon it. Human beings *are* because they are in a situation. And they *will be more,* the more they not only critically reflect upon their existence but critically act upon it."

Gruenewald (2008) explains that the spatial dimension of situationality, and its attention to social transformation, is what connects critical pedagogy with pedagogy of place. Both of these discourses are concerned with the contextual, geographical conditions that shape people and the actions people take to shape their conditions. Gruenewald (2008, 311) draws on the work of Haymes (1995) and the work of Massey (1994) in recognising that places are social constructions "filled with ideologies, and the experience of places… shapes cultural identities." This is important to the research being done here, as an understanding of place is important to what students think and do in different contexts. Again Gruenewald (2008) refers to the work of Friere (1970/1995), emphasising the importance of 'reading the world'. This redefines conventional methods of teaching as it encourages teachers and students to decode the 'texts' of their own worlds rather than the traditional texts of classroom learning. Thus it is through reading the world (or rather the places that one knows in the world) that teachers and learners engage in reflection and action in order to understand and where necessary change the world.

To bring everything together Gruenewald (2008) argues that acknowledging that experience has geographical context opens up the way to admitting critical social and ecological concerns into one's understanding of place, and then also the role of place in education. Thereby attempting to ground place-based education into a pedagogy that is socially and ecologically critical. This is done through what he terms: "A critical pedagogy of place" (Gruenewald, 2008, p. 317) that brings together decolonisation and reinhabitation. Decolonisation in education entails unlearning much of what dominant culture and schooling teaches and learning more socially just and ecologically sustainable ways of being in the world. Reinhabitation is defined as learning to "live-in-place in an area that has been disrupted and injured through past exploitation" (Gruenewald, 2008, p. 318). In order to do this a deep understanding of place is a good way to start enhancing relationships with the environment. The author argues that these two ideas depend on each other and can be brought together in a critical pedagogy of place that aims to (a) identify, recover and create material spaces and places that teach us how to live well (reinhabitation) and (b) identify and change ways of thinking that injure and exploit other people and places (decolonisation).

In conclusion (Gruenewald, 2008) argues that a critical pedagogy of place suggests questions of what needs to be transformed or conserved need to be looked at critically, that the cultural and ecological contexts are always two parts of the same whole and that decolonisation and reinhabitation are mutually and supportive objectives that should be against injustice and must be balanced with renewing relationships of care with others, human and non-human and that the shared experience of everyday places promotes the critical dialogue and reflection that is essential to identifying and creating community well-being.

Sobel (1996) argues that linked to this idea of experiencing places, and reading the world is connection and love. He states that "if we want children to flourish, we need to give them time to connect with nature and love the earth before we ask them to save it" (Sobel, 1996, p. 1). Sobel (1996) states that children in the USA are being taught about deforestation in Brazil, the plight of the arrow frog and the loss of biodiversity on global scales. He argues that the motive for this type of teaching is honourable but that it may actually be promoting a disconnect between children and their immediate environment as they are more connected with endangered animals and ecosystems

around the globe than they are with what is happening in the local neighbourhood around the school, in essence their own places in the world.

He argues that this may be linked to the developmental appropriateness of the environmental curricula, that teachers are perhaps bringing abstract thought into the classroom too early. This has been the case in mathematics and resulted in a math phobia among children in primary grades. He fears that this is also happening in environmental education. “My fear is that our environmentally correct curriculum will end up distancing children from, rather than connecting them with the natural world” (Sobel, 1996, p. 1) and in addition enhancing an Ecophobia where students learn about large scale problems such as oil spills and rainforest depletion, problems which he argues are often beyond their understanding and definitely out of their control. Thus they may see themselves as victims with little agency. This I believe will not encourage changes in behaviour as is so desired by environmental education programmes. His proposal is to foster environmentally aware and empowered students through children’s natural tendency to bond with the natural world.

Thus Sobel (1996) argues that the formative years of bonding with the earth include 3 stages of development: ages 4-7; 8-11 and then 12-15. Environmental education should be adapted for each group according to their natural inclination during the stage.

He then provides an example of teaching for each stage. In the early development students are taught through play. In a lesson on birds they turned themselves into birds with cardboard wings, made human size nests and painted their colours – from this they were inspired to start identifying birds that were the “same as me”. In the next phase, children start exploring a little further so their teacher in teaching the water cycle got them to follow a stream near their school – something they would naturally want to do. In this they learnt about topography, pollution and where/how water travels. The last phase is interesting as the social becomes a lot more important to the early adolescents. They begin to relate to others and the group studied became interested in hazardous waste as it was near their school and impacted their peers, so they became involved in campaigning for its removal and eventually were successful. In this process there is a connection between the students and place, and in the final phase an empowerment of the learners.

2.3. Approaches to teaching environmental education

Brody (2005) argues that EE tries to address many different aspects of the world and how we experience it. It is a broad area that has to try and accommodate interest in nature, ecological sciences as well as societal needs and demands. So how do we go about teaching such a complex and diverse ‘subject’ especially because thriving environmental education requires the following: “administrative support, teacher time budgeting, societal support, local environmental sources, nonlocal sources, flexible syllabi, flexible programs, cooperative learning and appropriate levels of common learning sufficiency” (Genc, 2015, p. 106), in addition to these, often structural elements that are required, Kollmuss and Agyeman (2002) put forward the point that the question of what shapes pro-environmental behaviours is a very complex one, and that it cannot be answered through one single framework. There are many factors to take into consideration such as demographic factors, institutional factors (necessary infrastructure), economic factors, social and cultural factors and then internal factors such as motivation, environmental knowledge, values, attitudes, environmental awareness, and emotional involvement, locus of control and responsibility and priorities (Kollmuss and Agyeman, 2002). They represent their thoughts on what influences environmental behaviour using a diagram (shown below).

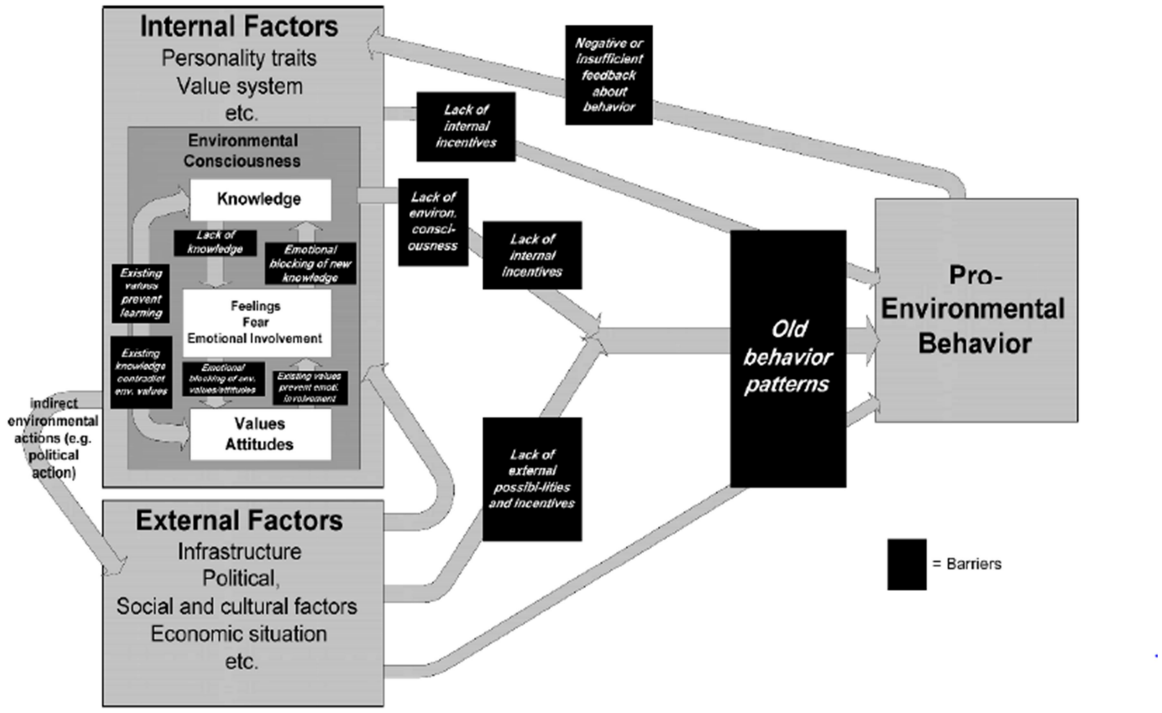


FIGURE 1: BARRIERS BETWEEN ENVIRONMENTAL CONCERN AND ACTION (BLAKE, 1999 AS USED BY KOLLMUSS AND AGYEMAN, 2002, 247)

As can be seen, this model is included as it is a good attempt at visually addressing the complexities of the factors that affect environmental behaviour. The fact that there are internal and external factors, some of which can be controlled and others that can't, and their interconnectedness is important. What is also good to see visually are the barriers to pro-environmental behaviour, the most significant of these being old behaviour patterns (Kollmuss and Agyeman, 2002). Chawla (2007) conducted research to determine what factors influence pro-environmental behaviour, she found that "The two most frequent answers were the same in each country: positive experiences of natural areas in childhood and adolescence and family role models." (Chawla, 2007, p. 145). In addition to these factors that will hopefully ignite environmentally positive behaviour, authors such as Schneider (1997) and Dale and Newman (2005) advocate for environmental literacy to foster an ability to engage in the environmental arena.

Schneider (1997) states that environmental literacy is particularly important in Environmental Education. He argues that environmental literacy is not simply being well versed in knowledge but rather through an understanding of the processes used, environmentally literate people will be able to ask the correct questions. In this way citizens can participate in the environmental policy arena so that their values can be counted (Schneider, 1997). Dale and Newman (2005) state that in order to achieve sustainable development literacy, one needs to have familiarity with the traditional environmental and ecological literacies and then students should acquire a range of varying skills as represented in the table below. The key to utilization of these skills is adaptability, they state that the basic requirement for sustainable development literacy is "'adaptive flexibility' meaning the ability to address changing conditions through the process of continuous adaptive learning" (Dale and Newman, 2005, p. 358). This requires students to be willing to change and that there are some current barriers to creating sustainable development literacy. Dale and Newman (2005) argue that one of the biggest challenges to developing sustainable development literacy is the distinct way in

which schools structure learning into different and distinct categories or subjects with little overlap. Consequently they state that study of institutional structures is essential as it is not possible to explore new ways of thinking if people are not willing to understand and challenge the old ways. If there is a tendency to retreat to the old ways of single disciplines then there will be a failure to capture the holistic nature of current problems and their solutions. Thus they propose new skills that are required. These are shown in Table 1 below.

TABLE 1: SUSTAINABLE DEVELOPMENT LITERACY SKILLS (DALE AND NEWMAN, 2005, 357)

Facts-based skills	**Processed-based skills**
Systems theory	Systems thinking
Related disciplinary based knowledge pertaining to the ecological, social and economic imperatives.	Interdisciplinary and transdisciplinary research methods
Natural and Social science research methodologies	Perspectives taking and perspectives making
Action research	Contextual appreciation and analysis
Governance	Barriers analysis
	Backcasting and scenario building
	Multi-stakeholder processes
	Values articulation

Ceaser (2012) proposes that Critical Environmental Education (CEE) should be the way in which EE is taught, this is similar to the proposal by Dale and Newman (2005) in that it goes beyond the traditional subjects and knowledge and that it requires critical reflection with the ability to engage in local action to address social/environmental problems, this concept draws on critical theory or pedagogy. One of the key objectives of critical pedagogy is to allow students the opportunity to gain the necessary skills, specifically social skills, to allow them to actively participate in their communities. The aim is to give those who have been excluded from power the right and ability to have an impact in civic life (Kincheloe, 2007). Educational approaches based on this theory teach students that reality operates on three levels; Experience; Interactions and events; and Structures and processes (Ceasar, 2012) . In CEE, students are taught to take their own everyday experiences and connect them to broader social-structural reality by questioning the values, perceptions, conditions and opinions that shape people's actions. The aim is to go further than simply raising awareness but to empower students and teachers to change reality. This is often done through action research as it gives students the experience that is required to change something that is important to them.

Similarities between critical EE (Ceaser, 2012) and the theory of learning in nature (Brody, 2005) can be drawn. Ballantyne and Packer (2002) provide a case-study to show that nature-based excursions and learning in natural environments influence the perceptions students had towards the environment. They found that students respond positively to outdoor experiences, especially if the students take part in pre- and post-excursion activities. They also found that students get more out of the experience if activities promote emotional responses rather than just cognitive learning through worksheets and notes. The key aspect that resulted in change of attitudes and behaviours was the witnessing of the environmental destruction that has taken place (Ballantyne and Packer, 2002). This finding confirms the need for students to have experiences in the environment if we

want them to learn about it and definitely if the aim is to see change in attitudes and behaviours. This is in line with the arguments made by Brody (2005) and Ceaser (2012).

Brody (2005) has attempted to create a matrix to explain what is required for meaningful learning to take place in nature. He drafted a matrix that has continued to be refined over time in which he outlines the importance of the Physical, the Personal, The Social and Time in relation to the activities, the thinking and feeling that one experiences when in nature (Brody, 2005). Brody and Tomkiewicz (2002) also refer to the importance of the personal, the social and the experience in their study of how visitors' perceptions, values and understandings change after visiting the Midway Geyser in Yellowstone National Park. This is what they argue results in meaningful or transformative learning (Brody and Tomkiewicz, 2002). This I think can be linked to Critical EE's focus on experience and questioning preconceived ideas. Ceasar's (2012) critical EE also emphasises the relationship between students and teachers, and the fact that teachers need to be constantly adapting their teaching so that meaningful learning can relate to students' pre-existing knowledge. This meaningful learning links the process of critical reflection to a commitment to action. However, in his research he found that there was a disconnect between an egalitarian rhetoric (students could challenge power in discussions) and its living practice (students felt they couldn't change actions). Brody's (2005) acknowledges that there is a relationship between acting and social interactions, his case-study focuses on the relationship between a student and her fellow classmates, in that there was meaningful learning through open discussions and different 'points of view.' This study did not include the relationship between student and teacher and would be an interesting addition so that it can be compared to Critical EE.

Ceaser (2012) outlines many of the criticisms made by some. The first being that action-orientated critical education is antithetical to the liberal-progressive ideas that brought about modern education and that these ideas weaken critical EE's transformative power when included within the school system. A second critique argues that action-research is too difficult to implement and that 'student action' should be simply referred to as changing student's values. In addition, there is the argument that students will find questioning the norms of society unpleasant and disturbing, turning children away from environmentalism. Lastly some have found in their studies that Critical EE was very difficult to implement, without a coherent framework and that there was long list of requirements (Ceaser, 2012).

Ceaser draws in the work of Kyburz Graber (1999) who offered two constitutive aspects that frame a critical EE learning culture. She uses her investigation of 5 high schools to construct these ideas. She puts forward two key aspects of Critical EE. A participatory teaching-learning environment between students and teachers and secondly a contextual value-laden knowledge. For a participatory teaching and learning environment to exist, students and teachers must both engage in learning and teaching, examining their experiences and beliefs and critiquing democratic processes that occur in society. With regards to a contextual value-laden knowledge, knowledge should be deeply connected to the local environment both socially and environmentally (Ceaser, 2012). This in turn will allow students to focus on a concrete problem, and use their skills to genuinely address the issue, teaching them to learn with a sense of self-responsibility. Blanchet-Cohen (2008) agrees with the importance of self-responsibility as she found that a sense of agency is an important aspect of getting people, particularly students to play a role in addressing environmental problems. In addition, the importance of the 'local' is also argued by Cole (2007) and Sipos, Battisti and Grimm (2008). Despite the critiques made of critical EE, it can be a useful approach to teaching EE.

Stephen Sterling (2010) examines four additional approaches to teaching environmental education. The first that he deals with is that of Instrumental teaching, the view proposed by the United

Nations in their hope that education can solve many of the environmental issues that we deal with today. The emphasis is on the content and it is assumed that raising awareness and knowledge about environmental issues will rationally and causally lead to personal and behavioural change, and if followed in great enough numbers to broader social change (Sterling, 2010). However, according to Brody (2005) this is unlikely to occur as, as he argues that pure knowledge and an experience in nature are not enough to change the behaviours of learners. Instead he puts forward the notion that meaningful learning in nature is a result of "direct experience(s) over time in which personal and social knowledge and value systems are created through complex cognitive and affective processes" (Brody, 2005, 610).

The second perspective outlined by Sterling (2010) is that of intrinsic education. The intrinsic view is less about content and more about the process of education. Here the aim is to develop learners' abilities to make sound choices in the face of uncertainty and complexity of the future (Sterling, 2010). This is similar to the definitions of environmental literacy put forward by Schnieder (1997) and Dale and Newman (2005), as it argues for learners to not only understand the content but also the processes behind decisions made. Linked to students who are willing to engage with deeper levels of understanding are the resilient learners. The third discourse that Sterling (2010) discusses is the idea of the resilient learner. These 'resilient students', he argues will be more inclined to take on learning challenges of which the outcome is uncertain and to persist with learning despite temporary confusion, frustration, and to recover from setbacks and failures. These resilient learners are also those that Mezirow (1997) might argue can undergo transformative learning, especially as they are willing to engage with others. The final view examined by Sterling (2010) is that of social learning in relation to social-ecological systems resilience. The feature that distinguishes it from other approaches is an emphasis on social learning. The development of this approach comes from realising that new ways are needed to solve new problems as the current problems we face are new and complex (Sterling, 2010).Overall, Sterling (2010) explains that neither of these views standing alone is adequate for teaching environmental education. Instead he takes the best part of each view and puts them together into a system that he called 'sustainable education', defined as

> "[a]n ecological or relational paradigm which develops and embodies the theory and practice of sustainability in a way which is critically aware. It is therefore a transformative paradigm which values, sustains and realises human potential in relation to the need to attain and sustain social, economic and ecological wellbeing, recognising that they must be part of the same dynamic" (Sterling, 2010, p. 522).

Sustainable education, can be incorporated relatively easily into already existing courses, this is shown by Dale and Newman (2005) who provide particularly interesting but rather simple ways in which sustainable development education can be applied. They incorporated a sustainable infrastructure into their courses. The first thing they did was to make the course paperless, readings became available online, discussions in person or online and work submitted electronically. In addition, they included trans-disciplinary elements; students were organised into cohorts and thus worked in teams and engaged in interdisciplinary thinking and research. They also took part in process learning and problem solving, getting students to work together and combine their knowledge in novel ways. They also engaged with both natural and science methodologies. An insightful task required them to read a number of articles and find a 'flaw' in terms of the methodologies. The lateral thinkers preferred the narrative type articles whereas the science students favoured the less descriptive and more data orientated research, thus they were able to venture outside of their usual learning styles. This flexibility is argued to be the key to sustainable development education (Brody, 2005, Dale and Newman, 2005 and Sterling 2001).

D'Amato and Krasney's (2011) concept of 'transformative learning' is another way in which sustainable education can be carried out. Transformative learning is defined as "a process by which we transform our taken-for-granted frames of reference (meaning perspectives, habits of mind, mind-sets) to make them more inclusive, discriminating, open, emotionally capable of change, and reflective so that they may generate beliefs and opinions that will prove more true or justified to guide action" (D'Amato and Krasny, 2011). To go further, Transformative learning is often precipitated by a "disorientating dilemma" which is followed by critical self-reflection, social interactions, planning for action and building competence and self-confidence in new roles and relationships as a result of taking action. Such learning could result in personal growth as well as in questioning and changing one's behaviours toward the environment (D'Amato and Krasny, 2011). The Maretlwane experience can perhaps be seen as a disorienting dilemma, as many boys are taken out of their comfort zones, made to engage with others for a longer period than they are used to and given tasks that challenge them physically and emotionally.

The experience of the Wilderness School can be described as an outdoor adventure program that may be able to facilitate a transformation. Garst *et al* (2001) conducted a study in order to determine whether or not an outdoor adventure program can transform a participant's self-perception. Although they did not focus on environmental education, through their study they show that an outdoor education program that includes novelty, time, challenge and structure can have an impact on the behaviour and social skills of adolescents. Not just in the short term but also in the longer term (they conducted a second round of questionnaires 4 months after the participants had been away), thus showing that an outdoor experience can transform or change individuals in some way or another.

Blanchet-Cohen (2008) carried out research in order to examine the nature of early adolescents' environmental involvement, her findings are relevant as they can be used to focus the direction of EE. If the reasons behind pro-environmental behaviour are known then it would be possible to design EE programs that target these and should result in a transformation of conceptions and possibly behaviour.

Blanchet-Cohen (2008) conducted a study that showed the complexity and depth of children's environmental involvement and that they have agency in terms of their interaction with the



FIGURE 2: RAINBOW FRAMEWORK: THE DIMENSIONS OF CHILDREN'S ENVIRONMENTAL INVOLVEMENT (BLANCHET-COHEN, 2008, 263).

environment. She found that there were 6 dimensions to children's involvement in the environment. The 6 dimensions are illustrated in her 'rainbow' diagram shown in Figure 2 above. The 6 dimensions are as follows:

- Connectedness: children immersing themselves in their environment – wonder (fulfilment and contentment being in nature) and interrelatedness (a relationship with the physical environment impacts how they feel towards it).
- Engagement with the environment: Involves learning about the environment, moving away from an intuitive connection to deeper discovery. Move from wonder, to curiosity to knowledge.
- Questioning: "awakening of children's critical consciousness and sense of justice." They start to consider the bigger picture and become aware of the contradictions and complexities that exist.
- Belief in capacity: This involves children framing an issue positively and then viewing themselves as in a position to make a difference – this is linked to a child's sense of confidence and optimism.
- Taking a stance: Committing to a position – biggest challenge to this is peers and adults.
- Strategic action: Purposeful and conscious approach – "the environmental action undertaken results from children positioning themselves within a given society and physical context.

From these dimensions Blanchet-Cohen (2008) then proposed that there are four profiles of environmental involvement. The initiator – children who take the lead; creative – express involvement figuratively through the use of art, writing or voice; the members – practice environmental activism as part of a group and then the grounded who consider environmental involvement as a way of life rather than one off separate projects. The one criticism of this work is that her participants were children who were attending the 2002 International Children's Environment Conference held in Canada. Attendees at the conference had to go through a relatively intense application process in order to be chosen (Blanchet-Cohen, 2008). This I feel is problematic because these participants were not only those that had the financial and human resources to be there but also those that showed a keen interest in the environment prior to the study. Thus her results, although useful, need to be applied cautiously as not all children have the economic resources nor the inherent interest in the environment as her participants had.

There are some useful implications of her findings. The first is that the study affirms that early adolescents not only have the capacity to grapple with issues of rights, responsibilities and feelings of belonging with the human and biotic community but grow through these interactions. It shows that children interact with the environment at multiple levels and in a number of ways and that influences on their involvement are complex and varied. Some of these include teachers, peers, parents, the internet and discovery of special places (Blanchet-Cohen, 2008). In addition, there are a number of additional factors that may impact a person's environmental behaviour.

- Sources of environmental concern: a belief that western education credits the provision of knowledge (facts and figures) as being what motivates people to behave in an environmentally responsible way but research on this has shown that there isn't a linear relationship between knowledge and motivation. Rather, researchers have found that developing a relationship with nature that involves feelings and not just knowledge is what is important in promoting responsibility (Blanchet-Cohen, 2008). This is in line with the work done by Sobel (1996). Environmental educators consider that there are two important

elements that need to be in place to promote environmentally responsible behaviour: direct contact with nature as well as adult mentoring (Chawla, 2007). The question is now, what is the impact of more and more urban life styles? Can books, videos, classroom activities and the internet replace a child's first-hand experience with nature?

- Significant Life Experience Research (SLE): This retrospectively examines experiences that have shaped adults who have demonstrated environmental activism, with the goal of identifying experiences that can be replicated in younger people. The studies have consistently shown that outdoor experiences and adult role models are what are important. Overall, however, "there is no single all-potent experience that produces environmentally informed and active citizens but many together (Blanchet-Cohen, 2008, p. 258)"
- Focus on early adolescents: Interest in early adolescents because research has shown that this age group demonstrates remarkable cognitive powers, children have a quest for understanding but also a capacity to focus and an ability to transcend. So the question is, could this period be a unique opportunity for environmental connectedness and awareness.
- Significance of child agency: Agency: is the capacity of an actor to act in a given environment. Focus on child agency requires a paradigm shift – stressing children as social actors who shape, and are shaped by their circumstance and social structure (Blanchet-Cohen, 2008).

Stern, Frensley and Powell (2017) research further the impact that role models have on environmental education. They base their work off significant life experience (SLE) research that shows that environmentally active adolescents and adults benefit from positive influence of role models in developing pro-environmental behaviours. The belief is that people learn from observations and experiences with the people around them, if the people around a child exude caring and attentiveness towards nature and are supportive of experiences in the outdoors, they may promote the child's interest and sensitivity towards the natural world as well. Not only can role models influence environmental behaviour but they can also have an impact on a student's character development, aspects such as his/her sense of autonomy, competence and relatedness. The research conducted by Stern *et al* (2017) on students who attended the North Bay 5-day residential Environmental Education programme found that overall, students who expressed known adults (parents, teachers and pastors) as role models exhibited higher scores on each Environmental Education and Positive Youth Development indexes than students with no role model or other types of role models. Thus it is important to look at what aspects of an environmental education programme actually make a difference to a participant's behaviour.

Like definitions of space and place, there are also disagreements around the definition of 'sustainable development.' Authors such as Schneider (1997) and Sterling (2010) grapple with the complexity of the term when outlining environmental literacy. Rathzel and Uzzell (2009) grapple with the definition of sustainable development, arguing that there are weak and strong definitions of sustainability, which try to bring together the economic, the social and the environmental aspects of society. Instead Rathzel and Uzzell (2009) propose that the issues facing the population at the moment result from the relations of production, relations of consumption and political relations. Rathzel and Uzzell (2009) state that for transformative education to succeed, it needs to take into consideration the complexities of the relationships, and that children and adults need to understand the relations of production and consumption. In order to teach this, they argue that Vygotsky's dialectical theory of development can be useful as it provides students opportunities to resolve dilemmas and thus get a deeper understanding of the relationships within these dilemmas (Rathzel and Uzzell 2009). This is similar to D'Amato and Krasney (2011) in that a disorientating dilemma is

required in which students can try and rethink and re-look at what they previously thought and perhaps change these ideas and perceptions.

> "EE cannot reduce itself to teaching about the environment as if environmental problems are simply the result of technological problems or maladaptive consumption behaviour through the unconscious, uninformed, malevolent, inconsiderate or errant actions of individuals, or to tutor the developing child into becoming the 'good consumer' as assumed in the weak sustainability model. The Goal of environmental education should be to encourage people to formulate and understand in more comprehensive ways what they know through their experience in the everyday, thereby revealing the structural relations and ways in which we are all part of reproducing these relations through our daily practices" (Rathzel and Uzzel, 2009, p. 271).

Once again the argument is made that there needs to be a deeper understanding of the processes at play, such as the interdisciplinary integration process, the policy-making process, knowledge vs. advocacy-based assessments and the gradations of uncertainty that are present when environmental policy debates occur (Schneider, 1997). If citizens are to participate in decisions then 'action competence' is required. People who are environmentally competent should be conscious of the solutions and should draw on critical analyses of societal-environmental problems from both nature and social sciences (Rathzel and Uzzel, 2009) and to learn to ask what outcomes are possible, what probabilities can be attached to these outcomes and what is the nature of assessment processes (Schneider, 1997). In addition students/people should realise that they are not powerless in these problems and that they have an ability to make a difference as incorporated in the 'intrinsic' model of EE education (Sterling, 2010).

An example of action competence being taught in a classroom is depicted by Rathzel and Uzzell (2009). The scenario is that a group of students would like to build a new pool. They gather supporters and engage the local municipality in debate. However, the municipality says they cannot build the pool due to financial difficulties. The students accept this as the outcome and this is the end of the project. What the Rathzel and Uzzell (2009) argue is that the students should continue asking questions; where are the budget documents, who controls the expenditure and so on? They should be taught that they are not powerless and that they can engage critically in processes and influence the outcomes.

Lotz-Sisitka (2010) offers a scenario that shows the importance of engaging students and using their experiences and contexts to understand environmental processes. In the paper Lotz-Sisitka tells a personal story of a young boy asking for help with his homework. He had been asked to explain and then draw pictures of two terms: commensualism and mutualism. With very little assistance from textbooks, he asked the author for assistance with his work. After she helped him, he was able to do the homework but over the next 5 years, he had many of these assignments to do and "the result of this was that the child's experience of schooling was littered with 'foreign words' that apparently held little meaning; concepts that were not accessible to him through the cultural resources in his life world." Eventually even the authors help was not enough, and he dropped out of school in grade 11 despite the fact that he was a motivated student, keen to learn and intellectually capable. This example, Lotz-Sisitka (2010) argues shows that the dominant form of pedagogical practice favours a form of reasoning that focuses on concept clarification in which it is assumed that meaning making should be one of "ascending from the abstract to the concrete" (Lotz-Sisitka, 2010, p. 216) and that learning is often taken out of local contexts and therefore taking away a learners confidence to not only understand environmental problems but to also withdraw from any kind of action.

In order to address the difficulties of the dominant pedagogical practices as illustrated by Lotz-Sisitka (2010), Wilson *et al* (2017) argue that fieldwork assists with the transference of information and the understanding gained by students, they argue that integration of concepts discussed in class, course readings and practical experience provide for a more holistic learning environment and therefore improved performance. This is different to transformative education, but they argue will assist a learner's understanding and thereby maybe there will be some level of transformation. We must therefore investigate how transformative education can be achieved in the schooling environment.

2.4. Implementing transformative learning

Rathzel and Uzzell (2008) argue that EE cannot "reduce itself to teaching about the environment as if environmental problems are simply the result of technological problems … the goal of environmental education should be to encourage people to formulate and understand in more comprehensive ways what they know through their experience in the everyday" (Rathzel and Uzzel, 2009, p. 271) and that in order for transformative environmental education to take place, learners must learn through the process of solving problems and resolving dilemmas, problems that exist in society, and the immediate environment of the child. Walker and Molnar (2013) found from their reading of the literature and their own study that students need authentic scientific experiences in order for more meaningful learning to take place and to enhance student's understanding of scientific practice. Authentic scientific experiences are those in which "participants are provided the opportunity to participate through actions that entail changes in these practices and therewith produce and reproduce this practice rather than only observe them" (Walker and Molnar, 2013, p. 230). Thus the importance of real experiences and problem solving are key to implementing transformative learning. Walker and Molnar (2013) conducted a study of Students on the Beamline (SotB) program which is run at the Canadian Light Source, an example of authentic scientific inquiry. In this programme students determine their own questions and methods to answering them, with the assistance of the teacher and scientists at the centre. The students work predominantly on their own with guidance if need be, thus they are actively part of the process and not just observers.

The aim of Walker and Molnar's (2013) study was to determine if this programme allows students to undergo transformative learning, in other words is there a change in the frame of reference of individuals. Walker and Molnar (2013) used a qualitative approach to determine if transformative learning took place. Through a series of face-to-face interviews with students, teachers and facilitators as well as field observations, media reports and published articles they determined that transformative learning had taken place, examples of which they highlight in their paper. To start there were smaller changes in perceptions; students who had been on the programme thought differently about who scientists were and how the scientific programme worked after they had experienced it. There were also greater transformations, a student who chose to study science rather than going into construction as planned and another who also took science further due to a change in her perception of her abilities. These examples, Walker and Molnar (2013) argue, provide evidence that transformative learning took place and that authentic scientific inquiry is beneficial in making science more meaningful to students (Walker and Molnar, 2013). In their conclusion they "found that experience is also transformative in developing a sense of ownership and control among students for their own learning that is not only both meaningful and helpful for them but society in general (Walker and Molnar, 2013, p. 242)."

This is important as it adds to the argument that genuine hands on experiences are required for meaningful learning (Brody, 2005; Walker and Molnar, 2013). In addition, the findings of Walker and Molnar (2013) support Rathzel and Uzzell's (2009) argument that transformative learning can equip students to not just understand themselves better as well as actively contribute to society.

According to Rathzel and Uzzell (2009) transformative environmental education needs to inspire forms of action in which people can increase their collective control and influence over their living conditions not just in the local community but also in society (Rathzel & Uzzel, 2009). Drawing on Brecht's poem [Praise of Learning] he further argues the importance of giving students agency and the understanding that they need to understand the world around them and the role they have in changing the current situation.

Fox, Palmer and O'Donoghue (2015) also conducted research on factors that transform people's behaviour and perceptions about the natural environment. From 2008 to 2012 an environmental-education initiative was developed in order to mobilise people to engage in action to reclaim the Boksburg Lake. The Boksburg Lake is situated outside the settlement of Boksburg, Gauteng in South Africa. It had fallen into disrepair and therefore the initiative to clean it up and restore it was designed for the youth as well as the broader community. The youth were provided with systemic knowledge of the social-ecological complexities of Boksburg Lake and given opportunities for them to become actively involved. From their study they found that the enthusiasm, initiative and meaningful action done by the youth contributed to a positive-change in the real-world context and the youth acted as catalysts in the transformation process. The role of the youth was one of three key characteristics that appeared to support the transformative process. The second key characteristic that was important was the local context and a hands-on approach. The resource pack that students worked through at their respective schools and then the day spent at the Lake included practices that were informative, investigative, action orientated and reflective in nature, all of this was done around a local environmental concern, this promoted socio-ecological and contextually relevant environmental education (Fox, et al., 2015).

With regards to relationships it was important to Fox *et al* (2015) that all stakeholders were considered and that there was collaboration between all parties. Through the stakeholder engagement and input, a community of practice developed around the fixing up of the Boksburg Lake and participants could identify more closely with the initiative. In addition there was also an increased understanding of the relationship between all parts of the lake's system, participants understood better their part in the system "people were framed as part of, rather than separate from the system; the consequences of their practices for Boksburg Lake and its catchment were emphasised; and they were encouraged to become agents within it" (Fox, et al., 2015, p. 68). Lastly it was significant that students recognised their personal responsibility for the degradation of the lake, an example of this was expressed by one of their participants "we have used our precious lake as a junkyard – dumping papers, waste material and everything that we can find to destroy the lake and its ecology. But, in the end [we as] Homo sapiens are going to be suffering [the consequences of] the actions that we are taking, which are destroying the lake" (Fox, et al., 2015, p. 71). These findings can be explained by the norm activation model as outlined by Zelezny, Chua and Aldrich (2000), this model suggests that helping behaviour is most likely to occur when individuals are aware of the harmful consequences of their actions and then feel responsible for these consequences (Zelezny, et al., 2000), as shown by the students realising their part in the pollution of the Boksburg Lake.

The research done by Fox *et al* (2015) shows that transformative processes can take place through environmental learning if a number of factors are present. They found that youths spontaneously changed their habits of littering when they realised the negative impact on Boksburg Lake and the animals dependant on it. Other changes were that a core group of students showed determination, leadership, enthusiasm and courage in their mission for a cleaner school and a healthier Boksburg

Lake. Therefore there are definite benefits to inviting the youth to participate in real-world actions for positive change (Fox, et al., 2015). This study highlights that empowering students with information and knowledge, allowing them agency and focussing on their local area, can result in transforming negative behaviours to positive environmental behaviours.

2.5. Critique: closing the gap between knowledge and action

Transformative education aims to inspire a connection between knowledge and action. Despite this there seems to be a broad disconnect between knowledge and action (Frisk and Larson, 2011; Kollmuss and Agyeman, 2002). O'Brien (2012) agrees, pointing out that there is a large amount of scientific evidence pointing towards severe environmental problems such as greenhouse gas emissions, disaster risk and more social issues such as vulnerability and food security, despite all of this knowledge, he argues that there appears to be little action at the pace and scale that is called for by the research.

The idea that there is a linear progression of environmental knowledge leading to environmental awareness and concern and then to pro-environmental behaviour is the oldest and simplest of models that attempts to explain why people behave in pro-environmental ways (Kollmuss and Agyeman, 2002). Knowledge is an important aspect of pro-environmental behaviour but there are other factors that must also be included. These are

- Knowledge of issues: be familiar with environmental problems and their causes
- Knowledge of action strategies: know how to act to lower the impact on the environment
- Locus of control: feel that he/she has the ability to bring about change through his/her own behaviour.
- Attitudes: Pro-environmental attitudes tend to result in pro-environmental behaviour.
- Verbal commitment: Communicated willingness to take action indicates that a person is more willing to engage in pro-environmental behaviour.
- Individual sense of responsibility: those with greater sense of personal responsibility are more likely to engage in environmentally responsible behaviour (Kollmuss & Agyeman, 2002, p. 243).

Even though there are more factors to consider here than just knowledge, Kollmuss and Agyeman (2002) argue that even this is too simplistic and one needs to take into consideration other models that include altruism, empathy and pro-social behaviour. In addition they also have a look at possible barriers to environmental concern and action. They use of the work of Blake (1999) to explain these barriers. The diagram below illustrates possible barriers as outlined by (Blake, 1999).

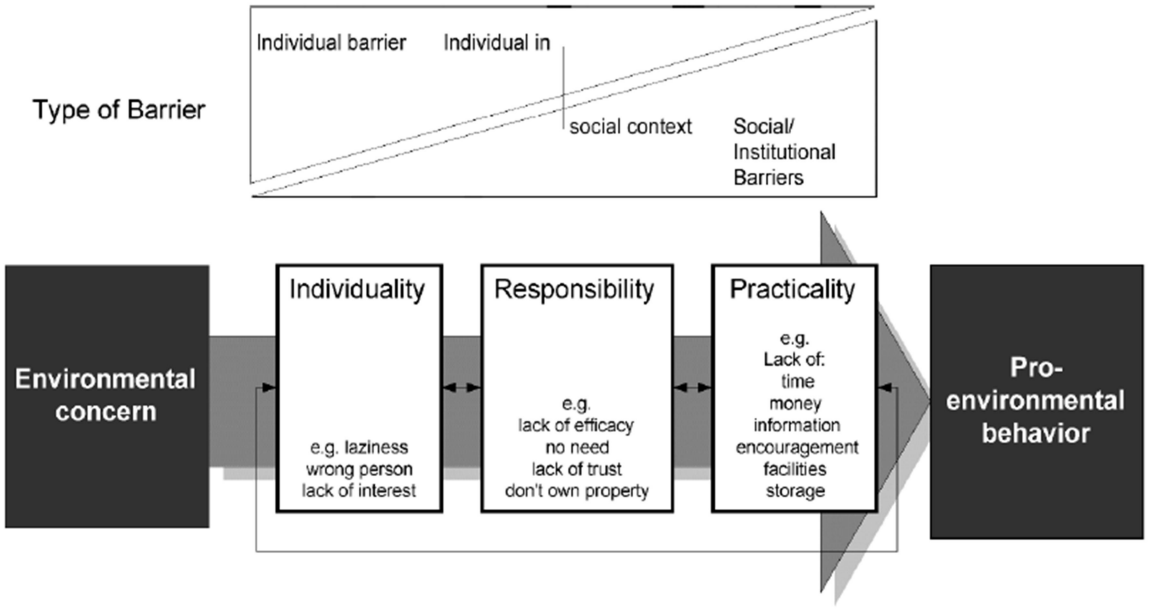


FIGURE 3: BARRIERS BETWEEN ENVIRONMENTAL CONCERN AND ACTION (BLAKE, 1999) AS USED BY KOLLMUSS AND AGYEMAN (2002 P. 247)

Although these barriers may prove useful in understanding why people may not engage in pro-environmental behaviour, Kollmuss and Agyeman (2002, p. 248) also critique this model, arguing that it doesn't take into consideration social factors such as familial pressures, cultural norms nor does Blake explore underlying psychological factors. E.g. what are the underlying factors of 'not having time.'

Palmberg and Kuru (2000) conducted a study on students who experienced different activities in the natural environment, they found that responsible behaviour is a learned response or action and that there is research that shows that increased awareness and knowledge of environmental action strategies contribute to increased motivation to take action but their study also found that there is still a deficiency in action competence among pupils in primary schools. This shows that the barriers to environmental behaviour is true in a sense, that the linear hope that knowledge converts into action is not always the case. Palmberg and Kuru (2000) argue that possible reasons for conflicts between environmental attitudes and actions may be explained in terms of conscious vs. unconscious action, as well as fragmented knowledge, which does not reach the level of applied knowledge. Context also plays a role in this, that different behaviours occur in different places and it may be difficult to merge new behaviour with old environments. Ceasar (2012) adds to this, in his study he found that students, while learning about and experiencing a different area to home, felt that they were in a bubble. The difficulty being that they struggled to integrate their new knowledge into their home situations. This needs to be considered when planning environmental issues education for primary schools.

O'Brien (2012, p. 587) also challenges the linear relationship between knowledge and action, that a lot of environmental education programs are based on the assumption that if people just knew, they would of course do something about the problem. O'Brien (2012) argues that we are focussing on the wrong problem, instead the argument is made that we should direct our attention to change itself, and how it comes about. Change involves 'to make or become different', to 'become new' or 'to move from one system or situation to another.' It also occurs on different scales, it can include small incremental changes that are hardly perceptible and at the other extreme includes dramatic

and highly visible changes. In addition it is also important to note that change can include very subjective elements such as the conscious or unconscious assumptions, beliefs, values, identities and emotions of individuals or groups and that these may influence perceptions, interpretations and actions. Thus an understanding of change and how it occurs is necessary if we are to change people's environmental behaviour. O'Brien (2012) draws on the work of Kegan and Lahey (2009) and describes what she calls the Challenge Big Assumptions (CBA) approach to closing the gap between knowledge and action. This approach includes 4 steps: (1) Identify the goal, (2) identify what is happening instead, (3) identify hidden competing commitments and (4) identify the big assumptions that underlie these competing commitments (O'Brien, 2012, p. 592). This 'new' approach is something that needs to be done if we are to see a change in the behaviour of our students.

In addition to knowledge and how it may influence environmental action, Stewart Barr (2003) argues that there are even more variables that impact the action that people take with regards to environmentally responsible behaviour. He draws on research from North America, Australasia and Europe and states that the factors that influence environmental action are characterised by environmental and social values, situational factors and psychological factors. Social and environmental values extend from those that are egoistic to altruistic and also from conservative to open-to-change. In addition there is also the understanding of the environment and its value – from biocentrism (concern for all life forms beyond the self) to anthropocentrism (concern for individual interests and human welfare) (Van Riper and Kyle, 2014). Overall studies have shown that environmental values do play a role in influencing environmental action. Situational factors include what services people have access to, for example bin-collection, public transport and purchasing power. Linked to this is socio-demographic factors although there is much debate around these. The next factor that he looks at is environmental knowledge. The argument is made that for the most part this is what government and policy-makers rely on to inspire environmental action. It is true that knowledge is important but the type of knowledge and how it is perceived are also fundamental. Lastly psychological variables also play a role. Whether or not one is altruistic, the influence of others and social pressure and lastly the perceived effectiveness that one will have on the situation (Barr, 2003). Thus what inspires action is much more complex than just dissemination of information.

Frisk and Larson (2011) acknowledge that the factors that influence behaviour are complex and varied. They do, however, believe that education plays a pivotal role in bringing about change and transformative action amongst people. However, they propose that it is only education of a "certain kind" that will change the environmental problems and move society towards becoming sustainable. Frisk and Larsen (2011) have integrated a number of ideas in order to develop an educational approach that links behavioural sciences to sustainability as well as education pedagogy, this is illustrated in the figure below.



FIGURE 4: INTEGRATING DISPARATE FIELDS FOR AN INTERDISCIPLINARY APPROACH TO SUSTAINABILITY EDUCATION (FRISK AND LARSON, 2011, 3).

Using this as a framework they have attempted to develop a conceptual framework that attempts to align education to the aim of transforming behaviour. They do this by looking at prominent behavioural theories and related studies in order to inform the relationship between education and action while focussing on four different domains of knowledge. Their aim was to synthesise various schools of thought regarding behavioural sciences with effective educational approaches for sustainability (Frisk and Larson, 2011). From their research the authors argue that sustainability education which is intended to result in action should take a systematic, multi-pronged approach to changing behaviours by incorporating multiple knowledge domains – including value-based judgements and beliefs to motivate sustainable actions. This is shown in figure 5 below.

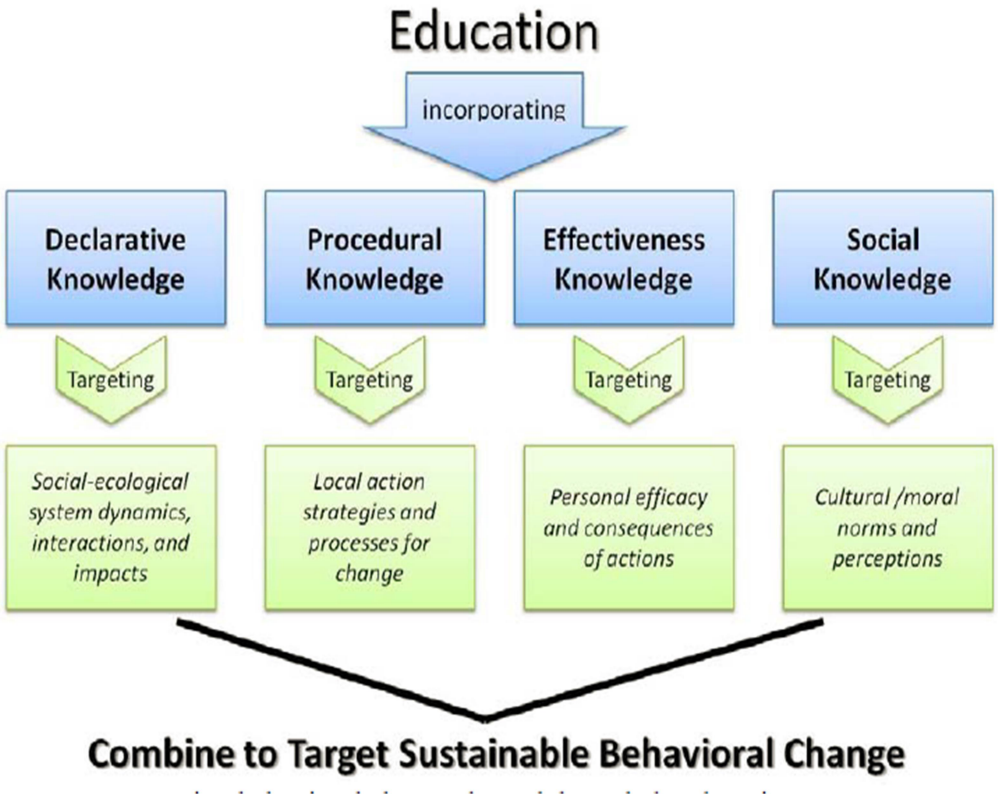


FIGURE 5: TARGETING BEHAVIOURAL CHANGE THROUGH KNOWLEDGE DOMAINS (FRISK AND LARSON, 2011).

This model is a good way of combining many of the thoughts expressed in this review thus far. That education is important for transforming environmental behaviours but that it needs to include more than just knowledge. Knowledge of social-ecological systems is important, as well as the ability to make plans and take action, to feel a sense of individual agency to be able to change cultural norms and perceptions. The outdoors is often used as a 'classroom' for applying these alternative approaches to education.

2.6. Adventure Education

The outdoor classrooms are not necessarily related to the academic realm although there may be some positive spin-offs in terms of deeper understandings of ecological systems and relationships but there are so many lessons to be learnt in character development. These lessons are taught through Outdoor Adventure Education. This type of education, using the outdoors often aims to teach 'soft-skills' such as cooperation, clear thinking, planning, careful observation , resourcefulness, persistence and adaptability (Hattie, et al., 1997). Kurt Hahn is said to be the founder of outdoor education as he designed a month-long course for sailors from the Blue Funnel Shipping Line to reduce the loss of life. His program was designed to accelerate the development of independence, initiative, physical fitness, self-reliance and resourcefulness. He then supported the establishment of Outward Bound schools in England and later throughout the world because of the success of these programmes.

The common features of adventure programmes are: (a) wilderness or backcountry settings; (b) a small group (usually less than 16); (c) assignment of a variety of mentally and/or physically challenging objectives; (d) frequent and intense interactions that usually involve group problem solving and decision making; (e) a nonintrusive trained leader and (f) a duration of 2 – 4 weeks. The most striking commonality is that they involve doing physically active things away from the person's normal environment (Hattie, et al., 1997). These are all features of the Maretlwane Wilderness School and therefore comparisons can also be made to other adventure programmes in terms of the outcomes most influenced by these experiences. The research done by Hattie *et al* (1997) aimed to identify the outcomes influenced by the adventure programs, investigate the differences between particular programmes and discuss the major educational processes that lead to the outcomes. The research done focused on Outward Bound Courses mainly in Australia, and some in the UK and USA. Of interest to this study was that Adventure Programmes had greatest immediate effects on dimensions of leadership, academic, independence, assertiveness, emotional stability, social comparison, time management and flexibility. In addition it was also found that the overall effects of adventure programmes are at least equivalent to those of other educational programmes, the continued gains and longevity of the follow-up effects are the most impressive findings. Thus the authors state that this alone provides much justification for adventure programs. However, they caution that not all adventure programs yield the same results and that within programs there are certain aspects of the program that are more effective than others (Hattie, et al., 1997). Outdoor education programs can be co-educational or single-sex. Often this is very much linked to the school that organises the adventure. The gender make-up may have an impact on effectiveness of the program.

2.7. Gender and Environmentalism

Zelezny *et al* (2000) surveyed a decade of research from 1988 – 1998 on gender and environmental attitudes and behaviours. Their review found that the majority of studies found that women

reported significantly more general environmental concern than men, although the effect of gender on NEP (New Environmental Paradigm Scale) environmental attitudes was small. They also found that women participate more in pro-environmental behaviours than men. When conducting their own research, they found this to be true for children and across countries. In their study of children, it was reported that girls had significantly stronger general environmental concerns than boys and felt greater personal responsibility to improve the environment. In terms of attitudes, girls expressed pro-environmental attitudes in their concern about rubbish and recycling. The environmental issue that they cared most for was that of animal extinction, this held true for two years whereas boys were concerned about animal extinction and in the following year water pollution. Overall girls reported stronger pro-environmental responses on all environmental variables, and this pattern was consistent across two years. This study was done using a stratified sample of primary and secondary school students from a variety of socio-economic backgrounds in California. Thus, this study is limited to one area and it would be dangerous to generalise too widely. When broadening their study to university students across 14 countries, similar results were found. The reasons behind this they argue is due to socialisation theory that posits that behaviour is predicted by the process of socialisation, whereby individuals are shaped by gender expectations within the context of cultural norms. Females, it is argued, across all cultures are socialised to be more expressive, to have a stronger ethic of care, to be more interdependent, compassionate, nurturing, cooperative and helpful in caregiving whereas males are socialised to be more independent and competitive. In addition women tend to value the needs of others, and are more helping and altruistic (Zelezny, et al., 2000). Although this is useful, the study was located exclusively in the Americas, therefore although it was across 14 countries, they are all relatively close together and, in some ways, can be very similar to one another. However, the question that can still be asked is, how do we get boys to be more environmentally aware?

It has been found in repeated studies that in general girls outperform boys in academic schooling. Girls tend to spend more time studying, doing homework and display less disturbing behaviour in the classroom. They also have higher expectations of themselves and are more enthusiastic about continuing their studies. Boys on the other hand take it easier, tend to work less hard and are easily distracted (Van Houtte, 2004). For both boys and girls it is important for them to be popular and to fit in while they are adolescents. For boys, however, it can be stated that achievement does not at all times suit their image. It can be said that there is an incongruity between the manifestation of masculine behaviour on the one hand and educational effort and achievement on the other hand. In addition boys want to look ‘cool’ and behave in a ‘cool’ manner and are particularly concerned about their image in this regard. Thus their culture is less study orientated than girls’ culture (Van Houtte, 2004). So what then can be done, to improve the results of boys and to use education to make them more environmentally conscious?

2.8. Conclusion

There are many large-scale environmental problems that society is having to confront. The broad consensus is that environmental education can play a role in solving these problems (Hungerford and Volk, 1990; Frisk and Larson, 2011). Sterling (2010) explains that instrumental teaching, which involves the teaching of knowledge about the environment, if done on a large enough scale will result in changes in peoples’ behaviour towards the environment. The studies of Hungerford and Volk (1990), Smythe (1995), Shnieder (1997), Cole (2007), Frisk and Larson (2011) and Genc (2015) show that this isn’t always the case. The argument is made that environmental education needs to go beyond knowledge dissemination and should rather be taught in such a way that students

become environmental citizens who are environmentally literate and can take action against the challenges facing the world at the moment. Much research has been done with regards to what environmental education is, the importance of teaching EE or rather Education for Sustainable Development (Frisk and Larson, 2011). Kollmuss and Agyeman (2002) and Barr (2013) have looked at barriers to pro-environmental behaviours and have shown that they are varied and complicated, ranging from difficulties of access to infrastructure, time, cost and so forth.

Ballantyne and Packer (2002), Brody (2005) and Garst *et al* (2001) have shown that experiences in the natural environment such as outdoor adventure programs may be able to facilitate more of a transformation in terms of perception and pro-environmental behaviours. Blanchet-Cohen (2008) also found this, that children who are environmentally responsible have the following characteristics. They feel a connection to the environment, have engaged with it, are questioning, have a belief in their own capacity, are willing to take a stance and take strategic action. In addition to experiences the literature has shown how important a true and reflective experience is, in attempting to change students' behaviours towards the environment (D'amato and Krasney, 2011; Brody, 2005 and Mezirow, 1997).Sobel (1996) highlighted the importance of children having meaningful experiences in nature that actually get them to fall in love with it, this he argues can be started from a very young age through play and the activities change and adapt as the children grow up. Davidson (2001) has critiqued the studies that have been done on the effectiveness of outdoor programs in facilitating environmental and character growth of participants, she argues that what is important is understanding what aspects of programs or processes result in the change. Ballantyne and Packer (2002) argue that pre- and post-excursion activities makes the experience more meaningful. Brody (2005) has continued in this vein, researching what is required for meaningful learning in nature, elements such as time, personal reflection, social interaction and actual experiences. Lastly, Stern *et al* (2017) contends that role models are hugely important in the transformative process of students' environmental perceptions and behaviours.

My study aims to add to this literature by examining the factors that result in positive environmental behaviour and also aiming to determine how prior positive experiences and knowledge held by the learners may influence their experience and whether or not this holistic experience results in transformative learning

With regards to the methods used in my study there are further lessons to be learnt from the literature. Ceaser's 2012 study of critical environmental education has brought a couple factors to my attention. The first is that participants must feel that their voices are heard and taken into consideration, and maybe more importantly that no judgements will be made about them or their responses. The second key element is that of the 'bubble effect', hence I want to see if the boys' experience changed them even when they returned to the city or did they just become environmentally conscious for a short, intense amount of time. The 'bubble effect' is the idea of the boys, when out at the Wilderness School, live in a 'bubble' in other words they are isolated from the world around them, their parents, the news and so on. They only receive letters from their friends and family back home once a week and they do not have access to their phones or any other devices. They are removed from their usual day-to-day life. The question is, does living in this 'bubble' impact the effectiveness of the teaching of positive environmental behaviour and the process of enacting that behaviour.

Chapter 3 Methodology

The following is a discussion about the methods used in this research and the motivations behind them. It also includes a section on the ethical issues that needed to be addressed as I was conducting my study on minors. A description of the Wilderness School is provided as well as the types of activities that boys take part in and the outcomes of the experience as envisioned by the school. Maps of the study site are included and a brief overview of some of the limitations that were experienced is given.

The methodology used in this research is similar to the work done by D'Amato and Krasney (2011) in which they aimed to assess the impacts of an Outdoor Adventure Education in terms of transformative education and personal growth in Environmental Education. They used the qualitative interpretivist approach – this they believed was beneficial because it assessed and helped to understand the program from the point of view of the individuals who lived this experience. In other words, the approach suggests that the program impacts are constructed from the meaning that participants make of their experience (D'Amato and Krasney, 2011). Denzin and Lincoln (2013) define qualitative research as a situated activity that locates the observer in the world, it consists of a set of interpretive tools that attempt to make the world visible. These practices turn the world into a series of representations including field notes, interviews, conversations, photographs, recordings and memos. Overall the authors argue that qualitative researchers attempt to make sense of phenomena in terms of the meanings people bring to them (Denzin and Lincoln, 2013). This approach, used in my research should be able to guard against the participants voices being lost, as was found to be the case in research conducted by Ceasar (2012).

Chawla (1998, p. 114) states that "many environmental education programmes are constructed on the false premise that knowledge about issues is sufficient, and that knowledge by itself will lead to action" This is too simple as has been shown by authors such as Hungerford and Volk (1990), that there are many factors at play and areas that need to be met if one is to behave in an environmentally responsible manner.

In order to determine how effective the Mareltwane Wilderness School is in transforming perceptions, qualitative research methods were employed. Qualitative research can be defined as "a particular tradition in social science that fundamentally depends on watching people in their own territory and interacting with them in their own language and on their own terms" (Kirk and Muller (1986) as quoted by Krefting, 1990, p. 214). Davidson (2001) has a similar argument, that meaning is the 'essential concern' of qualitative research, it has the intention of exploring ways in which people make sense of their lives (Bogdan and Boklen, 1982, as quoted by Davidson, 2001, p. 12). Davidson (2001) argues that qualitative methods are best suited for determining the impact or influence of Outdoor Adventure Programs on individuals because it allows concepts, terms and relevant issues to be defined by the subjects, rather than predetermined by the researcher. Essentially the focus should be on how the adventure experience influenced human perceptions and behaviour, rather than a simpler question of did it or did it not have an impact. Denzin and Lincoln (2013) describe a qualitative researcher as a *bricoleur* which is a maker of quilts. The idea is that qualitative researchers use a variety of methods, texts, voices etc. in a combined way in order to try and make sense of the world around us. It is said to be multi-method in focus. Chawla (2008) argues that qualitative research is to focus on the emotional and interpretive side of human experience, and it can be used to explore critical events in the development of people's knowledge and behaviour.

Qualitative data collection can be divided into three broad categories, all of which aim to collect a 'verbal' account of the phenomenon being studied. Davidson (2001) highlights the importance of

observation in her study. She observed her participants for 6 weeks, which then raised questions to be answered in later interviews. Elliot and Timulak (2005) put forward that when questions are posed to respondents they should be open-ended or rather entail an open-ended strategy "it means that the inquiry is flexible and carefully adapted to the problem at hand and to the individual informant's particular experience and abilities to communicate those experiences, making each interview unique." (Elliot and Timulak, 2005, p. 150). A popular alternative to interviews is that of focus groups. These allow for questions to be asked in a group format allowing access to a larger number of possible views (Elliot and Timulak, 2005).

One thing to bear in mind when gathering data by these means is the power relationship between the interviewer and interviewee. In qualitative interviews there is the deliberate giving of power to the respondents to take the lead and to point out important features of the phenomenon as they see it (Elliot and Timulak, 2005). This is especially important for my research as I will be seen as a 'teacher' when interviewing boys and connotations this entails may prejudice their answers. I made it very clear to the boys that they need to be open and honest and there will be no repercussions for perceived 'wrong answers.' It was made clear to them that their opinions mattered and that there would be no judgements made on their responses. Thus, the study can be considered to have 'truth value' as it aims to find answers from the experiences, lived and perceived, of the informants and not of the researcher (Krefting, 1990).

Crowe, Cresswell, Robertson, Huby, Avery and Sheikh (2011, p. 7) define a case study as a research approach "that is used to generate an in-depth, multifaceted understanding of a complex issue in its real-life context." I have chosen to frame my research as a Case Study. This is because it attempts to answer the question of how or perhaps how not the Wilderness School influences the environmental behaviour of students and if not, why is this the case. Yin (1994) states that there is a distinct advantage for the case study when a "how" or "why" question is being asked about contemporary set of events over which the researcher has no control. This is the case for this research project. He recognises that the Case Study strategy is a difficult one to do and has been criticised on several fronts. The first being that a case study for research is often confused with creating a case study for teaching and therefore information may be deliberately altered for teaching purposes. This is not the case for a case study for research as he makes the point that the investigator needs to work hard to report all evidence fairly. A second concern is that the case study cannot be used for generalisation. The response made by Yin (1994) is that case studies are generalisable to theoretical propositions and not to populations or universes. The last critique is that case studies take too long to do. The response by Yin (1994) is that this is not what happens but rather there is confusion between case studies and ethnographic studies. Yin (1994) has shown that there are reasons to critique the case study but is still of the opinion that they have useful applications. Crowe *et al* (2011) also highlight the some of the criticisms aimed at case study research, they are criticised for lacking scientific rigour and providing little basis for generalisation. They then describe ways in which these criticisms can be addressed. The first is including theoretical sampling or drawing in a particular conceptual framework. The second would allow for respondent validation and the third is transparency from the researcher in terms of being explicit about the processes involved in the study.

I have drawn on the conceptual framework of transformative learning to address the first concern. IN addition the full time staff at the Wilderness School and Head of School were sent my dissertation for review and I hope that this document provides a clear and transparent report of the processes involved in carrying out this project. Therefore I believe that this project has applications within the bounds of a case study.

Yin (1994) talks about different ways in which case studies have applications in evaluation research. They are to explain causal links, describe an intervention and real-life context that it occurred, illustrate certain topics, explore other situations and lastly the case study may be a 'meta-evaluation.' This case study aims to 'explain' the relationship between the experiences of the Wilderness School and the possible changes to environmental behaviour. Yin (1994) describes the application of 'explain' as follow: "The most important is to *explain* the causal links in real life interventions that are too complex for the survey or experimental strategies. In evaluation language, the explanations would link program implementation with program effects." (Yin, 1994, p. 15). Further to this, I believe that this case study can be referred to as an intrinsic case study that typically is undertaken to learn about a unique phenomenon (Crowe, et al., 2011).

The case study applies to this Research project as it at specifically focus' on one particular area or context. This is one of the key aspects of case study research as defined by Yin (1994, p. 13).

> "A case study is an empirical inquiry that:
>
> - Investigates a contemporary phenomenon within its real-life context, especially when
> - The boundaries between the phenomenon and context are not clearly evident."

Therefore, a case study is particularly useful method when it is important to include the contextual conditions and they may be highly pertinent to the phenomenon of study (Yin, 1994). This is very much the case for the research conducted at the Wilderness School.

The case study is specific to a particular place and time period. The group that I studied consisted of approximately 54 boys, aged 14-16 years of age. They were all in grade 9 and were the last group to attend the camp for the 2016 academic year. They departed for camp on the 6 November 2016 and returned home on the 4 December 2016. I collected all the pre-camp data before they departed but only collected the post-camp data in January 2017 when the boys returned to school and were then in grade 10. This is due to the fact that the boys were on school holiday from the day they returned from camp and it was easier to manage interviews and focus groups when they were all back to school in the new school year. It was also beneficial as I had noticed from observation (purely anecdotal) that they have a more mature outlook on the camp a while after the experience. Immediately after the camp they are more concerned with the latest sports results, food they haven't had and of course 'their devices'. Their recollection of the experience may not be as clear as immediately afterwards but with the upcoming holidays it would be very difficult to meet with the participants as many of them would be travelling and away from school and most probably Johannesburg.

In addition to interviewing and questioning boys before and after the Wilderness School, the staff at the school were also sent a questionnaire in order to get an understanding of the aims of the school and then to also assess it. The assessment of the school was based on a questionnaire put together by Sipos *et al* (2008). Sipos *et al* (2008) created a matrix for simple programme assessment. The goal of 'scoring' learning programs is to see where each is strong and where there is room for improvement. It will also allow for learning programs to be compared to one another in future studies. The matrix is organised according to the three objectives of TSL, head, hands and heart or rather cognitive, psychomotor and affective domains of learning.

3.1. Limitations

There are a number of limitations that I had to negotiate. I needed to take into consideration the boys' time and the availability that they have in terms of getting together for focus groups and interviews. It was easy to meet them and get together at the Wilderness School but focus groups held at the school in Johannesburg before and after the camp were more difficult. This was because of all the different commitments the boys had. We did manage to meet but due to afternoons being a challenge, break periods were used. I was able to get through the questions that had been prepared but I would have liked more time for the boys to express their thoughts more freely and for the natural conversation to flow.

This was a once off case study of a single Mareltwane experience on the lives of 54 boys who attended the camp. It was very specific to them although I believe that lessons can be gathered from this research that can be used to enhance future Wilderness Schools. Boys were also given a choice to participate in the study, not all 54 agreed and thus the sample size was very small, only 31 boys took part. In addition the research was conducted on one group, in one academic year, at one private school in Johannesburg and thus the findings, although interesting cannot be said to represent the effect of environmental education on a large scale. Further studies would need to be done in order to find more far-reaching results.

3.2. Research Design

A total of 31 boys participated in this study, aged between 14 and 16 years old but the majority being 15 years of age. They were students that attended the last Wilderness School of 2016. All those who attended camp were asked to participate in the study but not all of them chose to. Parents of the boys who participated in the focus groups were also asked to fill in a questionnaire as well as the permanent staff at the Wilderness School. Parental permission was attained through a Google Survey and permission was also given by the school. The school also provided me with the class of 2017s memories available on Facebook, to provide more anecdotal data for my project.

Ethics Clearance was obtained through the WITS Ethics Procedures. The application required that I get consent from boys and parents to take part in the study as the participants were younger than 18. I had to make clear that there was no requirement to participate and that it was voluntary. I also had to let the participants know that there were no rewards or marks attached to participating and that they could retract from the study at any time. Lastly it was also made clear to participants that their names would not be used, and I have therefore given each participant a pseudonym. My ethical review was completed and I received permission to conduct the study (Protocol No is H16/07/09).

In order to protect the identities of the boys who participated in this study, pseudonyms were used. Lahman *et al* (2015) states that pseudonyms are used for a number of reasons and are very often used in social science research, such as the case here. Pseudonyms do not guarantee anonymity as this means that the source of the data is unknown even to the researcher. In the case of this relational research, when the researcher knows the identities of the participants, pseudonyms are used to give the participants confidential, in that the participants may want confidentiality or lack a desire for recognition. The use of pseudonyms is commonplace but a question that emerges is the question of who provides the 'fake names' (Lahman, et al., 2015) Morrow (2008) allowed her students to give themselves their pseudonyms. I did not do this, in this research as I was concerned that participants would use one pseudonym before and another one post-camp as the time between the questionnaires and focus groups was a number of months (Morrow, 2008). Despite this, I would

argue that participants should give themselves pseudonyms as me doing it, left me with a feeling of unease, similar to that described in the work by Lahman *et al* (2008).

Research material was collected over a 4 month period. Students were asked to fill in a questionnaire before they left for camp and 2 focus groups were held. Focus groups were also conducted at the camp. After the students had returned from camp and the school holiday, questionnaires were again handed out and two focus groups were run. The students that participated in the focus groups were randomly selected from the study group. The names were randomly selected out of a hat so that there was no bias in the selection.

Facebook was also used to gather some information from boys who had been experienced the Wilderness School a couple of years before. These were on a public platform and names were not included in this report.

Research Methods

The aim of this project was to determine how the Maretlwane Wilderness School experience transforms the students' perceptions about the natural environment and their behaviour towards the environment once they are back home in the city?

The primary research question was broken up into a number of sub-questions. For each sub-question I identified what evidence would be required to answer it and methods that could be used to collect that evidence, as illustrated in the tables below.

1. What are the boys' perceptions about the environment prior to the Wilderness School Experience?

Evidence Needed to answer the question or meet the objective.	**How I collected the evidence.**
A baseline assessment of what students consider the environment to be. It's importance in their lives and if it is valued whether or not efforts need to be put in place to look after it.	I conducted a baseline questionnaire with all the boys prior to their departure for Maretlwane. It asked questions such as "define the term environment in your own words and in your day to day life, what do you think about the environment?" It also included questions about environmentally responsible behaviour at home to determine later if these actions have been transformed by the experience. Ballantyne and Packer (2002) did a similar study in order to determine students' expectations regarding nature-based learning and then whether or not there were attitudinal and behavioural changes once they returned. Brody and Tomkiewicz (2002) also conducted pre and post tour interviews of their participants in the Yellowstone study.
	Focus groups were also conducted in order to get a fuller understanding of their perceptions prior to the experience (Brody and Tomkiewicz, 2002).

2. How are these perceptions changed while living at the Mareltwane Wilderness School?

Evidence Needed to answer the question or meet the objective	**How I collected the evidence**
While they are living at the Wilderness Schools and interacting with their environment, does the value that they place on it change? I need the boys to be able to reflect on its importance again in terms of their daily life.	I asked boys to keep a diary in which they write daily about their experiences in the environment and whether or not its value changes for them. They could also keep notes of which particular experiences had more or less impact on their value of the environment. I also spent a day with them at the Wilderness School and spoke to individuals about the school while they were experiencing it. This was done in focus groups as the boys were already living in clusters.

3. In what ways do these perceptions change after the Wilderness School experience?

Evidence needed to answer the question or meet the objective	**How I collected the evidence?**
An assessment of their perceptions, understanding and value of the environment needs to be compared to their previous baseline assessment in order to determine if there were any changes.	The questionnaires were be handed out again to all boys for them to redo it. I then compared their previous answers to their current one, looking for any transformations or change. (Ballantyne and Packer, 2002) This was followed up with focus groups to clarify any uncertainties for boys to express their ideas verbally which is often very helpful. (Pike, 2011)

4. Are there any behavioural changes once the boys' have returned home?

Evidence needed to answer the question or meet the objective	**How I collected the evidence**
I need to be able to determine if the boys now take action in their homes/daily behaviours that show evidence of transformation. Is there	In the questionnaire there were questions asking about their behaviours once they have returned from camp. Questions such as: "have

a significant change in terms of behaviour and not just ideas about the value of the environment?	you joined generation earth[1]?" "Have you started recycling in your own homes or at school?"

In addition to the questionnaires given to the boys, staff at the Wilderness School were also sent a questionnaire to complete. There are only 4 full time members of staff at the school and I received responses from 3. Questionnaires were also sent to the parents of the boys who participated in the focus groups. Eight questionnaires were sent out and five responses were received.

Notes on participants

All the participants were male as the school is an all-boys school. They were all at the end of their grade 9 year and 87% of them were 15 years of age. They all attend a private boys' school in Johannesburg and for the most part would be considered middle to upper income level and who live in an urban setting. Race of the participants was not a part of the criteria and so there are no figures linked to this.

Study Site

The Wilderness camp is held at a reserve in the Magaliesberg Mountains, Gauteng. The images below depict the site of the camp. Interviews were conducted at the school in Johannesburg as well as at the Wilderness School.

[1] Generation Earth is a green networking platform with the youth, for the youth, by the youth. This is an organisation that strives to recognize and develop green thinkers who are tomorrow's global leaders. This is a structured action plan for schools and youth to make a difference and change the world for the betterment of the environment (www.generationearth.co.za).



FIGURE 6: MAP OF SOUTH AFRICA SHOWING THE LOCATION OF THE MAGALIESBERG MOUNTAIN RANGE (BRITANNICA, 2018)



FIGURE 7: WILDERNESS SCHOOL AND JHB SCHOOL (GOOGLEMAPS, 2018).

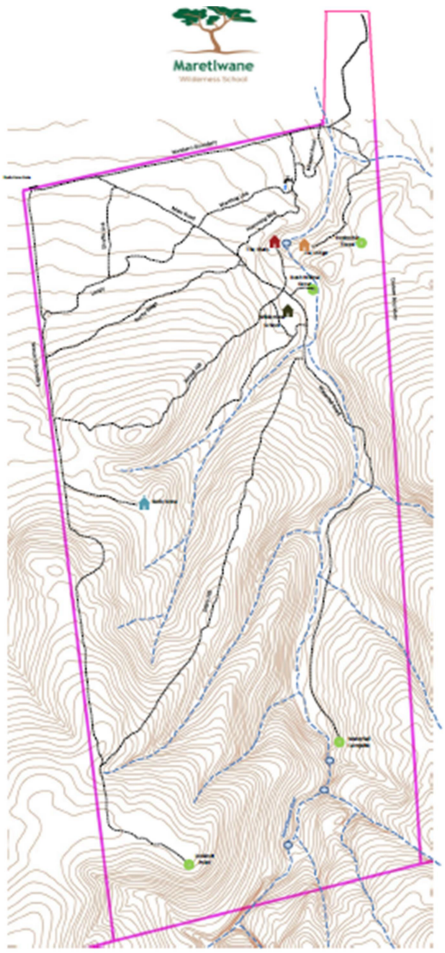


FIGURE 8: MAP OF THE MARETLWANE FARM (MARETLWANE WILDERNESS SCHOOL, 2018)

The Wilderness School is based on similar schools in a number of other countries. It is a residential, themed-curriculum based outdoor experience with the emphasis on academic enquiry and intellectual and physical challenge. Boys experienced opportunities for intentional character development, independence, group work and an opportunity to care for their environment. The concept of the Wilderness School aims to take boys out of their comfort zones and to challenge them in a number of ways, with the ultimate aim being the ongoing development of their character. With regards to this research, it is noted that the school is 'off the grid' and has a strong environmental slant. Boys are taught about simple, sustainable living and engage in activities such as cultivating their own worm farm and tending a vegetable patch (Pretorius and Junod, 2015).

The programme is based on the theme "The Journey of Discovery", this is explored through four themes entitled: (i) Under the African Sky, (ii) In the Magaliesberg, (iii) The ecology of Maretlwane and (iv) How I make a difference. Topics covered include, amongst others: Astronomy, weather patterns, bush survival, orienteering, mining and the platinum belt, the battle of Nooitgedacht, mathematical patterns in nature, biodiversity, first aid, recycling, character development, sustainable living and eco-systems (Pretorius and Junod, 2015). This is thus a collaborative curriculum and inter-disciplinary in nature (a valuable characteristic of Environmental Education).

A typical day is as follows:

06:00	Rise, tidy up, devotions, breakfast
08:30	Themed learning experiences and break
13:00	Lunch
14:00	Quiet time – reading, journal writing, writing
15:00	Activities – washing clothes and cleaning, hiking, swimming, cycling, project work, time with mentors
17:30	Supper made communally in clusters by the boys
19:00	Evening prep/study
21:00	Bed

TABLE 2: EXAMPLE OF A DAILY PROGRAMME

The environmental activities are not the only objective of the camp, as stated in the parent information booklet, character development is the main aim. Despite this there are quite a few environmental activities that are done on a daily basis in the camp. Bins are available for recycling and clean up after meals requires the sorting of waste. There are informal aspects to living in the natural environment that are shared with the students, these include behaviours such as not littering, not breaking plants unnecessarily and not wasting what has been given. Water is heated via solar panels and cooking is done on gas for the most part. Thus responsible environmental behaviours are a part of everyday activities and also taught more formally in 'lessons'.

The Wilderness School draws on two other schools that have similar programmes. St Paul's in New Zealand which runs Tihoi Venture School and St Cuthbert's College, also in New Zealand which runs Kahunui Outdoor Campus.

Tihoi Venture School is New Zealand's only 18-week back-to-basics outdoor programme designed specifically for Year 10 boys. While at Tihoi students experience academic, social and outdoor challenges that help students:

- become independent, resilient and self-managing
- develop self-esteem and personal motivation
- learn to meet challenges and work with others to achieve goals

- acquire the motivation and desire to extend their limits to achieve personal bests
- live with others and learn to tolerate different personalities
- improve their fitness
- learn to appreciate the outdoors
- make life-long friendships with boys who are going through the same life-changing experience.

According to the school's website, Year 10 boys are stripped of modern technology such as television and mobile phones and placed into communal living with seven age-mates, regular schooling and outdoor experiences for two terms of the academic year (18 weeks). This is similar to the clusters that boys at Maretlwane experience as well as the mixture of different tasks (Collegiate, 2016). The Wilderness School that this research looks at is only 4 weeks long, a much shorter time period.

While at Tihoi they learn to live and work together, taking responsibility for their own house-keeping, preparing their own meals on wood-burning stoves and meeting a range of personal and social challenges. Each week they spend three days in the outdoors and four days in the classroom where they participate in a rigorous academic programme in all mainstream subjects. Outdoor pursuits include white water rafting and sea kayaking, sailing, rock climbing, mountain craft, caving, bush survival, tramping (the recreational activity of going for long-distance walks in rough country), mountain biking, canoeing, abseiling and the high ropes challenge course. Both the outdoor, academic and social programmes are underpinned by a virtues and values programme that develops young men into independent, responsible and contributing members of society (Collegiate, 2016).

On their website, there are interviews with the director, parents and boys. From listening to some of these, the main aim seems to be leadership and personal development. Although the boys thoroughly enjoy the outdoor activities such as kayaking, the outdoors is a place to learn the character skills and some improvement in physical abilities. There was little on the website about the environmental goals of the school besides the enjoyment and appreciation of nature (Collegiate, 2016).

The second school that is used to base the Maretlwane Wilderness School off is that of St Cuthbert's College. Their outdoor program is called Kahunui Outdoor Campus. Kahunui is a safety-certified remote campus, located in the Bay of Plenty. Every student will spend 28 days here in Year 10. The aim of Kahunui is to make the girls aware of how resourceful they are, how they can achieve whatever they put their mind to, how they can feel the fear and do it anyway. And it expands friendship groups, creating strong and solid bonds (Cuthbert's, unknown).

Like the Maretlwane Wilderness School and Tihoi, groups of eight students live in and manage their own house, supported by house tutors. This means cleaning, laundry, menu planning, budgeting and cooking. Another similarity are the activities that students participate in; Tramping, kayaking, fishing and the learning of basic survival skills, culminating in "solo" which sees girls set up their own individual camp where they spend time by themselves to reflect on and celebrate their achievements at Kahunui (Cuthbert's, unknown).

A difference to Tihoi, but similar to Maretlwane is the sustainability section. Girls also protect and preserve Kahunui for future students by contributing to many sustainability projects which include pest control, produce gardens and enhancing the habitats of native species. These projects are taken on by the students, with progress reports written so that following groups can continue the work. In addition, academic lessons continue while students are at Kahunui, with qualified and registered teachers who take English, Social Sciences, Mathematics and Science (Cuthbert's, unknown).

It is interesting to note the similarities between these three different schools and also the differences in how they are managed, their aims/objectives and possibly their results.

Using the methodologies outline above and being conscious of the ethical implications of this research, the study was conducted at the school in Johannesburg as well as a site visit to the Wilderness School. The following chapter shows the data collected and an analysis of this data.

Chapter 4 - Data Presentation

This chapter provides an overview of the results of this research, the pre- and post-questionnaires that were conducted with the students; focus groups also conducted before and after the Wilderness School as well as those that took place while at the Camp. The results of the staff questionnaires are also presented, using the table created by Sipos *et al* (2008) and results from the parent questionnaires. In addition an analysis of the results is undertaken, with links being made to the literature reviewed. Before the camp 31 boys filled in questionnaires with regards to their thoughts and feelings towards the environment in general and more specifically towards the camp.

Pre – Wilderness School: Anticipation and Expectations

Boys were asked whether or not they were looking forward to the camp. The result was that the majority (15) of the boys said that they were looking forward to it quite a lot. Nine of the boys a little and only 7 were truly looking forward to it a lot. No boys were not looking forward to it at all. They were also asked to outline what it was they were looking forward to. Their responses were categorised into the 6 general themes that emerged from their answers. These are shown below.

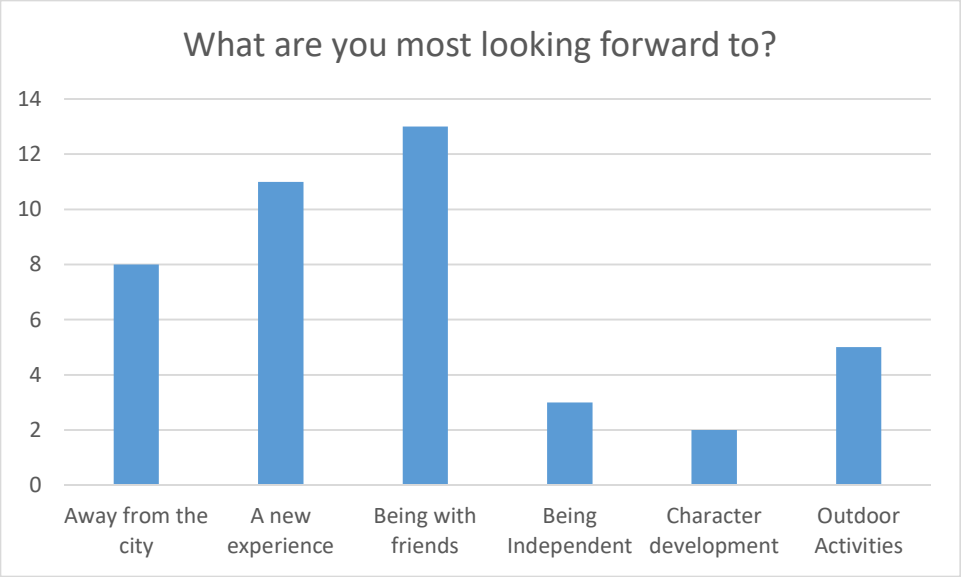


FIGURE 9: EXPERIENCES THAT WERE HOPED FOR

Some of the reasons that the participants gave were the fact that they were looking forward to being away from school, especially the stress of exams and marks. They were also looking forward to a new experience. One participant stated that he was *"looking forward to new experiences, making memories with friends and learning basic survival skills*" (Thendo). This was quite a common theme among the boys, a chance to be with their friends and for some an opportunity to get to know other people. There were some that were looking forward to being disconnected from technology, as students may not have phones, laptops, headsets etc. while on camp. One participant stated that he was looking forward to the experience a little, and one reason was that he would be away from his phone as he was *"definitely addicted"* (Sean) to it. The other common thread that was evident was that the boys were looking forward too many of the physical aspects of the camp; the hike and jumping from the cliffs into the pools below. There were also a number of boys who stated that being more independent and learning responsibility were aspects that they were looking forward to.

When speaking to the first focus group, made up of 5 boys I asked them how they were feeling about the upcoming Wilderness School. Whether or not they were anxious or excited. All of them

responded that they were both. Max stated that *"I just know that the guys say that it is quite hectic but they had a lot of fun so I'm keen to be with my mates away from school."* Andy said that he was looking forward to the bush, *"I just love the bush, I've been raised going to parks since I was like 3 or something and then going to school in the bush is quite exciting. New things, learning new things. I'm quite looking forward to the orienteering. Ja, just looking forward to new experiences."* These sentiments were also true of the second group. Edward said that *"I am looking forward to it but I can feel the butterflies in my stomach starting to arise."* The reasons given for the positive feelings were also similar, the opportunity to learn new things and being in nature. Thendo said that he was looking forward to being with his friends and creating memories that will last a long time. What also came up were the opportunities to learn responsibility and to learn to work with different people. Thus the focus groups seemed to have very similar feelings to those that answered the questionnaires. That they were for the most part looking forward to the experience for a variety of reasons but they also had their concerns.

Some of these themes that emerged are similar to those found by Garst *et al* (2001). The idea of escaping, novelty and peer interaction are all found in the answers that the participants gave.

In the questionnaire they were then asked what they least were looking forward to. There were a range of answers but they did fall into a number of categories.

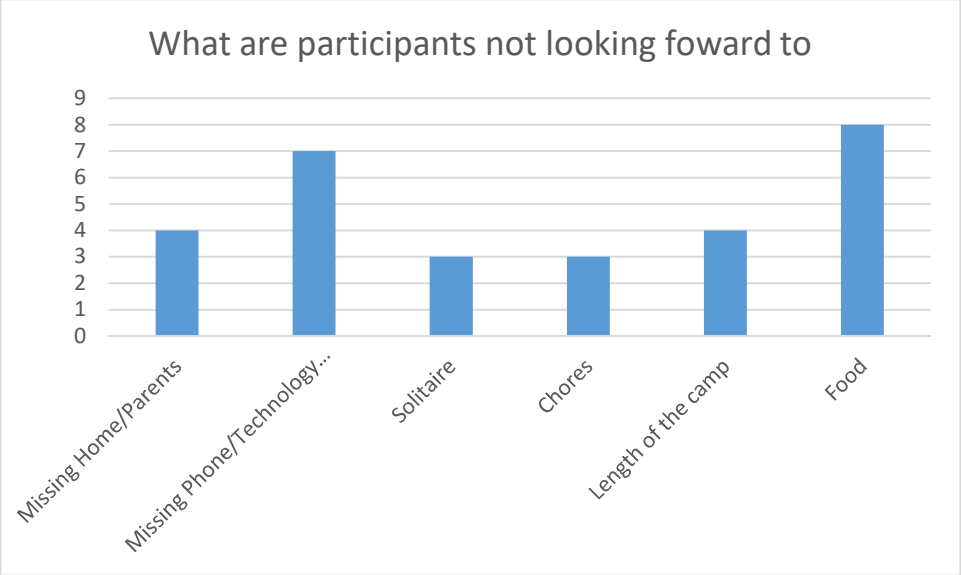


FIGURE 10: THE PERCEIVED NEGATIVES OF THE WILDERNESS SCHOOL EXPERIENCE

I found it surprising how many were concerned about the amount of food as well as the quality of what they would eat. I think a lot of the 'fear' around this comes from what others have said about the camp (two previous groups had gone this year). The next common factor was that of missing their phones and not being able to listen to music. More importantly I think it is the loss of contact with friends and family that concerned them. They were only allowed to write letters while on camp. The length of the camp was another concern. Many of the boys who had been to the Magaliesberg before (Question 4) had been on school camps but nothing as long as their upcoming Wilderness School so they were uncertain what a camp of that duration (28 days) would be like. Solitaire is something that also came up. Solitaire requires the boys to be completely by themselves for 24 hours. They are allocated certain sites along the river. The purpose of the Solitaire experience is similar to the idea of reaching a summit (for those schools that go on journeys). It is meant to be the final challenge (being on your own in silence for 24 hours) and is also a time for reflection. It tests

the resilience they have developed while at Maretlwane. The boys are given questions relating to their experience to reflect on and produce a written Solitaire Reflection. For some this was a daunting prospect. During the focus groups, some of these themes re-occurred. Kevin said that he was anxious about the "*whole idea of going away for a month with no phone, you won't be able to see your parents and it's just you and the bush with a group of guys is a little nerve wracking"* but he added he was also excited. This answer I feel shows the complexity of feelings the boys had about the upcoming experience. In the other focus group, they mentioned that they were a bit concerned about their clusters, again there were mixed feelings that being with people you didn't know would give them the opportunity to make new friends, but another boy said he was worried about being put with someone he didn't like and get along with at all. The last issue of concern for some, although they made light of it, were snakes.

When asked specifically about the solitaire experience it was interesting to note that the boys in focus group 1 were not concerned. Jason stated that *"I actually prefer to have reflective time by yourself every now and then. You don't get to it at school but out there they give you an opportunity to do that and it maybe will help you a bit."* Max added to this, saying *"also the other guys said that because you spend so much time in the three weeks leading up to solitaire with everyone else that you just really want to be alone."* Levi agreed with him, *"plus you're probably going to be really tired, going to bed 10/11 o'clock every night so will enjoy the time alone and get to sleep."* So although there were some nerves about the upcoming experience, they could still see that there was the possibility of positive outcomes and therefore felt like it was something they could achieve.

Previous experience is a factor that may influence the boys' anticipation of the experience. The number of boys that had been to the Magaliesberg before and those that hadn't. There was close to a 50/50 split. There was some relationship between the boys' familiarity with camping and the experience of being outdoors that did make them more comfortable with the camp. As stated earlier, Andy said that he was used to the bush, that he had *"grown up"* camping and visiting the parks and so he was excited about the experience of school in the bush. Tadiwa said that *"Um, I wouldn't say that I am nervous, because I have been to previous camps because I've been at SJC since day 1, so I won't say I'm nervous. I'm actually quite excited because this is the longest camp I've been on and I haven't been on camp for a whole month, experiencing something different and not being around this whole digital sort of space"*. Kevin made a similar comment, *"I enjoy being around and in nature, so being in that for a month is quite exciting and peaceful."* Thus there was a level of comfort from having done something similar in the past. This result is similar to that found by Palmberg and Kuru (2000), they found in their study of 11 year olds attending outdoor activities, that those with prior experiences in nature, and had developed their action skills and confidence were more willing to participate in future outdoor activities.

They were also asked about any preparation that they may have done leading up to them going to the Wilderness School. There were surprisingly different responses considering many of the students may be in the same lessons at school but perhaps do not have the same understanding of the work being covered. There may be an idea that what is covered in class is purely class work and may not be translatable to activities outside of the classroom walls. 11 boys said that they had done some preparation and 20 stated that they hadn't.

Pre-Wilderness School: Perceptions about the Environment.

The questions following were predominantly about the environment, more generally that the Wilderness School as I wanted to get a bench mark for the pre-experience thoughts and then be able

to compare them afterwards to see if there were any changes regarding their thoughts and behaviour towards the environment.

The first question of this section asked them to choose from a list, what they considered the environment to be. They could choose more than one response to this question.

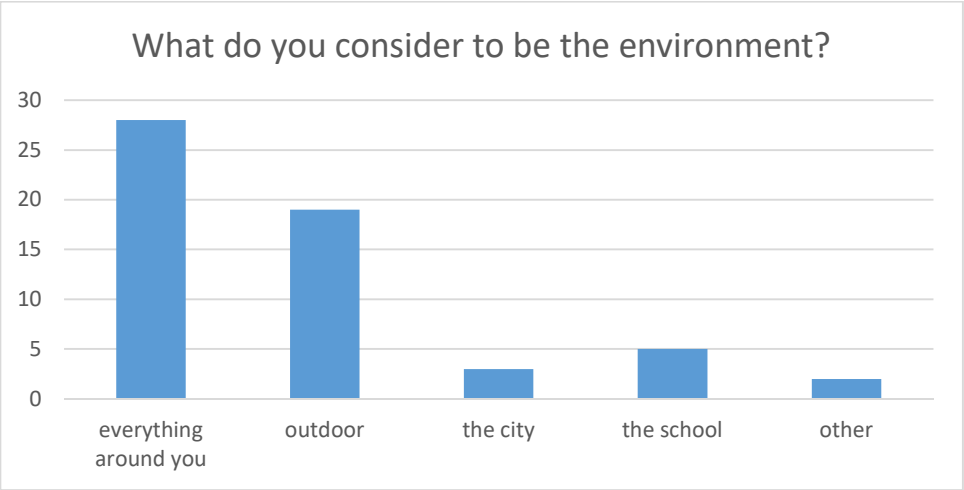


FIGURE 11: 'DEFINING' THE ENVIRONMENT

The majority of the participants stated that it was everything around them and many of them added to this by selecting the outdoor option. In addition to this question, they were also asked to define their understanding of the term 'environment' in their own words. Here the most common answer was linked to the term 'nature'. Examples of which were *"the trees, nature, everything that's around you" (Levi)* and *"Nature, the outdoors which has nothing to do with the interference of man"* (Thabo) and so on. There seems to be an understanding that the environment is separate from you, but that is also everything around you.

The focus group participants were asked to state, quite quickly, what thoughts and ideas came to mind when they heard the term "environment." Thendo said *"basically just the land around us. Surrounding us, um our habitat basically."* When asked to explain what he meant by the land around us and whether he meant school or natural areas he responded by saying *"I think, um, that the environment can be taken in different ways so you can speak about the natural environment, so it could exclude buildings, just imagine they weren't there. Just the environment on which the buildings are on. Or you can speak about like everything that surrounds us, that's still the environment surrounding you."* Kevin stated that when he hears the word environment he just thinks of the place in which he lives, does things and interacts with people. An interesting response was that of Tadiwa. He stated that *"it's just the space in which you are in, basically whether it be you in a place, like a place where there is only vegetation or where there are buildings. Even in the classroom, that's your learning environment. There are different environments."* There were others that tended to think of the environment as a 'greener idea'. Edward said that he thought of an eco-system, where *"everybody is depending on like a smaller thing to help the bigger thing and just almost like a domino effect or something if something bad happens. If something happens then goes from one to the next."* Jason said that the colour green comes to mind, and Max said that he thinks of the trees/bush and lots of things that have to do with the earth. There were a wide range of responses to the question, some having relatively simple definitions and others more complex.

The participants were also asked about the way in which they considered the environment to affect their daily lives. Some said that they consider it when driving to and from school but most of the

participants linked this question to typical environmentally responsible behaviours such as: "*pick-up litter and not to waste water and electricity"* (Matt)*; "keep my surroundings clean"* (Tadiwa)*; "recycling and saving the environment"* (Sam) and *"cleaning a park*" (Chris). Only 4 participants spoke about admiring nature or enjoying it in a recreational manner. One participant stated that he "*always adores nature's beauty. Seeing the different trees, plants and animals*" (Harry).

In addition to these questions, defining the terms and explaining how it features in their lives, they were also asked to rate the value of the environment on a scale from 0-10, or from a commercial

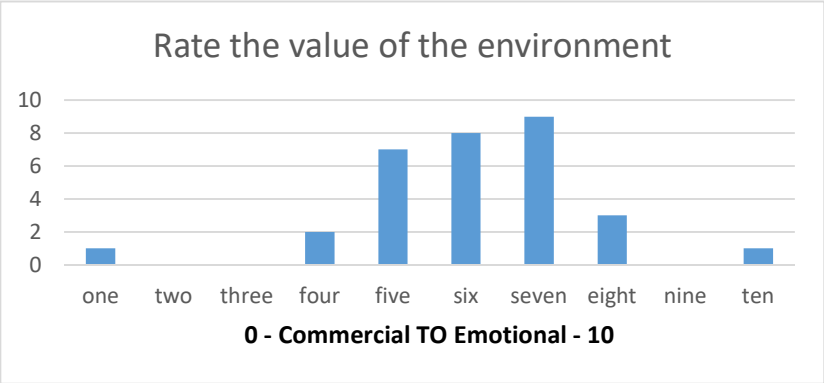


FIGURE 12: THE VALUE OF THE ENVIRONMENT

value to a more emotional value.

The Median of this was 6.09677, tending towards a more emotional value. That the students *"adore natures beauty"* (Harry) or that it is to *be "considered mostly good and enjoyable"* (Alex) or *"I love going outside to do sport or climbing trees*." (Jeff) Only one student rated the environment as purely commercial and most of them rated it as a 7. During the focus groups I asked the participants whether or not they had been to some of South Africa's National Parks or other outdoor experiences. The majority of them had travelled to places such as the Kruger National Park, private reserves around Kruger, reserves in Knysna and they also included the Botanical gardens in Johannesburg. Only one participant said he hadn't been, but he had been on camps as part of his school experiences. They were then asked if these areas should be protected and to give reasons for this. All said that they should. Kevin said that they should definitely be protected, *"everything just works better if you are protecting things like that."* Thendo went back to the idea of the domino effect, say if one species gets extinct then there will be a massive change in the food chain and then there is an animal left without food and if they cannot find another source of food then they end up dying and the cycle continues and that also affects us. I asked how they would affect us. And the answer given was tourism – this group agreed with the statement that the environment then has an emotional and commercial value.

The other group had similar responses – emotional and commercial. Chris stated that yes it was important *"say you want to go with your kids one day and show them what you've actually seen and next thing all of them are gone you have nothing to show them except pictures. So I think it's a very good idea to keep national parks up and running and animals."* Andy brought up the point of tourism *"people from other countries view SA as a game area so if all of a sudden we just lose our parks then there's not going to be much tourist attraction."* He continued by adding that *"there is a balance between the bush and SA. If you know what I mean 'cause if there's no bush less tourists will come. Only maybe for Durban or Cape Town and SA loses a lot of money and tourist attractions so I think the bush plays a big part in SA."* This explains the tendency towards a more commercial view of the

environment – that it is linked to us as many said in their everyday lives and also the commercial value of tourism that they see as being attributed to the environment.

When trying to understand the relationships that students (11 and 12 year olds in Finland) have with the natural environment, Palmberg and Kuru (2000, 34) used the work of Ballantyne and Packer (1996) to categorise their results. The three categories can be used when explaining how the boys related to the environment. The categories are as follows:

1. The *egocentric* conception: interested in preserving individual health, safety or quality of life. Environmental problems are immediate and local, and the environment is seen as something to be used.

2. The *guardianship* conception in which the future of one's children and the survival of the planet are important. Environmental problems are long-term problems, including global concerns. The environment is seen as something to be managed to ensure a sustainable future.

3. The *ecocentric* conception in which humankind is seen as an equal or interdependent part of the environment. Problems concern complex issues of interrelationships.

From the results of the questionnaire and the focus groups prior to the camp fall, the majority of the boys fall within the egocentric and guardianship categories, where people benefit from the environment in some way and therefore want to protect it so that their needs are met, this is evident in responses which highlight the importance of the natural environment to the tourism industry in South Africa. In the study done by Palmberg and Kuru (2000) it was found that the students' conceptions of nature varied widely, however they found that the majority of the answers fell in the egocentric category. What they also found, when comparing students with more environmental experience than those with less, was that those who had experienced the natural environment more, had more comprehensive definitions and conceptions than the inexperienced ones.

They were also then asked if they practice any environmentally responsible behaviour at home. Again, they could tick any of the options provided.

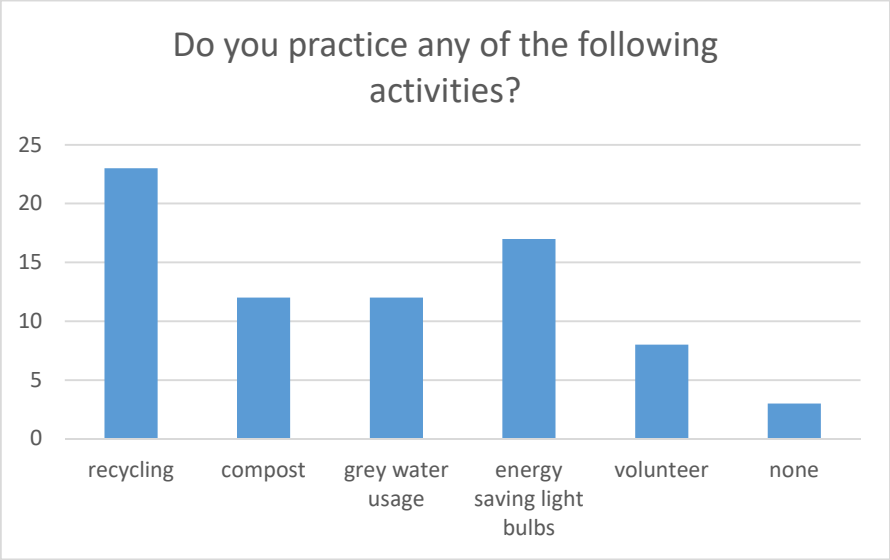


FIGURE 13: ENVIRONMENTALLY POSITIVE BEHAVIOUR PRE-WILDERNESS SCHOOL

The majority of the boys put down that they recycled, this may be at home but they also recycle to a certain extent at school, as was pointed out in a focus group all of the classrooms and some boarding houses have them as well. The next most common activity was that of using energy saving light bulbs.

In the focus groups it became clear that a large number of students do try to behave in an environmentally positive way. They spoke about throwing their rubbish in bins, and not littering. A lot of them have solar geysers at home and Chris stated that they've started to shower with buckets to collect grey water for the garden. Some of the boys recycled but a number said that they did not recycle at home. Andy said that *"we tried it before but couldn't keep up, too hard for some reason. Washing up the yogurt cups, nah can't do that, too much time."* This is in line with the low-cost/high-cost model of environmental behaviour as explained by Kollmuss and Agyeman (2002). In focus group 2 there were 3 boys who said they that did recycling and Kevin said that in his home there is a big emphasis on not wasting. This group didn't have solar geysers but did have solar pool pumps. With regards to water, and the drought that was occurring Thendo said that in his home they were filling the bath less and also not filling the pool as regularly although they hadn't put a cover on. Kevin made an interesting comments: *"Living in the environment which I live in you don't really feel the drought, compared to most people, but there has been a big emphasis on the length of your showers and the amount of water you waste … so I've not necessarily doing anything about it but the thought has been lingering in my mind."* For me this shows that there is some understanding of what environmentally responsible behaviour is but there hasn't really been any real action in their lives, beyond what is convenient or set up at school.

The following question that was asked was how important they believe it to be to protect the environment. All of the participants stated that it was important, many of them describing it as 'very' or extremely important. The reasons that they gave were that it is important for us, as humans. As one such response was *"a danger to the environment is a danger to us"* (Sean) and another insightful one was *"it is of the highest importance as the environment provides us with resources and is an independent variable on our quality of life."* (Thendo) None of the respondents said that it wasn't important. The last question was to ask them, if they were Minister of Environment what they would do to protect it. The majority of the answers featured the theme of environmentally responsible behaviour. Stopping people littering through fines, encouraging more recycling and to use water wisely. Another theme that emerged was that of clean energy: moving South Africa towards using solar panels and other green sources of energy. In addition education was an aspect they spoke about, the need to make people aware of the situation and the consequences of poor 'behaviour' and only 2 participants spoke about conservation. Protecting natural areas and for one *"make hunting off limits"* (Max).

Overall, prior to going on the camp the boys were excited about the upcoming adventure. I was surprised that more were not very excited in the questionnaire responses but I would argue that there was quite a bit of anxiety in their feelings prior to the camp, being away from their parents with no connection via cell phones and there was also a particular concern around the 'quality' of the food that would be provided. The Solitaire experience was also something that they were anxious about but felt that it was something that they would be able to do. In terms of their perceptions about the environment prior to the camp, the majority of respondents considered it to be 'everything around you', however, in the focus groups and in their written definitions of the environment it was clear that 'nature' was the focus of their understanding. When asked to rate the importance of the environment it was clear that the boys considered it to be very important but because it benefitted society. Boys practiced environmentally responsible behaviour to a certain

extent prior to the camp, recycling was the most common activity, but from my interpretation of their responses they did what was easy for them and what they had learnt in their homes.

During the Wilderness School: 'How's it going?'

While the participants were at the camp, I went to see how it was going. I went on a day that they were going to hike up to the waterfall and spend the night there in their own tents. The next day was an orienteering day. While they had some free time in the evening, I went with each group to the waterfall to talk about the experience thus far.

The first question that I asked was what they had been enjoying the most. For the most part these included the adventurous, outdoor aspects of camp such as scuba diving, kloofing (exploring ravines that may or may not be dry), swimming at the waterhole. One of the boys had so enjoyed his scuba experience that he signed up for the open water course coming up in the school holidays. They also enjoyed their interactions with their groups and were enjoying the people (staff). Linked to this, they spoke about enjoying interactions with each other, the teachers and the environment more as they didn't have their phones with them as distractions. *"You have to interact a lot more with your environment and the people around you when you out here if you don't have your phone but I'm missing it…"* (Max) Another spoke more generally about camp and missing home, he said *"not having distractions and things you sort of start to appreciate things around you and um, life starts to show its beauty to you and stuff like that."* (Andy).

They were also enjoying the free time they had and by far their favourite had been the receiving of letters from home. In addition they appreciated the independence they had as well as the point made by Andy that trust was something that was earned, and should that trust build up so the boys were allowed more free time and life was a bit more 'chilled'.

In terms of the lessons that were taking place at the camp, there were mixed feelings. The amount of time spent on academic time was a lot longer than expected and they found it was a new experience outside with more distractions than at school. They had a number of assignments to do such as vermiculture (worm farming), and a poster about the battle of Nooitgedacht. The lessons that they seemed to enjoy were the more practical ones and also those that had to do with the situation in which they were in. What came through from all of them was the life lessons that they felt that they were learning. They spoke about the importance of punctuality, relationships with their peers and character building. One that was interesting was that he had gained a new respect for his domestic worker; *"I've gained a lot of respect for my domestic worker and that things that she has to do on a little bit larger scale and she's only one person, so I have a lot of respect for her and I will help her out more."* (Edward)

In terms of environmental behaviours they spoke about there being a big focus on the environment, boys are expected to sort their waste and recycle. What impacted one boy was that he felt that he could see a more real presence of the drought that was being experienced than at home. *"Cause we are in the mountains so when we go on hikes we pass different areas where there would be a river flowing but since we had a drought they are now dry so we see how bad it actually is"* (Thendo). Another spoke about the 'little rules'. *"The little rules they have like not breaking off branches and not tearing leaves off trees and that stuff is actually really good. When they first told us how we shouldn't mess around with even a dead branch and at first we like ah its dead, what's the use? Those rules are actually attached to the big picture, not breaking anything that needs to be saved and nature really needs to be saved"* (Tadiwa). Thus there does seem to be an increased awareness

and appreciation of the environment by the boys on camp, the question will be does this translate to the home environment.

Some of the aspects that the boys weren't enjoying was the length of the camp, some were a bit homesick. They missed technology, felt that some of the inspections were a bit unfair and that they had to get up early every morning. Most of them said that it was a good experience but that they wouldn't do it again. The challenges that they were experiencing were physical to a certain extent: there was concern about the up-coming three-day hike and carrying everything. They had to some extent struggled with the heat. One boy admitted that his biggest struggle was making new friends.

Overall there was a feeling that they were enjoying themselves and had started to appreciate the beauty of the area. *"Like now, it's extremely beautiful at this time of night"* (Edward).

Results from Post-Wilderness School survey.

28 boys completed the post-Wilderness School survey. This was given to them at the start of the New Year in 2017, as they had returned from camp in December and then gone on school holiday. Thus they had had approximately a month between the experience and the follow up questionnaires. Many of the questions were the same as the first in order to see what changes had occurred, additional questions were also asked.

Post-Wilderness School: Enjoyment of the camp

The first question asked was how much they enjoyed the experience. The results are as follows:

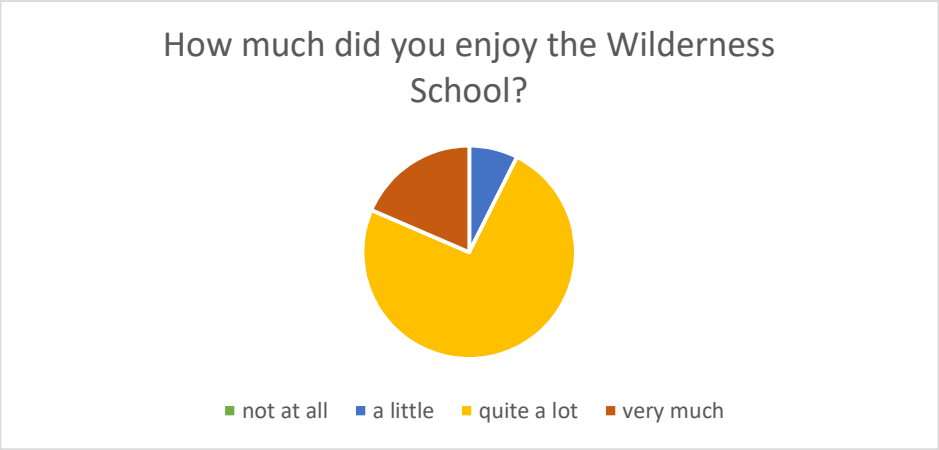


FIGURE 14: ENJOYMENT OF THE WILDERNESS SCHOOL

For the most part the student enjoyed it quite a lot and very much, none of them didn't enjoy it at all. The parts that they liked were divided as follows:

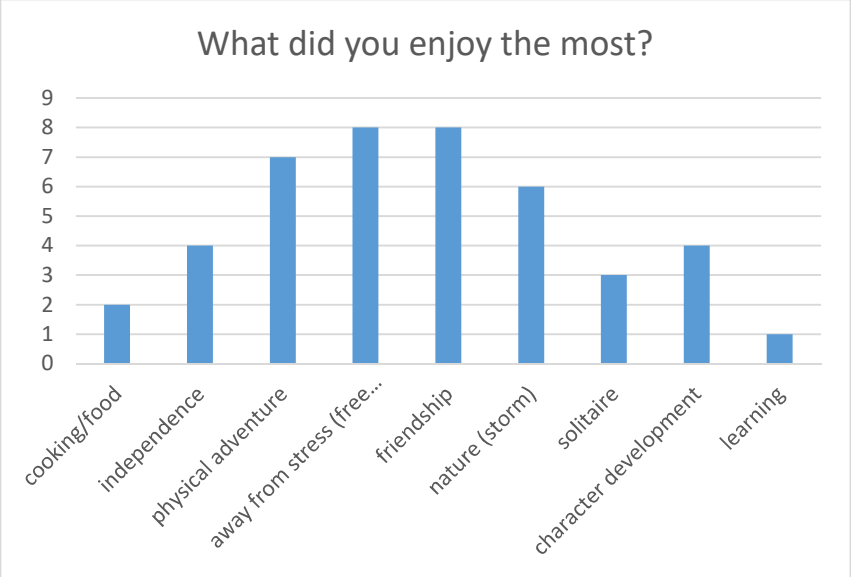


FIGURE 15: ASPECTS ENJOYED BY THE PARTICIPANTS

The two that were the most important to the boys were being away from school and stress and the freedom to play and the other the chance to build relationships with their peers and get to know some new friends. What also featured quite highly were the physical adventure activities such as the scuba diving and the hiking activities. For the free time they enjoyed being able to have the time to play touch rugby. One student wrote*: "playing touch rugby and soccer with my mates and just being able to get to know people you never knew before"* (Sean). This shows the appreciation of the time and the importance of being with friends. Another wrote: *"I enjoyed getting and doing things outside my comfort zone and the solitaire"* (Tadiwa). The Solitaire is a 24 hour Solo time where boys are placed at a distance from one another and have no communication between them. Quite a number of the boys enjoyed this challenge.

The next question asked if there was anything that they would like to change. There were a number of responses for this question. The first, length of camp was interesting as the one response was for camp to be longer and the other for it to be shorter. The most repeated change was the amount of 'school work' in the classroom. The boys indicated that they would prefer to do more physical activities, adventure and free time than to sit in classroom conditions while there. The other aspect that I found interesting was the realisation by two boys that if the boys had been more positive themselves, then they may have enjoyed the experience more or at least earlier in the program.

Q3	If you could change anything what would it be	
	Length of Camp	2
	Less school work/better school work/more adventure	10
	Cluster organisation/one friend per cluster	1
	More food	1
	Later mornings/more sleep	2
	More comfortable season (too hot)	1
	Be able to take more luxuries (sweets)	1
	Communication with boys?	1
	Solitaire	1
	Adjust programme according to weather(hike)/situation	4
	Change attitude toward WS - be more positive	2
	More free time	3
	Nothing	1

The next question asked them to explain in what ways was the camp different to what they had expected. From my interpretation of their answers, it seems that the camp was a much more positive experience than they had expected. This is shown by the 9 responses saying it was more enjoyable and others stating that the domestic chores were easier as well as the point that there was less conflict than expected. Overall there were 27 positive responses and 11 more negative ones.

Q4	In what way was the experience different to what you expected>	
	More difficult	4
	More enjoyable	9
	More structured/school work	7
	Went by quickly	4
	Better food	1
	Less conflict (between boys)/better friendship	3
	More personal reflection	1
	Domestic tasks were easier	3
	More comfortable	3
	Less isolated	1
	Less school work	1
	More relaxed	1

The next question asked them what had been completely new to them. These responses were divided up into academic lessons, practical skills, self-awareness and character development. Only 2 respondents felt that there was nothing completely new to them.

Out of everything that you learned what was completely new to you?	
Academic	12
Practical skill	15
Self-awareness	1
Character development	7
Nothing	2

The academic aspects included lessons on vermiculture, tree and leaf studies, as well as slope studies. The practical aspects were things like 'bivvie' building (creating a structure out of what is around you), orienteering and for some washing their own clothes. This is summed up in one response: *"Many topics that I studied were new to me. Such as vermiculture, slope study as well as learning how to make a shelter with very little resources."* (Kevin). Character development is very much linked to self-awareness, as boys felt that they had learnt a lot about themselves and relationships with peers. One boy wrote *"Father K's various sermons about challenging your beliefs instead of just blindly believing or not-believing."* (Matt) Another wrote: *"learning to trust people you don't really know too well."* (Andy). Thus there seemed to be a wide range of lessons learnt, what stands out to me is that the majority of these mentioned by the boys are more practical, and were taught in such a way.

Linked to this, was a question asking them what challenged their ideas the most? The lessons that seemed to have had the most impact were character development lessons and interactions with some of the Maretlwane staff (more here on focus groups). Others spoke about the experience in general, such as living in community, being away from technology and to some extent the school work. Unfortunately there were four students who said that nothing challenged them.

Post-Wilderness School: Perceptions and behaviours toward the Environment

The next section of the questionnaire was more linked to the environment, and how the experience may have changed their perceptions and even behaviours toward it.

The first question asked here was, in what ways have your feelings about people, rivers, plants, animals or birds changed as a result of this experience.

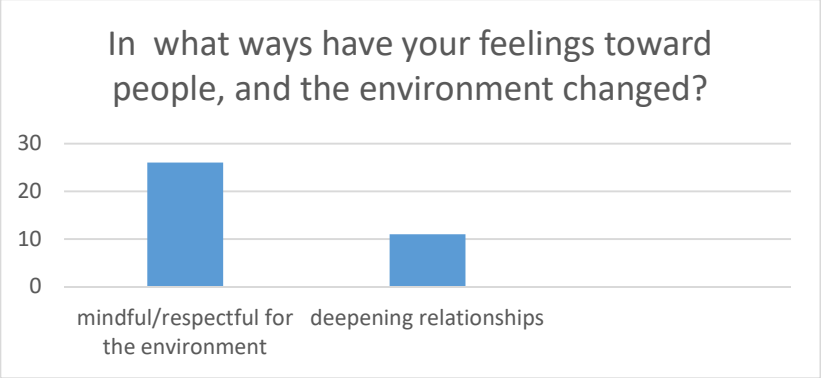


FIGURE 16: CHANGES IN PERCEPTION OF THE ENVIRONMENT

These responses were divided up into a change regarding the environment (a more natural view of what's around us), the second being more about a change regarding people. Some respondents spoke about one or the other and others mentioned both. An example of this was Kevin: *"I now realise the importance as well as the beauty of nature and animals that live in it. I've also learnt not to judge a book by its cover when it comes to people, people are not always what they seem."* Another was Matt: *"My views on people changed considerably as I got to know them better. I now feel a sense of tranquillity which allows me to think and reflect when encountering nature*." There was also a noticeable respect for the environment that came through. *"I definitely have a new found respect for nature as I lived in it for 28 days"* (Sean) or *"They have changed as I now admire those things and really appreciate what nature has given us."* (Sam)

They were then asked what they have learnt about how they should act towards the environment.

TABLE 3: LESSONS LEARNT ABOUT THE ENVIRONMENT

What did you learn about how you should act towards the environment?	
That the environment is something to be conserved and protected.	26
That people abuse it	2

The two main themes that emerged from this was that they saw the impact that mankind has on the environment and that they should look after it in some way. Thabo wrote: *"I learnt that I should help and improve our environment through daily actions and that it is essential to get the people around you to get involved so that we can all contribute to saving the planet."* Another wrote *"I learnt to act in a respectful manner towards the environment and treat it well because we all need it in life."* (Siya).

They were also asked what environmentally responsible behaviours they now do.

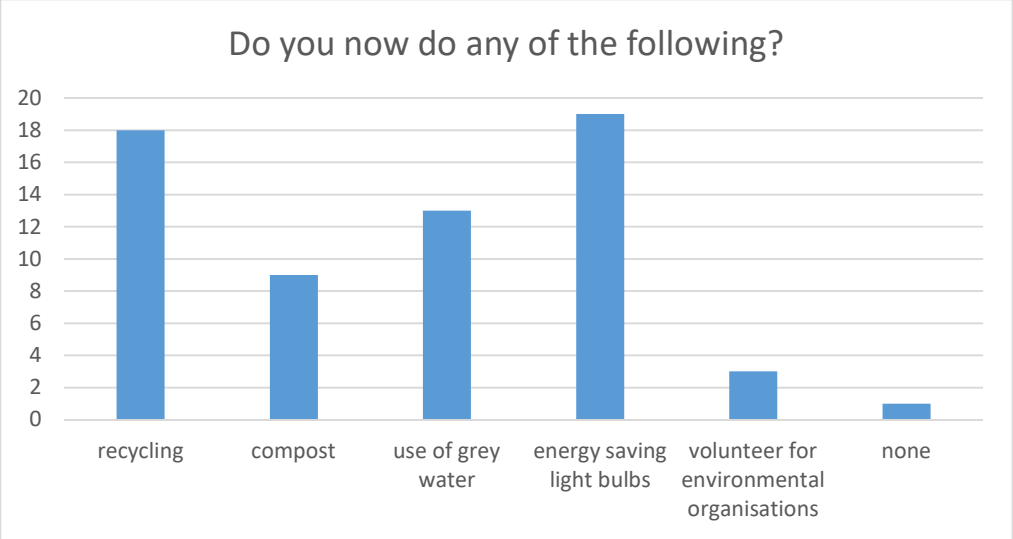


FIGURE 17: ENVIRONMENTAL BEHAVIOURS POST-WILDERNESS SCHOOL

The results are very similar to the pre-wilderness camp survey, with recycling and using energy saving light bulbs being the most common behaviours.

The next question asked if any of the boys have considered or have joined Generation Earth (this is the environmental club at school). None of the respondents had joined the club. Others spoke about 'considering it' but felt that they had too much on the go already to fit it in. Siya said *"No I haven't because of the lack of time but hopefully I will join soon so we can all save the environment."* Kollmuss and Agyeman (2002) draw on the work of Diekman and Preisendor (1992) to explain the discrepancy between environmental attitude (which may be positive and pro-environmental behaviour by using a low-cost/high-cost model (shown below).

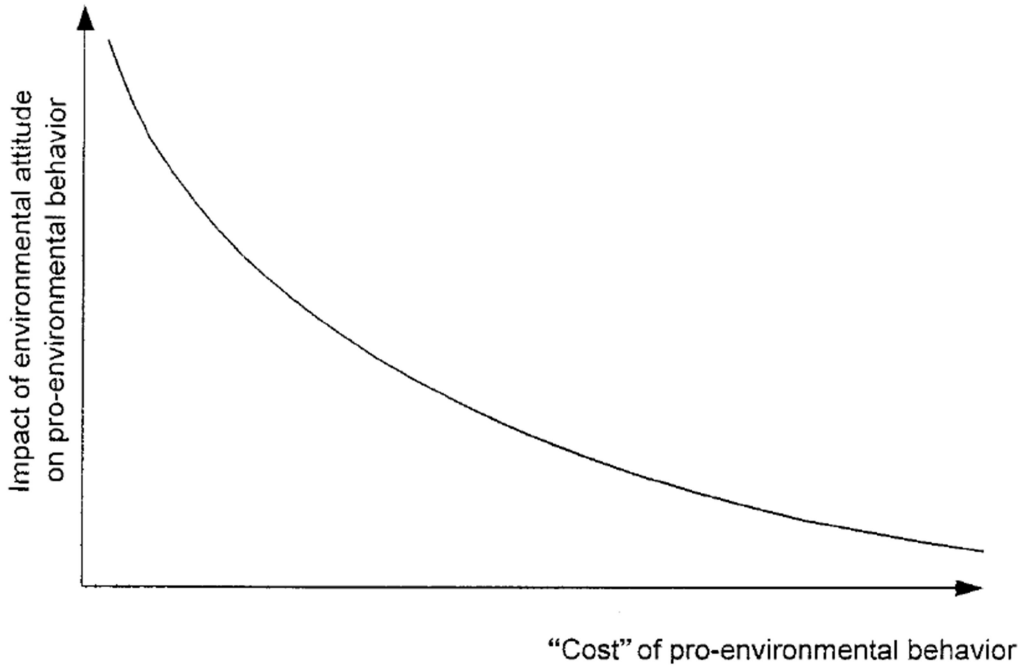


FIGURE 18: LOW-COST HIGH-COST MODEL OF PRO-ENVIRONMENTAL BEHAVIOUR (DIEKMANN AND PREISENDOERFER 1992 AS USED BY KOLLMUSS AND AGYEMAN, 2002, 252)

They put forward that people choose pro-environmental behaviours that demand the least cost. Cost is not defined in economic terms but rather broader psychological sense that includes aspects such as time and effort needed to practice pro-environmental behaviour (Kollmuss and Agyeman, 2002). Time seems to be especially important for the boys, whose lifestyles back in Johannesburg seem to be characterised by busyness. Time is something they believe that they don't have, and don't seem willing to give up other activities for the benefit of the environment.

The question following this asked them, what in 10 years' time they would most likely remember from this experience.

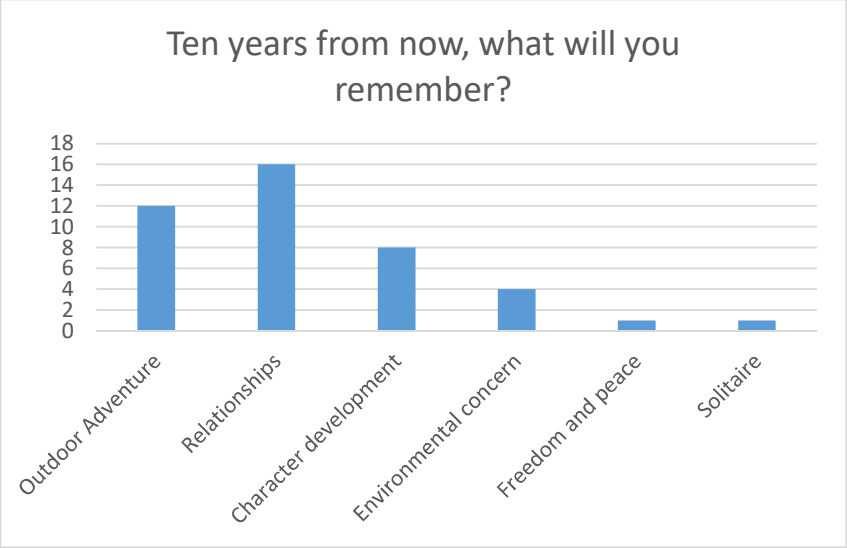


FIGURE 19: MOST SIGNIFICANT ASPECT OF THE WILDERNESS SCHOOL

The most important to the majority of the respondents was friendship and relationships with their peers. This is in line with what they all enjoyed the most and for a large percentage also to what they were really looking forward to. The next was the outdoor components, such as hiking, camping and the storm. After this is character development and what they considered to be life skills. An example of this was by Laurence who said *"the brotherhood that we had in our cabin and how we resolved conflict together."* A few also alluded to an environmental concern that they feel they would remember; Brandon: *"Ten years from now I will remember all of the amazing experiences and moments with friends. I will probably remember all the times we failed things on camp and hopefully also remember some of the crucial lessons such as how important the environment is."*

The next question asked them what experiences of information helped them to learn or to change the way that they feel about the environment.

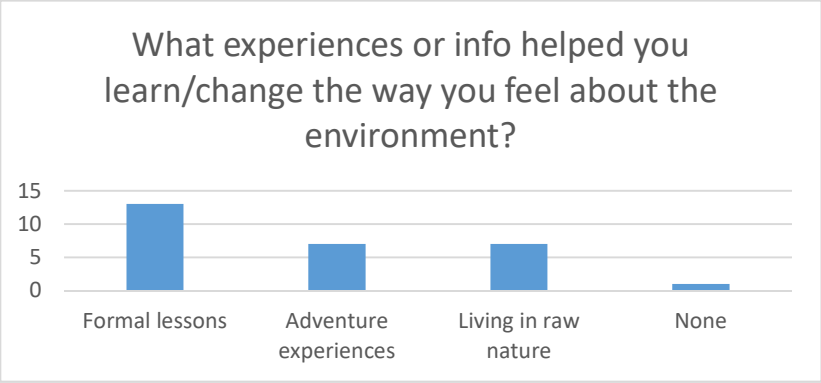


FIGURE 20: WHAT ASPECTS OF CAMP MADE A DIFFERENCE TO ENVIRONMENTAL PERCEPTIONS

It is interesting to note that the formal lessons changed a lot of boys, despite them being the least enjoyable aspect of the camp. I do think this is also because a lot of the lessons, like recycling were incorporated into everyday life and this might have had more of an impact on the boys, for example Devlin wrote that *"the recycling and the worm farm"* changed his perceptions. Another interesting one was Lex *"the waste chart and the play that we did and the tree learning."* With regards to the adventure experiences, the most common element was the hike that the boys did and experiencing

a massive Highveld thunderstorm while doing it. For many, this was an eye-opening experience. Edward*: "the hike showed me how beautiful and destructive nature is and how puny we are."*

The last question asked, was would you encourage someone else to attend the Wilderness School? All the respondents said yes they would. When asked why, the following themes emerged.

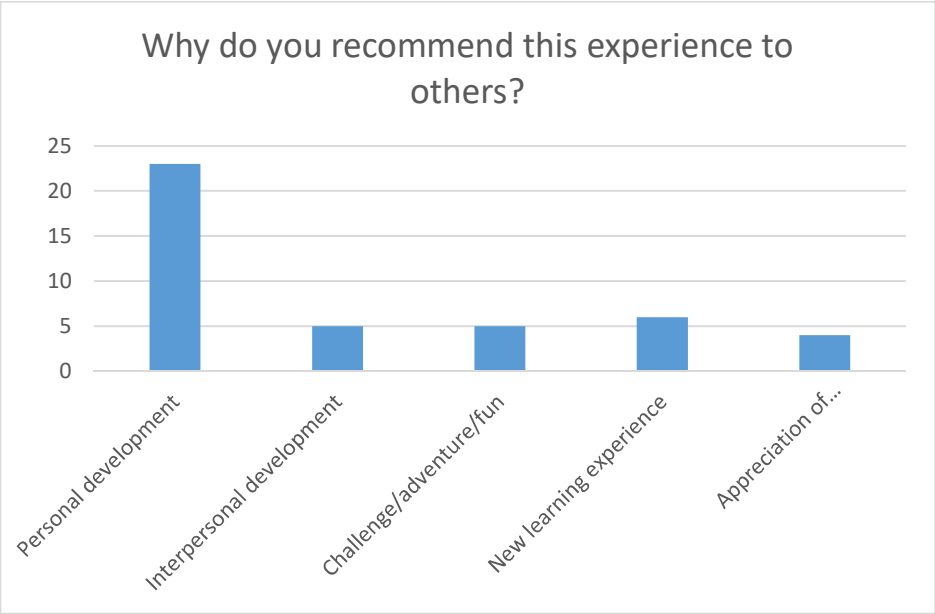


FIGURE 21: WHY WOULD YOU RECOMMEND THE WILDERNESS SCHOOL TO OTHERS?

For the most part the boys felt that it was valuable in that they experienced some sort of personal development as well as ways of dealing with others. Max said *"It is a great experience and it teaches life skills and independence and responsibility."* Edgar said *"it helps you discover your true self."* The others that came up were the new learning adventures and challenges and the fun had. For example, *"it is a totally new, once in a lifetime experience" or "it's fun and different."* Only 4 respondents spoke about an appreciation for the environment.

Focus groups after Maretlwane

The data collected during the focus groups after Maretlwane were analysed in order to find any themes that were important to the research question.

To begin with the boys were asked about the biggest differences between what they expected to happen and what actually happened in reality. For the most part this related to academic work. They expected less work than they had but overall it was actually more fun than expected as well.

With regards to their perceptions of the environment and their behaviours, it was interesting to note that their thoughts/perspectives changed a little but that behaviour did not. The change in perception seemed to have been very much linked to the storm event. While on a hike the boys experienced a Highveld thunderstorm which I believe was quite terrifying, this they said inspired awe in them as well as a certain amount of respect and fear towards the power of nature.

In terms of actions, one participant spoke of expecting to respect the environment more when he returned home but that his behaviours have remained unchanged. Another spoke about trying to change for a short period of time but he didn't maintain this. Another spoke of the 'thought' being there but not the action. None of them had developed a keen interest in birding or tree identification or any of the hobbies that could have been initiated at camp. Levi said "*For me I don't*

really enjoy bio and a lot of the lessons were based around biology and those types of things and the tree guides and that doesn't really interest me so the tree booklet and stuff didn't really interest me and slipped my mind but it's still interesting to see the variety that there is." This was common across the two groups, although some boys did, ironically remember the names of the trees. The activity that they seemed to enjoy the most and may continue with was hiking.

This lack of change may be due to the feeling that the 'green agenda' was forced on them and that they had no choice but to carry out activities such as measuring their water use, feeding their worms and recycling. The one activity that they said was eye-opening was working out their carbon footprint. They worked it out for themselves at camp and for living at home, and said that the two couldn't even be compared to each other as they were so different, he realised that "*it's quite scary to think how much we do affect the world."*

What impacted the boys the most was the character development, this is seen in both the questionnaires and also the focus groups. The boys enjoyed the opportunity to just *"sit under the trees and talk about most things that you wouldn't usually talk about."* (Max) The environment was quite important to them in this area as they said having the same discussion at school wouldn't have the same effect. *"It's the ficus classroom and there's a floor mat and desks set up and that's where you do your work but when you go into this area there's lots of trees surrounding you and there's this little patch of dirt and you all sit there and a little bit of sun shines through and you really have a sense of nature."*(Max). (The Ficus classroom is an area set up with desks etc. underneath a *Ficus* tree near the boys' cabins) Another spoke about the environment at the camp giving him an opportunity to reflect. *"I think that in nature there are less distractions. So you really can reflect over that land and think about it, so like on solitaire, it's just 24 hours alone and you get to do some reflection there."* (Thendo) Another participant spoke about noticing the beauty of his spot during solitaire: *"I was at this amazing spot with this huge tree, a river with little crabs."* (Edward). The staff also played an important role in the character development aspect of camp, especially one of the mentors and also the chaplain. Discussions about religion and belief were valued across the board as well as the 5 truths. As Edward put it, *"they woke me up a bit."* The 5 truths that were taught were: Life is hard; You are not that important; Your life is not about you; You are not in control and You are going to die.

The importance of the staff and their relationships with the boys is significant. They valued the insight that staff shared with them and the opportunities to share and learn from them. This is in line with the work done by Stern *et al* (2017) who found that students who identified having role models, in particular known adults, generally exhibited more positive measures of environmental responsibility, character development and leadership and attitudes toward school (Stern, et al., 2017).

In the focus groups we also discussed their favourite moments of camp and what they enjoyed the most. The theme that came out the most was the practical and physical aspects of camp, such as the elective weekend where they could choose to scuba dive, go orienteering or kloofing. They also enjoyed the more practical lessons, although vermiculture was still disliked by the majority. A moment that was special to a lot of them was watching the last sunset while listening to Queen's "we are the champions." This is very much in line with the results obtained from the questionnaire, that boys enjoyed the physical adventure, being away from home and having free time to pursue different activities and the enjoyment of nature – in the case of the questionnaires, this was specific to the storm that was experienced while they were hiking.

What wasn't enjoyed by the boys was the academic work, the amount of it, the sitting and writing in formal lessons and for some the idea that it was very bio-based and if this wasn't an interest then many of the lessons were even less interesting to them.

Diary Questions

While on camp the boys were requested to write in a diary on a daily basis. They were given a set of questions that they needed to reflect on over the 28 days at camp although the majority of the writings reflect on daily activities rather than individual questions. A number of these diaries were collected from willing participants and their thoughts added further insight into the experiences that the boys had while on camp. The questions ranged quite a lot, from expectations to character development and some questions asking them to think about the environment and its impact on their daily lives. The diaries were analysed using the 4 key questions asked by this research, unfortunately not all the participants answered the questions directly.

Post- Wilderness School: Perceptions about the environment

The findings here were very similar to those expressed in the questionnaire as well as the focus groups. That the environment is important to society and is needed in order for societies to function. Thendo stated in his diary entry: *"the environment is crucially important as it provides us with natural resources that we need and the worse we treat the environment, the worse the quality of the resources we get."* Nathan also felt similarly, stating that he knew nature was important to us. As did Sam.

> *"Out here, I feel closer with the environment than back at home because I can really see what a 'bush' environment should be. There are more opportunities to get closer to the environment here at Maretlwane. The environment is one of the most important aspects of our daily life. Without it, we would not be able to live on earth. An environment is absolutely fundamental to human life."*

And lastly Jason said that *"I've always been taught by my parents and at school that the environment needs to be protected and conserved. If we do not protect our environment then our future is doomed."* Only one participant was different to this theme, he stated that *"Normally I don't care much for the environment and I am not well aware of its importance at this stage of my Maretlwane experience."* Thus for the most part the students had preconceived ideas of how important the environment was to them and realised that there is a need to protect it. Despite this, only two boys spoke about their role in the environment and what they were doing for it. Sam stated that *"In my life, I take the environment very seriously. I make sure that I reduce, reuse and recycle!"* and Jason's answer alluded to some environmentally responsible behaviour but it was rather vague as to what he actually did, especially regarding the 'donations':

> *"Recently a number of campaigns have started to help the already massive problem. These involve the public and ask for donations. My family usually supports a cause of choice which has become a part of me. We also believe in doing small things to help the cause and so we use grey water for gardening, have a veggie patch that we look after and recycle. These have been part of my life since I was small. The environment is everything not man made that surrounds us, e.g. Trees/plants etc… It is something that has been entrusted in our care with huge beauty. It is not permanent but if we do what is right it will not be endangered."*

His response shows a distinction between the urban environments or what he would call man made and the natural environment that I believe he feels needs looking after.

Post-Wilderness: What activities had the most impact on participants and which didn't?

Again the diary entries didn't always answer this question directly but it was interesting to read through them and see what the boys enjoyed and what seemed to make an impact on them. Nathan spoke about the general beauty and of specific lessons. Nathan: *"The scenery here has been breath taking, it's so purifying to be away from the city life and the everyday mundane… when you are living in the city, everything is so rushed and you don't get to appreciate nature. Here at Maretlwane we slow down and we get a second to appreciate nature. We had an astronomy lesson, In Joburg you don't appreciate the moon and the stars as much as you do at Maretlwane."* He then spoke about a specific astronomy lesson *"we also did astronomy, we downsized the universe by 10 billion and Neptune was still 500m away – Mind-Blowing-Wow! "I am really liking the learning environment at the Wilderness School."* Thus the being in nature generally, forming a connection was important to him as well as an individual lesson. Another boy also spoke about the beauty of nature and being able to experience it. He had enjoyed this opportunity and spoke about a definite spiritual importance to it. After the storm experience, Edward wrote *"As I sit here I realise how beautiful and destructive nature is."* His experience brought nature and the environment to the forefront of his thinking for a while at least. Sam spoke about his enjoyment of the learning environment at the Wilderness School, writing that he preferred the practical components to the lessons although he admits to being distracted at times as there was always something going on. From these responses it is clear that there doesn't seem to be one major significant activity that changed their perceptions but rather a series of lessons. Although from the focus groups, the storm experienced on the three day hike highlighted the power of nature for many of the boys attending the camp.

Boys were also asked what parts of the camp they felt made little impact or those that they would like to see changed. These comments were very much around the academic components of the camp. The students felt that they spent too much time sitting and working in a 'classroom-like' scenario and that they would have preferred more physical and practical tasks and even more adventurous activities. This I think is important to note, as one does not merely want to just move the classroom to the outdoors but to rather use the environment to inspire a love for what is around them and a deeper connection (Sobel, 1996).

Post – Wilderness School: What changed?

Edward answered this question by stating that *"it [the Wilderness School] has made me more aware of the ecosystem and its diversity of the Magaliesberg and I am now aware that we can make a difference."* In response to the question: where have your perceptions and ideas changed the most? He wrote that it changed *"In regards to respecting the environment and its biodiversity as well as the fact that I am who I choose to be."* It is interesting to note that he feels that there is something he can now do to make a difference. Thendo's response was also interesting to note *"my perception has remained the same but gained more urgency."* Thus showing that something he experienced made him realise that not only did something need to be done for the environment but that it needed to happen relatively quickly. Nathan also had a slight change in his perceptions*: "Back on day 7, when I answered question 3 I knew nature was important. Although I didn't know how*

important it actually was. Now I have learnt that nature is a vital part to our existence. I learnt that if we carry on killing the ecosystem we are going to die along with it. Nature can live and thrive without us, but we can't live without nature. This is one of the most important things. We cannot live without Nature and all of its beings." He, however, does not talk about how he can change it or that he will in fact change his behaviour. This is also similar to Sam who says that his perceptions have changed to an extent but he does no more than he used to in terms of environmental behaviour.

The above deals with changes to the boys thoughts and perceptions, the question of whether their behaviour would change once at home could not be answered through the diaries as they only kept them while at camp, and none of them mentioned that they would actually change their behaviour once at home.

Solitaire Reflections

At the end of the camp, boys were asked to write reflections on their Wilderness School Experience while on their own during 'Solitaire'. I was able to read through the reflections of the boys who had participated in the focus groups. The boys reflected on how they felt when they first arrived at the camp, then their 'high-lights' and 'low-lights' and what lessons they had learnt through the experience.

All the boys wrote about being nervous when first arriving at the camp, they were anxious about being away from home, not being in contact, worried about who they were in clusters with as well as the physical challenges of the three-day hike. Overall there was a feeling of not knowing what to expect and this put the boys on edge. Despite this, all the reflections that I read then turn more positive as they realise that they are having fun, that they can overcome challenges and that they were able to for new relationships with boys they had only known as acquaintances previously.

Examples of 'low–lights' were when there were disagreements in the clusters, failing inspections and being homesick. But the essays show that the boys had a lot more positive experiences and that overall they enjoyed the camp. To Andy, it was a 'magical experience'. Examples of the 'high-lights' were hiking to the top of the mountain and enjoying the views, the three-day hike and especially the letters. All of the boy wrote about the storm and how they felt during and after it. It was definitely something that they all said they would remember.

The theme that stood out for me, from all the reflections was the importance of the character development and the role that the mentors played in this. Boys felt they were able to get an understanding of their character strengths and have opportunities to grow these through the challenge of the camp. For example Jason writes that "*Kindness, tolerance, patience and open-mindedness have also been learnt."* Max wrote that "*Now I try harder when it comes to integrity, spirituality, open-mindedness and kindness. This camp has taught me that if you want something to happen/change then you have to do it, it's not going to happen by itself. You need to put in an effort."* The growth of character that all boys wrote about was very much linked to the roles of the mentors and the relationships between them and the boys. Andy wrote "*before this camp I didn't know who I was and I didn't know what I was going to do with my life. Maretlwane has given me direction in my life, thanks to the mentors and the bush."* Kevin also believes that the staff make a huge difference to the boys: "*I'd like to thank all the staff members involved with Maretlwane. Thinking back on my experiences I didn't think it would have been the same without each and every*

one of them. I truly believe that Maretlwane is a huge success because of the people that run and work at Maretlwane."

Of particular reference to this study is the importance of the relationship with the environment. Andy mentioned that the 'bush' played a significant role in his experience: "*The bushveld adds that little bit extra which is what makes reflecting such an amazing thing in my life."* Kevin also reflects on what he learnt about the environment:

> "*Thinking back on one of Maretlwane's philosophies – simple sustainable living. I realised that is we are to save this planet from being destroyed by pollution, global warming and greenhouse gases we need to adopt a policy of simple, sustainable living. I realised … that recycling is not that difficult, it just takes some effort and the right attitude."*

Edward was very clear in what he wanted to apply at home from his camp experience. "*I have also come to the conclusion that I will start recycling when I get back because it isn't that hard. We have been taught things that can help us in life as well."* And Jason learnt that "*our environment would thrive if humans did not exist but if nature did not exist humans would die out, very quickly. Also that biodiversity is important in ecosystems survival and mechanics… we also covered various water, waste and eco-footprint audits which has given me an idea of how much we take from nature"* He ends his reflection essay with his future resolutions, one of which is to be '*more eco-friendly'.*

These reflection essays convey very similar sentiments to what the boys answered in their post-Wilderness School questionnaires as well as the focus groups.

Results from Parent Questionnaires

The parents of the boys who participated in the focus groups were sent questionnaires to get an idea of how parents perceive the Wilderness School. 5 of the 8 responded to the questionnaire via Google Forms. The questionnaire was divided into three broad themes: what they believe to be the reasoning for the Wilderness School; their expectations of what boys would experience; possible environmentally responsible behaviour changes; and if there were any changes with regards to their sons' characters or personal skills.

The parents believed that the school ran the camp for two reasons. The first was that of character development and specifically the thought that the camp would teach independence or self-reliance. Thendo's parents wrote that the aim of the Wilderness School was to "*enrich the lives of the boys with the necessary skills to become responsible young men.*" Jason's parent said "*supposedly is to provide an alternate learning base to broaden the boys' experience and to include environmental awareness and such things."* The second reason was that it was to allow the boys to develop an appreciation of nature. Three of the parents mentioned this as a reason for the experience. The parents expected the boys to mature from the camp, learn skills such as leadership, comradeship and appreciation of what they have and learning to problem solve. Thendo's parent said that the Wilderness School was new to him and therefore he didn't know what to expect. Only one parent was fairly negative saying "*to be frank not too much. I have a son who previously went through this program."* Another parent spoke about the concerns that she had about her son's ability to make friends with boys who were 'new' to him and also the challenge of cooking. Despite her concerns she found that he worked well with his peers and swopped chores so that instead of cooking he would do the washing and so on. She also felt confident that her son would enjoy the time in the bush as

he was comfortable with that type of environment and he would be happy to spend time on his own and reflect.

The questions about pro-environmental behaviour asked whether or not boys demonstrated any new behaviours such as recycling or saving water. Three of the five found that there were some small changes. Edward's parent wrote that he was more interested in recycling paper and bottle caps, as well as local projects. Levi's parent wrote he definitely appreciated the value of recycling and water saving and lastly Thendo's said that he took shorter showers, although it was noticed that this change only lasted for four to five months post camp. The other two parents felt that it wasn't camp that made the difference but rather the recycling behaviours that their sons practiced were as a result of systems that were in existence at home. Jason's parent write: "*No, as a family we have been recycling for some time and always been aware of water saving responsibilities etc. so these are not new behaviours."* Andy's parent's answer was similar:

> "*I have a recycling system in place at home separating plastics, glass, paper and food scraps which works fairly straightforward. However, I constantly have to remind my children not to throw their waste in the 'normal' rubbish bin. They are mindful of not wasting water choosing to shower rather than having a bath."* Adding to this she wrote that "*Maretlwane has not made an impact. The structures that I have put in place are more successful and have been better maintained than anything that Andy has learnt at camp."*

Edward and Levi's parents said that the changes had been sustained, "*Once you are made aware of something you cannot forget them."*

The other changes that parents observed can be grouped as changes that are character based. Four of the respondents said that they had noticed changes. Examples of these are; greater appreciation of parents, better diet plan, increased confidence and a better understanding of self. Only one parent mentioned friendships, saying that their son had remained friendly with the boys from camp but did not see them socially afterwards. An interesting one was: "*He can go out in the dark without asking to be accompanied."* This I would guess is due to an increase in confidence and belief in his own abilities and having had to do it while on camp. Only one parent said that he had noticed nothing dramatic, this he said may be attributed to the fact that his son was a boarder and had thus spent time away from home and also that his son had had experiences in the bush. Edwards' parent said that was more likely to challenge and question decisions taken around the home and Levi's parent said that he had a better understanding of what he wants and what he is good at. Andy's parent said the he is on a path of self-exploration but she couldn't attribute it all to the Wilderness School as other events may have had an impact. Thendo's parent said that he is now more independent. Overall four of the respondents said that changes had occurred and had been sustained over time.

Lastly, parents were asked if they would recommend the Wilderness School to new boys coming to the college. Four out of the five emphatically said yes, that it was an opportunity to learn and experience personal growth and that boys learnt responsibility. Andy's parent made the point that the camp was useful in contributing the teaching of self-assurance and independence but that parents were ultimately responsible for teaching this to their children. Jason's parent said that there were benefits to the camp but at the same time that there were elements that were a waste of time, and that from his two experiences did not believe that a boy who missed the camp would be in any way disadvantaged. Despite this, he acknowledged new leadership and that perhaps that would change things and problematic areas would be addressed. One parent mentioned the importance of

the mentor in her son's experience and that they had a developed a special bond and as a parent she appreciated the regular updates from him.

Results from Staff Questionnaires

A questionnaire was designed for the permanent staff at the Maretlwane School. There are only 4 people, and three completed the questionnaire. It was designed using the work of Sipos *et al* (2008). The results from the questionnaire are as follows:

The first question asked what the staff believed the objectives of the school are. The first response (Neville) was that the aim was to "*create an epic journey through: character development, environmental (social and natural) education and outdoor adventure. The final outcome is to produce a person who has grown in self-confidence, developed an awareness and appreciation of his environment and had a-once-in-a-lifetime experience."* Claire referred to 4 words to describe what she felt the objectives of the camp were. The first was "*Detach – to be removed from support of family, friends, teachers, securities and comfort zones. Disconnect – from media (especially social media) and their normal city lives into a Wilderness out in nature. Discover – New skills, attitudes, values and knowledge and lastly Delight – have fun and delight in nature."* Quinton wrote about there being a difference between personal objectives and then those that are the objectives of the management of the school in line with financial, legal, council, conservancy and conservation, maintenance of the property according to the trustees and so on. In terms of educational objectives, he states that the following are objectives:

- *"To provide safe and supportive environment in which participants can learn and grow through exposure to challenging outdoor situations*
- *All programs must be age-appropriate and aligned to developmental milestones of the group in question.*
- *To offer programs integrating intellectual, spiritual, emotional and physical aspects of personal growth*
- *The residential model employed by Maretlwane is designed to encourage interdependence, independence, trust and empathy among participants.*
- *To encourage and facilitate participation in outdoor activities across all racial and economic groups in South Africa but specifically in the immediate region of the school."*

Overall he states that "*the above should result in a learning outcome that will not necessarily benefit the participant academically but equip them with personal knowledge and insight and the ability to reflect on (and enhance) performance."*

The next question asked was whether the objectives, as understood by them, were met. Neville felt that they were absolutely met, in terms of character development, he stated that boys were joined up with a mentor who guides them through the experience and their chosen character strengths. He also explained that they attend character development lessons which focus on defining character development and building character. A peer review and self-review of character strengths is completed once a week. In addition boys are taught to reflect on the information they receive and

they also receive a booklet which guides them on a step-by-step process through their character development. With regards to social environment education, he states that this is based on an experiential learning process which is guided by the mentor. The boys interact with one another and friendships from Johannesburg are purposefully divided so that boys get an opportunity to get to know others in their grade. Natural environment education is practiced through boys taking part in activities, lessons and talks focused on the natural environment. For example, they complete a MiniSASS (a tool used to measure the health of a river) activity, learn to identify and track game, create tree field guides and are visited by guest speakers who present on astronomy, geology and bee talks. Lastly the boys experience outdoor adventure activities that test their limits, these include climbing, kloofing, scuba diving, hiking, orienteering and a 24hr Solitaire. Claire also states that the objectives are met to a certain extent. However, she makes the point that each boy's starting point is unique, their commitment and participation differs and therefore progress/results differ. She categorises her answer according to the four words that she used to explain the objectives:

> "*Detach – boys leave their families and familiar surroundings and are introduced randomly into a new family of 6 or 8 boys (clusters). Disconnect – boys have no contact with 'outside' world except by weekly letters which comes by 'snail mail'. Boys learn a life lesson of having to wait for news/communication. The 'instant reply' is not available. Discover – through the character development programme, outdoor activities (daily household chores), teamwork with clusters and weekly mentor chats t aid this process. An academic content teaching boys especially about the sustainability of the environment, respect for the beauty of the natural environment, how to apply what they learn at school e.g. map reading into orienteering and certain hardships/difficulties which arise mostly from living outside their comfort zones and lastly reflection – personal reflective writing, peer evaluations and close mentorship. Delight is mostly learning to have fun and just be boys."*

Quinton also believes that the objectives are met, the logistical details such as a program that is safe and legally compliant.

> In addition *"all programs are built with activities that increase incrementally in difficulty and intentional with regards to a specific learning outcome. Nothing is done randomly or without a specific purpose. The programs are also custom designed to fit the age class and developmental stages of all participants while at the same time realising that not all individuals are at the same point in their life journey. Programs all have intellectual, spiritual, emotional and physical aspects built into them and none are favoured over another. This allows for all participants to find and engage with the program at their own level. It is also accessible to all and any profile group that applies*." Lastly he states that *"feedback from participating schools, parents and program participants has shown that the experiences and learning have paid off in more centred and focused children and enhanced cohesion in groups. The sense of a common experience shared has fostered improved relationships between teachers and pupils."*

The third question is similar to the one above, whether or not the Wilderness School can be considered a success. The question also asked respondents to elaborate on what they considered to be successful as this could be defined differently by different people. Neville, believes that the school is a success, that boys return feeling they have experienced something 'epic' and leave having grown in self-efficacy by completing difficult tasks such as the four-day hike, and a 24 hour solitaire that they felt were daunting at the start. In addition he believes that from his discussions with boys that they found the 'bush' environment vitalising and refreshing, and began developing a value for natural spaces and places. In addition he notes that from a survey of the Matric Class of 2017, only 4

boys made the comment that the Wilderness School Program should be abandoned and that a large proportion of the boys felt that the Wilderness School was a highlight of their school career.

At the end of 2017, the Marketing Department asked boys about their most memorable moments during their time at St John's College. Below are a few of the quotes that pertain to the Wilderness School, and how it impacted the lives of the boys. The boys reflect on their Wilderness School Experience 3 years after they had been to the Maretlwane Wilderness Camp.

> *"My favourite memory is the Grade 9 trip to Maretlwane. It was the best! We made friends with guys we might not have. We had to cook our own dinner, and when we messed up we had to eat it anyway. It was a lot of fun!"#LuxVitaCaritas #Matric2017*
>
> *"The highlight for me would be the month-long trip to Maretlwane in Grade 9. Be sure to make the most of the opportunities here."#LuxVitaCaritas #Matric 2017*
>
> *"The best moment for me was the staff vs boys soccer match at the Maretlwane Wilderness camp. It was incredible to see how boys who didn't know each other were now on a team together and became best friends."#LuxVitaCaritas #Matric2017*
>
> *"A stand out moment for me was our trip to Maretlwane Wilderness Camp. On the second day of the hike, I woke up before everyone else, and just sat and watched the sunrise." #LuxVitaCaritas #Matric2017*
>
> *"There are so many unique moments that I've had here. I think the Maretlwane camp which we went to in Grade 9 was a highlight." #LuxVitaCaritas #Matric2017*
>
> *"It's the friendship and the brotherhood we all share. The Maretlwane Wilderness School in Grade 9 brought us all together and we bonded with guys we never thought we would." #LuxVitaCaritas #Matric2017*
>
> *"The Lower IV camp to Maretlwane is my fondest memory as it was something I'd never done before. It taught me a lot about myself." #LuxVitaCaritas #Matric2017*
>
> *"The wilderness camp was the most fun I've ever had. I learned a lot about myself and about my peers. We learned how to work together and be more accommodating to other people's ideas" #LuxVitaCaritas#Matric2017*
>
> *"A defining moment? It has to be the Maretlwane Wilderness School. It was a great opportunity to make friends with people you didn't really know, spending a whole month with them and remaining friends to this day."#LuxVitaCaritas #Matric2017*
>
> *"It's my school tours I will remember best - especially the Grade 9 tour to Maretlwane Wilderness Camp. You don't get to see your parents for a month, living with your mates all the time." #LuxVitaCaritas #Matric2017*
>
> *"My favourite memory is probably the Grade 9 camp to Maretlwane. I had not been looking forward to it and it turned out to be one of the best experiences. I wasn't keen on being away from home for that long but then you get chucked in the deep end and you adapt." #LuxVitaCaritas#Matric2017*
>
> *"Our one month camp at Maretlwane in Grade 9 was quite an experience. You have a month to get away from technology, get away from everything and find your inner self. That was really great." #LuxVitaCaritas #Matric2017*

"Every day comes with new experiences and moments of camaraderie between the boys and teachers, but I think Maretlwane Wilderness School was definitely my favourite." #LuxVitaCaritas #Matric2017

These memories provide evidence to support the statements made by the boys that the Wilderness School is a success and has impacted the boys in some way or another in the intervening years. Claire also felt that the Wilderness School was a success. It gave the boys an opportunity to pause in their busy lives. (Busy lives that are planned for them by parents and teachers who she notes do have the best intentions). They are given an opportunity to learn about themselves, their character, how to make mistakes and learn from them. They learn resilience and that relationships are central to daily life and success. *"It is a time to plant a seed and when they leave, their journey only begins."* Quinton, also states that it is a success. That feedback from all involved is positive as outlined in his answer for the previous question. In addition he states that the Maretlwane Wilderness School meets all 6 objectives of the board of trustees and the Maretlwane Trust. These have been provided in the overview of the camp in the methodology.

The next question asked why they believed the school should be running the 28 Day Wilderness School. Neville divided his answer up into 3 sections; character, environment and outdoor adventure. In terms of character he argues that values are being taught in schools but are not evident in society. That the Wilderness School gives participants an opportunity to identify and exercise their values in a safe space and are guided through this process through discussion and reflection. The importance of this is huge as he argues that "*our choices define our character and our world (in every human aspect) is in dire need of good choices."* With regards to the environment, he points out that many boys have lost a connection with the natural world *"unfortunately I've had many boys ask me whether the river features (waterfall, rippled rocks, bum slides etc.) are man-made."* He uses the work of Ian Player in explaining that humans have a deep connection with nature, and only truly begin to see its beauty and value when actually in the natural environment. Neville makes the point that we are losing touch with nature and that our understanding of nature is being diminished generation by generation and that open spaces are being turned into areas of mechanical and capital production. He points out that values (of the importance of the environment) are taught in school but that learners don't have anything to attach these values too. Lastly outdoor adventure gives participants an additional chance to develop their environmental awareness but also boys are able to experience the fun and thrill of the outdoors, and they develop fitness, co-ordination and strength. Claire's view is interesting. *"It is a purpose driven program allowing parents and the school the opportunity to let go of the boys into a place of discovery, with hardships and expected failure but one where each boy is closely monitored and kept safe but given space to 'safely bump his head' and learn from it".* Quinton's response is similar in that he argues that all children need time to relax and spend quality unsupervised time in the outdoors. He states that *"Nature deficit syndrome is a reality and not all parents are able to (or know how) to encourage participation. In addition, the safety and security of children is often at stake in the outdoors so a closely managed and facilitated program that allows this to happen is an essential part of the new educational milieu."* In a more specific way he makes the point that the Wilderness School creates a commonality between all the boys in the school, each having participated in their way in the experience but also argues that this is part of long-term development and will only be enhanced if a continuous relationship between boys and teachers is fostered.

The last of the long open-ended questions asked if there is anything they would change about the program as it is currently run. Neville's change would be to extend the length of the experience. He states that this is the case for programs run in New Zealand and Australia and some are as long as 12

months. This he believes will have a substantial impact on the growth of the boys and will deepen the learning which takes place. He does acknowledge that this will have consequences on the program and that changes would have to be made. Claire makes the point that continuity is important especially with regards to staff and their role of mentoring. This aspect needs to be planned carefully, managed and nurtured, especially as there have been many changes in the last two years which she says puts a strain huge on the program. Quinton agrees, in that there has been a withdrawal of interns/mentors from the Wilderness School program, which wasn't deliberate but one of necessity because of the changing role of interns at the school but this has had an impact. He says that teachers are encouraged to participate more freely in the program to make sure that there is a long term connection. In addition, some operational changes are also required.

The second part of the questionnaire was based on the work of Sipos *et al* (2008). The questions are divided into three categories: cognitive (head), action (hands) and values (hearts). The results are shown below.

Learning Objectives	**Description**	**0 not addressed**	**1 Beginning**	**2 Developing**	**3 Accomplished**	**4 Exemplary**
Head						
1. Cognitive engagement	Observable, sustained, engaged attention during a task requiring mental effort.				Neville (N), Claire (C) and Quinton (Q)	
Comment:	All agree that this is accomplished as they need to take the lessons to heart otherwise they will not be able to complete tasks later on in the program and will 'pay the price.'					
2. Trans disciplinary curriculum	Curriculum that integrates knowledge from numerous, distinct disciplines				N, C and Q	
	As part of the 'journey of discovery' most tasks are interdisciplinary in nature and can't be classified into any one 'school subject.' For example tracking and observational skills make use of skills such as application of logic, reasoning and intuition to what is essentially a problem of biology and animal behaviour. In addition a practical component is added.					
3. Critical thinking	Participants analyse ideas by reflecting on them, identifying categories or components that comprise them, consider what they are based on and whether or not they apply		N	C	Q	
	Quinton states that reflection is built-in and a critical element of the program,					

	and that the entire outcome is based on this central theme. Claire agrees on this as there are daily reflective tasks on character and so on. Neville also refers to the reflection process in that boys have to describe what they experienced, interpret it and then apply lessons learnt. (What? So what? Now what?)					
4. Systems thinking	Use of complex theories and eco-system approach to recognise that seemingly separate activities form one complex global system.			C and N	Q	
	All agree that the school attempts to do this, subject matter such as biodiversity calculations and Mini SASS all rely on the integration of knowledge into a complex whole. However, the point is made that time is limited and each boys' personal involvement determines the impact of the teaching. An interesting one is that boys are taught to realise that one small action has a large impact, for example boys are told not to urinate in the river upstream as the camps water is collected lower down – this is then linked to pollution on a global scale.					
5. Understanding of sustainability	Presents sustainability as a complex, interdisciplinary challenge that must integrate socio-economics, socio-cultural and biophysical concepts, strategies and goals.			N	Q and C	
	Sustainability is taught a key cornerstone of the WS ethos and is included in all parts of the program. Socio-economic through tasks such as "dollar-a-day", socio-cultural through outreach day and bio-physical through tasks such as recycling, water use calculations and so on. This is an intentionally taught component in the program.					
6. Understanding of global citizenship	Fosters an appreciation of issues surrounding the fulfilment of responsibilities as citizens of the world.				Q and C	N
	The understanding is that the residential model and a focus on empathy and thinking of others are key elements of the program and are encouraged and facilitated but it is also made clear that there is an appreciation that this is a long term process and that the seed is sown through the experience.					
Hands Personal						
1. Experiential	Promotes learning				C	Q and

learning.	through direct self-initiated experience, reflection on experience, formation of ideas that are applied to the new experience.					N
	The point is made that this is done and done well, boys are required to 'do' tasks that they would not normally do at home, cook, clean and be responsible and from this they learn, often through mistakes. In addition the point is made that by not allocating marks to tasks, specific outcomes are not dictated. *"Every boy comes to the school without anything to live up to or indeed live down to."* (Quinton)					
2. Applied learning	Contextualises learning to empower and motivate students while helping to develop skills and knowledge required for employment, further education and active participation in communities.	Q			N and C	
	Neville and Claire: Boys are taught character development every day and social development. Boys are taught to use their own knowledge and knowledge gained from the Wilderness School. They also look after a 'buddy' from a less fortunate background for one morning. Quinton: "*The program focuses on what the boys need to learn to be a better version of themselves as opposed to being trained to be a 'hamster' on a corporate treadmill"*					
Hands Classroom						
3. Democratic and participatory learning environment	Encourages course participants to share access to ideas and enactment of leadership and justice within the learning through participatory decision-making. Participants own process and solutions.				Q, C and N	
	All agree that the residential cluster model demands this of the boys. Boys have to make decisions, manage conflict and complete daily tasks as a cluster thus allowing them to participate in their own processes and solutions.					
4. Conflict	Uses creative and			C	Q and N	

resolution	effective ways to avoid, transform and resolve conflict.					
	This is done through staff monitoring and is addressed on a one-on-one basis by the mentors.					
Hands Community						
5. Collaborative	Introduces new perspectives and new knowledge leading to new discoveries for the group. Encourage united action for a common purpose or benefit, with a willingness to adjust to individual differences to reach an agreement.				C and N	Q
	All agree that this is done through the cluster system and the need for boys to work as a team to complete the challenges. In addition, the 'willingness to adjust' is achieved through peer reviews and discussions with the mentors.					
6. Social learning	Helps foster civic responsibility by requiring participants to engage in service that meets a need in a local community, including time to reflect on the service. Requires participants to form meaningful collaborations with members of the greater community.			N and Q	C	
	All agree that this is done through the Social Outreach day, where there is interaction between the boys and mentees from local schools. However, this is just one day and is seen as a start of something that should be continued once back at school in JHB. Of interest is Claire's response as she includes the boys exposure to the impact of war (site of Boer War Battle) and the impact of mining on the environment and their own impact through littering etc. thus they are given opportunities to reflect on their individual responsibilities.					
Heart						
1. Empowering	Seeks to impart participant with a greater sense of authority and				C, Q and N	

	enablement to participate as decision makers in their realities.					
	All agree that this is done through all aspects of the program, and is specifically focused on in the character development aspect as boys are guided to assess themselves and realise that traits are not set in stone but changeable. The point, however, is made that boys have the freedom to engage with this as they wish and not all adopt greater participatory roles.					
2. Creative	Incudes processes that brings new things into being and allows participants to do the same.			N	Q and C	
	Boys are involved in music, art and drama projects that allow for this development. In addition all three agree that with the boys given safe, free time they are creative in finding new ways to play and entertain themselves.					
3. Fun	Encourages participation in amusing, enjoyable and motivating ways.				C	N and Q
	Boys are given opportunities to develop new games and so on. In addition they are also taught new skills/activities that some may find fun. Each boy will have different ideas about what is fun to them but by offering a wide range of activities and giving them some 'breathing room' the opportunity for fun is created.					
4. Values-focused thinking.	Encourages creating better alternatives for decision problems, identifying decision opportunities more appealing than the decision problems that confront you and articulating the use of fundamental values to guide and integrate decision-making activities. Includes reflection on experiences.				C	Q and N
	All believe that this is accomplished through the program, especially the character development component. In addition they are constantly reflecting through their mentor chats and reviews. In addition, the Solitaire experience acts					

	as an opportunity for this. In addition the point is made that problem solving in the immediate is done but also considered the start of a process that will continue through their schooling and beyond.					
5. Inclusive	Works to promote equitable and just access to involvement in the educational, social and cultural activities of the course.				Q, C and N	
	All agree that this is accomplished, as each boy is given the same opportunities to engage in all activities. Often these are new and 'old' skills aren't always relevant. An interesting point is that they all have the same kit and thus no boy is at a disadvantage.					
6. Place-based	Engages learners through positioning of a curriculum with the context of a participants own lives, communities and regions thereby taking advantage of students' natural interest in the local.	Q			C and N	
	This is interesting as there is such an extreme difference between answers here: Neville believes that it is not addressed as boys are purposefully removed from their usual context – city life etc., with the aim to expand their interests beyond their context and show them a different, healthier reality. Interestingly Claire believes that this is addressed through removing the boys from 'normal life', while away they are shown that their confidence should come from who they are rather than what they are good at and then they can apply what they have learnt to their 'normal life' back home. Quinton believes that this is accomplished through the 'journey of discovery' and 'under the African sun' 'in the Magaliesberg', 'the ecology of Maretlwane' and the 'difference I make' – the entire program is locally based while accessing and addressing global principles.					

In conclusion the results show that the Wilderness School is a success on many levels and is aligned to the objectives of the Maretlwane Trust. Principles of conservation and sustainable living are practiced by the boys and staff. The program does integrate intellectual, physical, emotional and spiritual development of the boys through the academic lessons, physical challenges that the boys enjoyed such as the 3-day hike. Emotionally, many of them are challenged to reflect on their character strengths and weaknesses and spiritually through connections with nature for some and the lessons that they learnt through discussions with their mentors. In other areas, such as including students from previously disadvantaged backgrounds is done but has been shown in the responses not something that particularly stands out in the minds of the boys when reflecting on their experiences. The data collected shows that there are many aspects of the program that are working

well but there are others that may need some improvements. These will be discussed further in the following analysis.

Chapter 5 - Analysis

This chapter analyses the research findings and determines what changes were made in terms of environmental perceptions and behaviours pre-Wilderness School and post-Wilderness School. The results of the staff questionnaire and parents is also looked at in order to make some final conclusions about the transformative nature of the Wilderness School.

What actually changes environmental perceptions and behaviours?

The main finding from my review of the literature was that Environmental Education and specifically outdoor adventure programs do have an effect on the perceptions and behaviours of young people. These relate not only to environmental perceptions and behaviours, but also to improvements in self-confidence and leadership. From the data, the aspects that the boys enjoyed most were being away from the stress of school and having a bit more freedom and free time. They also enjoyed the friendships/relationships that developed. This was in line with what many of them were looking forward to the most as well. The more social aspects were of great importance to them, this is in line with the work done by Sobel (1996) who states that as children develop into adolescents they become more interested in the social elements of the environment and their relationships with one another. These elements were those that the students enjoyed generally. From the data there were slight changes to their perceptions about the environment.

Before the students went on camp they were asked what they consider the environment to be. Figure 11 (page 44) shows that the majority of the respondents thought it to be 'everything around you' and then the 'outdoor.' Although many of them said it included urban and more rural environments, when speaking to them in the focus groups there was a definite tendency to associate the environment with non-urban settings and being away from 'man-made interferences.' This carried through when talking about how it influences them daily, as the focus-group boys spoke about typically 'green' behaviours such as trying not to litter and conserving water. I would argue that the students definitely have a good knowledge base in terms of what should be done to protect the natural environment. After the Wilderness School their ideas were fairly similar. The perceptions of the boys did seem to change slightly, as they spoke about being more aware of the environment and having enjoyed the experience and particular occasions, for example being in awe of the storm event and seeing its power. They could articulate a need to protect the environment and felt that it was important but they had done this in the lead up to the camp as well.

Boys were also asked to rate the importance of the environment along a continuum of it having a commercial value to that of a more emotional value, this was done pre-camp and post-camp. The overall result from this question was that the respondents tended to see it as having a more emotional value. This became evident in the focus groups and questionnaires conducted during and after the Wilderness School. There was an increased appreciation for the natural environment. The

boys spoke about enjoying the outdoors, the power of nature in the storm incident and being more mindful and respectful of the environment. While sitting with the boys at the waterfall conducting the focus group at Maretlwane they spoke about how lovely it was just being able to sit there, to watch the lightening in the distance and appreciate what is around them. This was also evident in the diaries, as Nathan spoke about the ability to take time and appreciate the moon and stars. Something that he felt he couldn't do in the city environment. Although these changes are important, Hattie *et al* (1997) and Davidson (2001) both speak about the need to determine what factors or parts of the environmental education or outdoor experience actually make a difference to the students.

The boys were asked to explain what had helped them change their perceptions of the environment and what made them become more mindful and respectful. The formal lessons stood out as the key contributor here. These were not just lessons in the classroom but also lessons that occurred during the camp such as the process of recycling being incorporated into their everyday life and then more practical tasks of vermiculture and the waste chart that they had to do. When asked what was completely new to the boys, the activities that stood out were the practical or physical ones. These included how to pack a bag for a hike, to build a shelter for protection and then more day to day activities such as doing laundry and cooking. O'Brien (2012) argues that it has been well known for quite some time that scientific knowledge does not always translate into action, especially with regards to environmental challenges that are impacting our planet at the moment. The changes in perception show that knowledge and 'formal teaching' make a difference to the boys, but there was more to it than that. Adventure experiences and living in nature as well as being challenged practically were also categories that impacted the boys' perceptions. These two are very much connected as they included activities such as hiking, kloofing, diving etc. and then also the closeness that they had with the environment.

The boys spent a number of nights 'sleeping out', being able to play at the waterfall and generally interact with the natural world on a regular basis. Kollmuss and Agyeman (1992) look at what experiences and factors shape environmental responsibility, they found in their review of the literature that the most influential factors during childhood were experiences of natural areas and family, during adolescence and early adulthood, education and friends are important. Sobel (1996) agrees with this, arguing that there needs to be a connectedness and genuine love of the natural world if we expect children to behave differently towards the environment. The findings from this research agree with Kollmuss and Agyeman and Sobel. The boys were particularly influenced by the beauty and power of the natural area and this made them have an increased appreciation for it.

The data from the staff's perspective supports the finding that boys were taught about the environment and pro-environmental behaviours. Sustainability is a key cornerstone of the Wilderness School ethos. Bio-physical tasks such as recycling and water-use calculations are done. Sustainability is understood more broadly by the program as it includes socio-economic tasks such as 'dollar-a-day' and also socio-cultural aspects such as the 'outreach-day'. In addition the school works hard at teaching boys about the eco-system and that seemingly separate activities form one complex global system, this is done through tasks such as the miniSASS (a miniSASS is a simple tool to monitor the health of a river. This is done by collecting a sample of small animals found in the water and depending on which groups you find, you can determine the health of the river) and the example made of not urinating in the water upstream as it will affect the camp downstream. The results of the staff questionnaire show that great effort is put into the program and that it extends beyond knowledge as the residential model and the character development opportunities aim to educate the boys beyond environmentally friendly people but to rather be environmentally literate

citizens (Schneider, 1997) who are able to take part in the processes of problem identifying and further yet problem solving.

Figure 22 (below) shows that very few participants returned from camp and practised more environmentally responsible behaviour, only the use of grey water improved, the use of energy saving light bulbs and those that did not practice environmentally responsible behaviour before camp decreased slightly. For the most part, the general trend is that despite boys professing an increased awareness and respect for nature this did not carry through into their home lives.

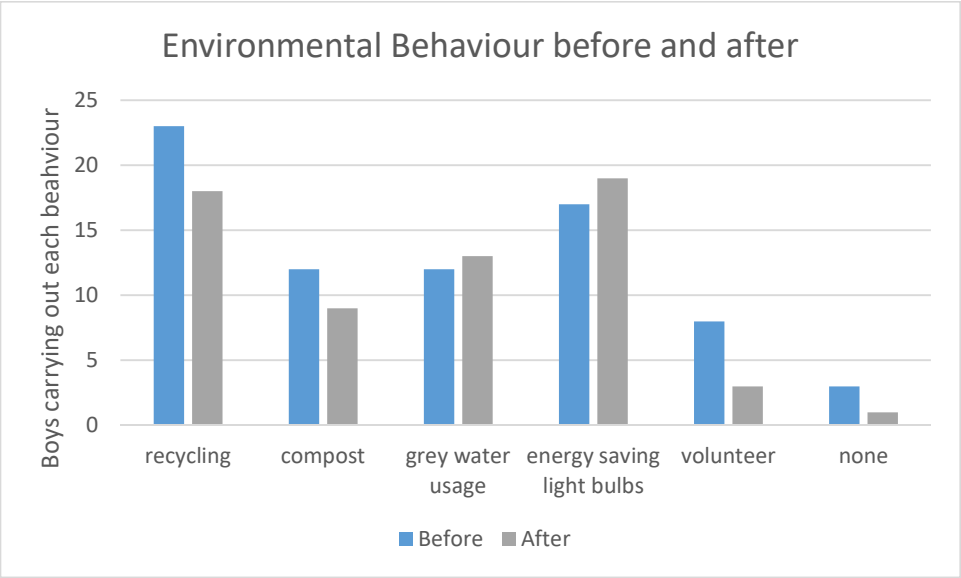


FIGURE 22: A COMPARISON OF ENVIRONMENTALLY POSITIVE BEHAVIOURS BEFORE AND AFTER THE WILDERNESS SCHOOL

One possible reason for this is that home and camp are two vastly different spaces, with different contexts and understandings. When living in the 'bush' there was a connectedness and enjoyment of the space. There were visible signs of damage that had occurred such as one respondent realising that there was less water in the rivers than there should have been due to the drought.

Barr (2003) uses a conceptual framework in order to study the reasons behind why residents in Exeter participate in household waste management or not. He found that there is range of variables that influence one's waste management practices, even so far as there being different factors that affect the amount of recycling a household does or waste minimisation strategies that one employs. Overall he argues that these many factors extend over and above awareness and education campaigns. He uses the conceptual framework shown below in order to make sense of the many variables that influence environmental action.

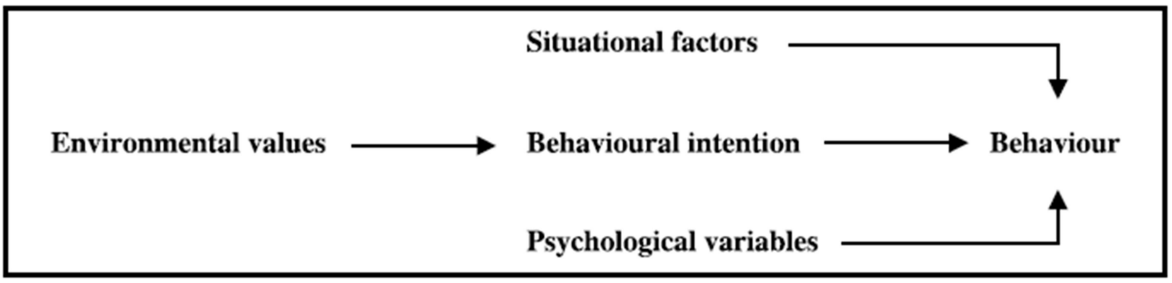


FIGURE 23: CONCEPTUAL FRAMEWORK OF THE RESEARCH (BARR, 2003)

With regards to this study on the Wilderness School, all three of the variables may have influenced why students do not continue practicing responsible environmental behaviours at home. The first part of the diagram shows environmental values. These I believe are taught throughout the camp. As shown in the results students speak about an increased awareness of the environment, a respect for it and an acknowledgement of its importance. When asked what they learnt about how they should act towards the environment, the two key themes that emerged were: that people abuse the environment and that we should conserve it. I would argue that although they have environmental values, they tend towards the anthropocentric end of the continuum as they spoke about the environment's importance in the life of people; that without it, we wouldn't survive.

Ecological value orientation is defined as the expression of motivational concern for environmental issues, this is based on a person's conception of humanity's relationship to the environment. According to Zelezny and Chua (2000) there are three ecological value orientations; concern for self, concern for other human beings, and concern for the biosphere. An example given is that individuals may protest agricultural pollution (e.g. spraying pesticides) because it affects the air they breathe (egocentric) or because it affects the air their children breathe (anthropocentric) or because it affects the ecosystem (ecocentric). Overall individuals may have environmental attitudes that reflect a combination of these three orientations (Zelezny, et al., 2000). Or perhaps they favour one over another. In a study conducted by Barr (2003) regarding waste removal and citizens responsible behaviour he found that that biocentrists/ecocentric are more likely to protect the environment and thus the boys being more anthropocentric they are less likely to be pro-environmental.

In terms of the situational factors, the key variables here are: access to services, socio-demographic make-up and their knowledge and experience of relevant behaviours. The first point is that those who have more access to services, such as recycling schemes, local bus routes or greater purchasing power, are more likely to engage in these activities. The participants in this study were very fortunate in terms of their access while on camp. There were bins they had to use for recycling of food waste after each meal and this was incorporated into their daily lives and so there was definitely an increased awareness and improvement in behaviour. However, on returning home these things were no longer in place. They were back in an urban setting with fewer interactions with nature. Environmentally responsible behaviour was relatively easy with little inconvenience while on camp. This may not be the case at home. It is useful to note here that the 'infrastructure' at home was not considered as an important factor when I designed the instruments and thus this question was not asked but it has emerged as a key factor that should be included in future studies. At school (in Johannesburg), there are bins for YES: RECYCLABLE and NO: NON-RECYCLABLE but with very little incentive to participate. At home there may be even less opportunity and therefore less environmental action. This is despite the knowledge that the boys also have; from camp they are taught the importance of the environment, as well as the procedural knowledge of how to recycle and compost (Frisk and Larson, 2011). Barr (2003) speaks about two types of knowledge, the

abstract and the concrete. The abstract being knowledge that concerns environmental issues: problems, causes and solutions. Concrete being knowledge that can be utilised and acted upon. The study has shown that the participants have both types of knowledge and still little action is taken. A further reason for lack of action may be linked to power. The participants in this study were boys aged 14/15 who were still living at home with parents or guardians. How much power did they have to change their homes to be more environmentally conscious despite all they had learnt? Blanchet-Cohen (2008) speaks about the importance of child agency and argues that children do have power to change their environments, but the question is to what extent? Surely the adults around need to be included in the process if we are to see any lasting changes once the participants return home.

The last set of factors that is studied by Barr (2003) are psychological. These include levels of altruism, satisfaction that one gets from performing environmentally responsible tasks, the influence of society and the degree to which individuals perceive their actions to make a difference. These psychological variables were not taken into account in this research but should be considered in future studies. The one that can, to a lesser degree, be commented on is that of society's' influence. There seems to be a large disregard for environmentally responsible behaviour in the northern suburbs of Johannesburg and perhaps more broadly. Despite pleas for water saving during the 2016/2017 drought and posters up, driveways are still washed with hose-pipes, gardens are still watered and generally from observation little was done. This, in my opinion, is the same with recycling. Bins are put out in vast quantities every week, filled up with all types of waste that hasn't been sorted. There doesn't seem to be a community drive towards recycling or saving that would inspire others around them to do so. This is the same in the school – the school is starting to move towards a more organised and systematic recycling programme but for the most part things continue as normal. Thus, the boys return home from camp with little support in how to continue their environmentally responsible behaviours.

From the parent survey, although small, the overwhelming response is positive. For the most part parents believed that their sons had gained something from the experience, both in terms of an appreciation for the environment and definitely character development. Environmental behaviour changes were limited and I argue that they are more dependent on the practices followed at home more so than the lessons learnt from camp. The change that did occur in terms of shorter showers lasted for a while but has not been permanent.

The results of this study show that there is little transference of the environmentally responsible behaviour back home. This, I argue is due to there being a significant disconnect between the different spaces that the boys occupy, either being at camp, at school or at home.

Places, Spaces and Transformative Education

As has been shown in the literature review, Massey (1994) puts forward the notion that spaces are socially constructed. From my discussions with the boys and the lack of environmental behaviour change I began to realise that perhaps the different places that they were in, either at Maretlwane or at school or home would have influences on their behaviour as each space is made up of different people, different interactions, expectations and in the 'infrastructure available.'

The distinction of the different spaces was done very purposefully. The idea is that boys are removed from their 'normal' environments so that they can be given new an opportunity to expand their interests, show them a different healthier reality. The staff believe that through the new experience

and all the challenges and tasks given to them in a local setting but addressing global principles that they can apply what they learnt in their 'normal' life back home. Unfortunately the result of this is twofold. Behaviour remained unchanged as shown in the results from the questionnaire and the focus groups. The boys who took part in the focus groups were open and honest about this. Saying that they hadn't changed or that they had attempted more environmentally responsible behaviour for a while but that it hadn't been maintained. Thus the Wilderness School does not act as a disorientating dilemma (Mezirow, 1997). I would argue that although the students undergo a learning experience, they do not critically reflect on this knowledge and the underlying assumptions, they are able to perhaps change their points of view to a certain extent but they are unable to change their frames of reference or habits of mind. This I would argue is because they have been given the knowledge and also taken action in the Magaliesberg but they haven't been able to try out this new role at home, and reintegrate the new perspectives into daily life. The results from the few parents that responded to the questionnaire showed that for two of the boys the camp had made no difference on their behaviour at home and it was rather the structures that the family had put in place that made the difference rather than what they brought home from camp.

Gruenewald (2008) and Pike (2011) both emphasise the importance of place in their studies. Gruenewald distinguishes between place-based pedagogies that he say place an emphasis on the outdoor, eco-aspects of the environment and then critical pedagogy that has a focus on the urban contexts. I propose that the Wilderness School, although teaching 'sustainability' is very much aligned with the place-based/natural perspective and that the lessons learnt are not transferred to the urban contexts of the boys. I propose that if the school would like boys to be able to transfer their lessons from the Wilderness School to the urban context that it would need to assist in this. There needs to be a bridge between the two places. Ways in which recycling happens or water saving strategies that happen in the Magaliesberg should be replicated at the school. In addition I also believe that the school attempts to add the social component of sustainability to their programme through the social-out reach day but again I would argue that this is too little. Sobel (1996) argues that the 'social' is very important to adolescents and that they may act in a pro-environmental manner if it has an impact on their friends or school community. Environmental behaviour, however important it is, is not the only objective of this experience. There are other elements to the camp, such as teaching independence, responsibility and definitely a focus on character development.

Character Development

While at the camp I had an opportunity to talk to the students about their experiences. What stood out was the importance of the character development lessons to the students, the relationships they were building with one another and the opportunity to be more independent. This is interesting as independence was one of the key themes that emerged from the pre-school research, that they were looking forward to the opportunity to try things for themselves. This carried through into the camp and also afterwards.

Research done by Hattie *et al* (1997) resulted in similar findings, that there were positive effects in locus of control and independence. They use the work of Scherl (1986) to explain this effect.

> "Self-control involves controlling the self so as to respond appropriately to environmental contingencies. A Wilderness environment is challenging and unpredictable and thus any person who is interacting with that environment, to be effective, must actively modify his or

her behaviour. The only effective way to do this, claimed Scherl was to develop and maintain self-control. Further the end result must be an active exercise of control rather than a changed perception of the environment as the challenges faced invariably involve a concrete task that needs a concrete solution" (Hattie, et al., 1997, p. 67).

Thus, I contend that the boys overcoming obstacles and challenges resulted in an improvement in their confidence in themselves and their abilities and they are then able to have an increased trust in their ability and can therefore be more independent in the future. This is in line with Friere's definition of literacy that it goes beyond an ability to read and write but rather an individual's capacity to put those skills to work in shaping the course of his or her own life (Dale and Newman, 2005). Hattie *et al* (1997) found in their study, that the greatest effects of the adventure programs is the self-concept domain were for independence, confidence, self-efficacy and self-understandings and that they were enhanced during follow up periods. Thus the Wilderness School may not directly influence the behaviour of the boys in terms of environmental responsibility but hopefully gives them the belief that they are capable of changing their behaviours, that they do have agency. This is important because one of the key findings in the study done by Blanchet-Cohen (2008) is that a belief in one's capacity is an important element in being more environmentally active. Thus the boys may not have changed in the immediate but this increase in agency will give them confidence to participate more fully in society and perhaps as environmentally literate citizens at some point in their lives.

Chapter 6 - Conclusion

This study was conducted on a group of boys from St John's College, taking part in the Maretlwane Wilderness School. The aim of the study was to determine to what extent the Wilderness School Experience results in transformative learning and perceptions about the environment as well as if there are any changes in behaviour towards the environment. The research was carried out through questionnaires and focus groups with boys, staff and parents. The following is chapter sums up the key findings.

Sobel (1996) argues that children need to develop a love for the environment in order to want to behave in a pro-environmental manner. This has been found to an extent in this study as well. The participants felt an increased appreciation for the environment after they had lived in and experienced it for 28 days. However, their behaviour changes did not last for extensive periods after the camp and parents believe that their own family initiatives result in better environmentally responsible behaviour from their sons than what they learnt on camp. This is disappointing as the staff go to great lengths to educate the boys beyond just having a knowledge about the environment but rather aim to create environmentally literate citizens (Schneider, 1997). The argument made for the lack of transference of pro-environmental behaviour is due to the 'situational factors' as proposed by Barr (2003). The isolation of the boys at the Wilderness School is done for good, sound reasons but it also means that the skills learnt there are not transferred back home. I would argue that their understandings of 'place' are too distinct and that linking the different spaces of the Wilderness School, School in Johannesburg and Home is difficult to do. Thus, I propose that the schools make an effort to bring the two spaces together for the boys. A simple example would be to replicate the recycling system from the Wilderness School to Johannesburg. This infrastructural change is only one part of what should change, the school also needs to investigate its own Environmental ethics and praxis as well as find ways of incorporating environmental ethics into the school programme and curriculum. This will allow true transformative learning which not only changes individual's behaviour but also encourages wider social and structural changes that are

required in the world today if we are to address the many environmental and social issues facing people today.

The most intriguing finding for me was the importance of the character development of the boys. They enjoyed these lessons considerably and found a lot of value in them. The role of the mentors was particularly important in this aspect of the camp and the staff can be proud of their abilities to form lastly bonds with the boys in their care. The importance of role-models was also found by Chawla (2007) and Blanchet-Cohen (2008). The parents and boys found that there was an increased self-confidence in the boys and a new sense of independence. This is important as the boys will be able to participate as citizens in their communities rather than passive observers. I would argue, again, that the lessons in character development should also be transferred between the different spaces. Boys return to school in Johannesburg and get swept up in the busyness and day-to-day tasks and activities again with little opportunity to practice the 'life skills' they had learnt while on camp. Once again, the different spaces must be linked and activities put in place that allow for the boys to continue to grow and develop the skills initiated on camp.

This study has attempted to fill a gap in understanding whether or not environmental education can result in transformative learning. The results have shown that it can but that there needs to be a focus on the use of place and a transference of ideas, skills and simply infrastructure if the aim is to create environmentally literate citizens who can participate in society. In going forward I suggest that more studies are conducted regarding the Wilderness School as valuable lessons can be learnt that will benefit all the stakeholders involved. I recommend that long term studies are done to see how long the experience has an impact on the boys and if it results in them making different choices in the future. This is of particular importance as this study is limited to one particular context, in terms of place and time. Therefore, it is difficult to generalise to other environmental education programs.

The following section aims to examine the literature that is available in order to make suggestions as how to change aspects of the Wilderness School so that environmentally responsible behaviour is transferred back to school and further, back home.

The way forward: Possible changes for future Wilderness Schools.

The following section aims to examine the literature that is available in order to make suggestions as how to change aspects of the Wilderness School so that environmentally responsible behaviour is transferred back to school and further, back home.

My research has shown, in this case study, that educating for sustainability can be a slow and difficult process, especially the challenge of the disconnect between very different spaces, but according to Frisk and Larson (2011) it should be pursued by schools and educators if we are to effect change. Schools need to take an active role in this as it is often too late in institutions of higher learning, as the older one becomes the more resistant, they are to change. An investigation into recycling has also shown that young students who recycle at school are more likely to recycle as adults (Frisk and Larson, 2011).

> *"in order to truly achieve transformative change that sustainability calls for, behavioural change motivators and constraints must not just guide the educational approaches; they must be deeply incorporated into school programs and curriculum. Schools and teachers are impacting the way in which students interact with society and the environment now and into*

the future, and this is an opportunity that must be seized and utilised in order to effectively promote sustainable behaviour change." (Frisk and Larson, 2011, p. 15)

Frisk and Larson (2011) describe four key competencies that are required for students to effectively become competent at supporting sustainable actions. The four key competencies outlined are: (1) systems thinking and an understanding of interconnectedness, (2) long-term foresighted reasoning and strategizing, (3) stakeholder engagement and group collaboration and (4) action-orientated and change agent skills.

The first key competency, systems thinking and understanding of connectedness, is done well as the participants all speak about an understanding of how important the environment is to societies functioning and survival. They also have an understanding that people have a role to play in achieving sustainability and an experience of acting in a sustainable manner (recycling etc.). Despite this thorough understanding, inclusive of all four knowledge domains (declarative, procedural, effectiveness and social) (Frisk and Larson, 2011) there is little change to their behaviour after camp. The second competency, Long-term foresightedness is also covered to a certain extent, as students talk about how we need to conserve the environment for the future. This is key to sustainability as it is defined as "meeting the needs of the present without compromising the needs of the future" (Hungerford and Volk, 1990). This, I believe is where more can be done to improve a student's desire to act on this belief. The students all speak about a new appreciation for the environment and they understand that it is very important for the ongoing success of mankind as Jason spoke about in his reflection essay. However, the data also shows that the boys don't participate in green activities once they are at home unless it is part of their families' routine. Frisk and Larson (2011) suggest activities such as creating a vision for the future and then creating a plan on how their vision can be achieved. The creation of a plan can then be linked to the third and fourth competencies: stakeholder engagement and group collaboration as well as action orientation and change agent skills (Frisk and Larson, 2011).

Stakeholder engagement and group collaboration entails that the boys work in groups in order to solve problems through a number of viewpoints; as they are already in clusters from camp this should be fairly easy to do. The tasks for the group need to go beyond orienteering and cooking together but to include planning for sustainability once back home. The school and parents should be engaged as well here so that the plans have a chance of success once they have returned home (and to school). This leads to the final competency - action-orientation and change-agent skills. "Sustainability cannot be achieved by simply relying on state intervention, legislation, or new technologies; it requires that people actively participate in decision making, problem solving and sustainable change" (Frisk and Larson, 2011, p. 11). In order for this to occur, experiential activities need to occur (Barr, 2003). An experience can be structured through the head, hands, heart approach to learning. Transformative learning provides insights into what could be done to encourage a more pro-longed effect. Sipos *et al* (2008, 74) describe transformative sustainability learning (TSL) as a type of learning that "facilitates personal experience for participants resulting in profound changes in knowledge, skills and attitudes related to enhancing ecological, social and economic justice."

The strategy used for TSL is to integrate learning processes rooted in participants' heads (cognitive domain: academic study and understanding of sustainability and global citizenship) hands (psychomotor domain; enactment of theoretical learning through practical skill development and physical labour) and heart (affective domain, enablement of values and attitudes to be translated into behaviour). The overall goal of this integration is to affect the behavioural domain, one of the goals of transformative learning (Sipos, et al., 2008). Figure 24 below shows how these processes can

be brought together to achieve change. Thus I would propose using the suggestion by Frisk and Larson (2011) to create a vision or plan for the future while on camp that can then be carried out once the boys return home or at least while they are at school in Johannesburg. This will entail that they have to actually enact their plan if we are to see results, otherwise it just stays in the knowledge domain without becoming a change in behaviour. I must, however, point out that the responsibility of effecting change back in Johannesburg does not solely rest with the Wilderness School and creating plans. Instead the school needs to recognise that it has a role to play in ensuring change. This change needs to go beyond infrastructural change to structural change – reframing what the school believes in terms of its values, in particular the concern shown for the environment.

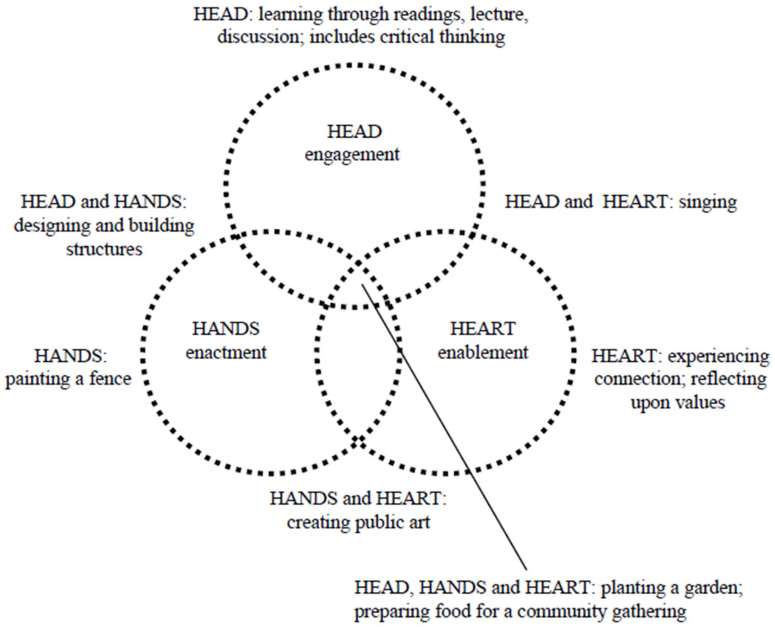


FIGURE 24: A VENN DIAGRAM DEPICTING CONSTITUENTS AND SYNERGIES OF THE TSL PEDAGOGY WHEREIN THE PRINCIPLE OF HEAD, HANDS AND HEART ENGAGES AND ENABLES PARTICIPANTS TO ENACT SUSTAINABILITY. (SIPOS ET AL, 2008).

The TSL approach in my opinion is used to a certain extent at the Wilderness School. There is definite head engagement through lessons about biodiversity and astronomy. The research findings to be a heart connection as the boys are given time to reflect on their experiences, and time is also made for them to be still in nature, to spend time alone, to pray or meditate and to take a break from their clusters (Pretorius and Junod, 2015). And their hands are involved too, through activities such as creating field guides and making their worm farms. The Venn diagram by Sipos *et al* (2008) shows how the head, hands and heart approach all needs to work together with one clear focus. Despite the presence of activities in each of the spheres, the program is unable to transform behaviour at home.

As has been shown in the analysis, the camp and program adhere to a 'sustainability' model that attempts to address environmental, economic and social elements. I, however, argue that that is a very strong "green focus" and that the social aspect is a very small component. Sobel (1996) states that the 'social' is important to adolescents and that their friends and peers are a priority to them. This is also shown in the data as the boys all talk about enjoying time with their mates and making new friends. In Sobel's (1996) work he finds that the students he studied were willing to engage in

pro-environmental behaviour if it benefited their classmates. Therefore I suggest that the social component of sustainability should be enhanced. I propose that this is linked to the 'out-reach day'. I would suggest that boys and their buddies identify an environmental problem that affects the local community around the camp, once they've done this they should create a plan of action and then carry it out. This will mean that Frisk and Larson's (2011) recommendations of participation and action competence can be practiced. Not only will the boys on camp benefit in terms of skills learnt but the local community will as well. This project could also be something that is sustained through the years as future planning is an important aspect of environmental literacy (Schneider, 1997).

Other pedagogical models are also suggested by Sipos *et al* (2008) to allow for transformative learning to take place. These are: action learning, community service-learning, critical emancipatory pedagogy, environmental education, participatory action research, pedagogy for action eco-justice and community, problem based learning and traditional ecological learning. Genc (2015) researched the effectiveness of the project-based learning approach in environmental education. Project-based learning, he states is a constructivist approach that requires a whole class or small student groups to take responsibility for their decisions. It should support student cooperation, project planning enhancement, decision-making and time management skills. It is supposed to reinforce students' abilities to link what they have learned to the real world, recollection and offer cooperative information structuring opportunities and upgrading problem-solving skills (Genc, 2015). He conducts a study on the effectiveness of project-based learning on influencing environmental behaviour for prospective teachers. The reason being is that it is argued that teachers are the most influential in educating children and teenagers to be tomorrow's leaders in environmental advocacy. The study found that project-based learning positively influences students' environmental education attitudes and contributes to more effective environmental education. One of his respondent's stated that "project-based learning is an efficient and beneficial practice that accomplishes effective permanent learning and active student engagement" (Genc, 2015, p. 111). There were difficulties such as finding the process time consuming, sometimes difficult to find the necessary information, working together in groups and not having knowledge on a wide range of topics (only their own). Despite these difficulties project-based learning has its benefits. As stated it "is a learning method that is beneficial because it enables students to find answers to their questions, increases their interest in lessons, and provides active lesson engagement… but there must be sufficient time to complete projects" (Genc, 2015, p. 113). This is useful in terms of the Wilderness School, perhaps they should incorporate more project-based learning, especially at the boys spoke about enjoying the practical elements of the program. There is some project-based learning but I would argue that more is needed and that perhaps boys should be given a choice in terms of what they would like to research thus giving them more independence which is also important. Here again there needs to be a link made with the school in Johannesburg as this change needs to be a two-sided effort.

Fox *et al* (2015) define Action Research which can be beneficial in positive transformations. It is defined as "a form of self-reflective enquiry undertaken by participants in social situations in order to improve the rationality and justice of their own practices, their understanding of these practices and the situations in which the practices are carried out. It is research that participates in solving real-world, locally relevant problems and aims at transformation through improved choices and actions" (Fox, et al., 2015, p. 67). They also highlight that it is research not done 'on' or 'for' people but rather 'with' people and addresses locally relevant issues, questions and concerns (Fox, et al., 2015). Thus, this may also be useful at the Wilderness School, to aim to get students more involved in what interests them and that they be ones to research and solve problems that they may come across in their local contexts.

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Appendix

ST JOHN'S COLLEGE

Maretlwane

November 2015

Dear Parents of 2015 Removes

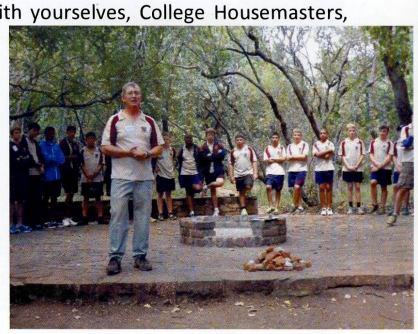
We are very excited to begin the official communication process with you concerning the three Wilderness Schools which we will be running for your sons in 2016. This we see us entering into the fourth year of the St John's Wilderness Schools at Maretlwane, with the ninth Wilderness School, facilitated by a team of dedicated and committed staff, about to begin.

What is a Wilderness School?

The model which we are following has been tried and tested, not only by ourselves but also by schools in a number of countries. It is a residential, themed-curriculum based outdoor experience with the emphasis on academic enquiry and intellectual and physical challenge. Boys will be invited into experiences of intentional character development, required to look after themselves, each other and their environment. This will include supervised cooking and cleaning. The Wilderness School concept aims to take boys out of their comfort zones and to challenge them in a number of ways, with the ultimate aim being the ongoing development of character.

Caring for your sons

This is our first priority. Clusters of eight boys are under the care of a mentor figure. The mentor meets regularly with the boys, both individually and in groups, and makes telephonic contact with parents from time-to-time (see Communication). The Wilderness School experience enhances our desire as St John's staff to 'know and love' the boys in our care, and thus there is communication from Wilderness staff in the form of a "mentors report", with yourselves, College Housemasters, tutors and teachers at the conclusion of each school.



Staffing

Mr Alex Junod is Head of the Wilderness School, and he is assisted by a Deputy Head Ms Andrea Barlow, and five other members of staff. Mr Junod has vast experience in the field of outdoor education, including heading up Pretoria Boys High School's bush school (a similar concept) for seven years. Alex was previously Head of Mathematics at Boys High.

Ms Andrea Barlow is both a trained nurse and teacher and has played a key role in facilitating the eight wilderness schools to date, which have delivered life changing experiences for many boys. Along side the group mentors one of the College Chaplains plays a key pastoral role as a residential member of the Wilderness School Staff. College music, art and drama staff also visit the Wilderness School in order to teach and interact with the boys.

Maretlwane

Dropping and collecting your sons

Boys are dropped off at Maretlwane by their parents at the start of each Wilderness School. There is an opportunity to meet the staff, to tour the facility and to participate in an opening ceremony before saying goodbye to your son. Our aim is to ensure that parents can envisage life at the school by having a good sense of where their sons are and what they will be doing.

At the end of the experience parents collect their sons from Maretlwane. Again, boys are able to share with their parents the places and people which have been significant in their lives, and parents have the opportunity to chat to teachers and mentors. There is a farewell ceremony.

Simple, sustainable living

Apart from the school being 'off the grid', the school has a strong environmental slant. Boys are taught about simple, sustainable living, and engage in activities such as cultivating their own 'worm farm' and tending a vegetable garden.

The Programme

The first few days of the Wilderness School are devoted to orientation. Boys are given talks and training in these and other areas:



kitchens

- First Aid
- Safety and Security
- The layout and geography of Maretlwane
- Management of their personal spaces, general housekeeping, cooking and hygiene
- Working in teams

The boys are actively engaged and busy whilst at the Wilderness School. Time is carefully structured in order to ensure that it is used productively. A typical day looks something like this:

06:00 Rise, tidy up, devotions, breakfast
08:30 Themed learning experiences and breaks
13:00 Lunch (prepared by the central kitchen)
14:00 Quiet time - reading, journal writing, letter writing
15:00 Activities – washing clothes and cleaning, hiking, swimming, cycling, project work, time with mentors
17:30 Supper made communally in cluster by the boys
19:00 Evening prep/study
21:00 Bed

Maretlwane

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Boys are not always busy, however. They also have 'down time' in order to be quiet and to reflect on their experiences. Weekends alternate between activity weekends (fishing, canoeing, hiking, etc) and 'chill' weekends, where boys are able to catch up, rest, or simply engage in their own activities. Times are created to allow boys to be still in nature, to spend time alone, to pray or meditate, and to take breaks from their constant companions.

The Learning Experience

The explicit learning experience at the Wilderness School is entitled "The Journey of Discovery". This is explored through four themes entitled: i) Under the African sky, ii) In the Magaliesberg, iii) The ecology at Maretlwane, and iv) How I make a difference. The topics covered in each of the themes include, amongst others, the following: Astronomy, weather patterns, bush survival, orienteering, mining & the platinum belt, the battle of Nooitgedacht, mathematical patterns in nature, biodiversity, first aid, recycling, character development, sustainable living and eco-systems.



Parents receive a full pastoral report from their son's mentor after the Wilderness School.

Communication

The philosophy behind limited communication with home is to allow boys to bond fully with their new experience. Constant communication can be unsettling and detracts from an opportunity which allows for a more effective broad-based learning to take place. Boys learn that they can exist without digital communication, in this way coming to appreciate more completely the natural environment and an alternative lifestyle.

The Wilderness School runs a Facebook page which is updated frequently with photographs and snippets of news about activities and happenings. In this way parents are be able to stay in touch with what their sons are involved in. This is in addition to letter writing (there are weekly letter drops at the College and at the Wilderness School) and the opportunity to talk to your son on the telephone halfway through the experience. Your son's mentor also calls you twice during the four weeks to update you on his progress.

Research

Parents may be interested to read an academic article entitled 'Adventure Education and Outward Bound:

- Out-of-Class Experiences that make a lasting difference' (Hattie – 1997). http://www.wilderdom.com/pdf/HattieAdvEdMA1997.pdf

Websites of two other schools which run similar curriculum-based outdoor programmes are:

- St Paul's in New Zealand, which runs Tihoi Venture School. http://www.stpauls.school.nz/Content/133/Tihoi

Maretlwane

LUX VITA CARITAS

- St Cuthbert's College also in New Zealand which runs Kahunui outdoor campus. http://www.stcuthberts.school.nz/kahunui/kahunui.aspx

The next step

The Maretlwane Wilderness Schools will run in 2016 as follows:

Easter Wilderness School:	Sunday 13 March to Sunday 10 April
Trinity Wilderness School:	Sunday 10 July to Sunday 07 August
Michaelmas Wilderness School:	Sunday 06 November to Sunday 04 December

- *Parents are asked to complete the 2016 Choice Form and to return it to school by Monday 9 November.*

There will be a meeting of boys and parents 5 weeks prior to each Wilderness School next year. At these meetings, final arrangements will be made and questions answered about kit, logistics, etc.

The launch and running of the St John's Wilderness School at Maretlwane over the last three years has been a significant and exciting development in the life of our school. We believe passionately in the value of this outdoor learning and formation experience. Furthermore, we believe that the Wilderness School venture has become a key element of what we do at St John's College, and another reason why parents see the College as the school of choice for their sons.

Fr Jaques Pretorius
St John's Wilderness School Co-ordinator

Alex Junod
Head of Wilderness School

Maretlwane

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