Investigating the micro-processes of change used by grassroots individuals and organisations to embed sustainability in South African education

by

Lauren Bauer

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Supervisor: Dr Cécile Feront

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Declaration

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Abstract

As we enter the Anthropocene, an era marked by the significant degradation of the environment and living systems, many are pointing to the role of education in preparing the next generation to adequately respond to the crises we are facing. Yet, traditional education has been found wanting. Top-down approaches to education transformation appear to have been largely ineffectual and poorly adapted to the challenge. Despite some changes, the crises have persisted. Stepping up to fill the gap, a variety of initiatives, programs, and practices have emerged under the umbrella of education for sustainability. A host of grassroots change agents – many of whom are school-going youth – are attempting to challenge the status quo using bottom-up tactics to challenge and transform the education system.

In this study, I explore how the facilitation of change culminates from the actions of grassroots citizens and organisations. I use a combination of grounded theory and narrative inquiry methodologies to investigate the micro-processes of change that grassroots actors utilise to embed sustainability in South African education, and the barriers thereto.

My findings reveal that grassroots change agents are predominantly driven by a need to shift the purpose of education towards supporting sustainability. I identify three key characteristics of grassroots change agency, namely grassroots change agency uses a predominantly bottom-up approach to change that encourages top-down action, grassroots change agents show a high level of agility, and the youth play a particularly important role in shaping the discussions and the agenda related to education for sustainability. My analysis reveals that grassroots actors undertake four micro-processes of change: building relationships, moulding champions, exploring alternative learning, and encouraging engaged citizenship. Additionally, I find that grassroots actors face four key counter-forces to carrying out their change efforts: inequality within the South African education system, access to resources, bureaucracy, and apathy and resistance to change.

I show how grassroots change agents embed sustainability in South African education by proposing a process model. I use this process model to explain how grassroots change agents utilise the four micro-processes of change to either shape education for sustainability or disrupt traditional education. I draw on two areas of scholarship, namely *institutional work* and *social movement theory* to gain insights into each stage of the process model and the mechanisms at play. While institutions such as education are not easy to change and grassroots actors' efforts to affect change remain slow and hindered by counter-forces, I find that the micro-processes of change I identified continuously reinforce one another. Integral to this reinforcing cycle, were the efforts of grassroots change agents to mould champions to continuously support the social

movement towards change. Accordingly, I propose further study to examine grassroots practices that prepare youth and educators for collective action.

Finally, I utilise the insights gained to develop practical recommendations for grassroots change agents to chart pathways towards embedding sustainability in education. As the need for a reimagined education for sustainability continues to grow, I argue for an increased recognition of the role of bottom-up change agency in disrupting and (re)creating the institution of education.

Opsomming

Soos ons die Antroposeen betree, 'n era gekenmerk deur die aansienlike agteruitgang van die omgewing en lewende sisteme, dui heelwat op die rol van onderwys in die voorbereiding van die volgende generasie, om voldoende te reageer op die krisisse wat ons in die gesig staar. Tog skiet tradisionele onderwys sisteme te kort. Bo-na onder benaderings tot onderwystransformasie blyk grootliks ondoeltreffend te wees en swak aangepas vir die uitdaging. Ten spyte van 'n paar veranderinge, het die krisis-situasies voortgeduur. Om dié gaping te vul, het 'n verskeidenheid inisiatiewe, programme en praktyke ontstaan onder die sambreel van onderwys vir volhoubaarheid. ’n Groot aantal voetsoolvlak-veranderingsagente – waarvan heelwat skoolgaande jeug insluit – poog om die status quo uit te daag deur onder-na-bo-strategieë aan te wend om die opvoedingstelsel uit te daag en te transformeer.

In hierdie studie ondersoek ek hoe die fasilitering van verandering kulmineer uit die optrede van voetsoolvlakburgers en organisasies. Ek gebruik 'n kombinasie van begronde teorieë en narratiewe ondersoekmetodologieë om die mikro-prosesse van verandering wat voetsoolvlak-agente gebruik, vir die inbedding van volhoubaarheid in Suid-Afrikaanse onderwys, te ondersoek, asook die struikelblokke daaraan verbonde.

My bevindinge toon dat voetsoolvlak-veranderingsagente hoofsaaklik gedryf word deur 'n behoefte om die oogmerk van onderwys te verskuif na die ondersteuning van volhoubaarheid. Ek identifiseer drie sleutelkenmerke van voetsoolvlak-veranderingsagentskap, naamlik voetsoolvlak-veranderingsagentskap gebruik oorwegend ‘n onder-na-bo-benadering tot verandering wat bo-na-onder-aksie aanmoedig, voetsoolvlakveranderingsagente toon 'n hoë vlak van behendigheid, en die jeug speel 'n besonder belangrike rol in die vorming van besprekings en die agenda wat verband hou met onderwys vir volhoubaarheid. My ontleding toon dat rolspelers op voetsoolvlak vier mikro-prosesse van verandering onderneem: om verhoudings te bou, kampioene te vorm, alternatiewe leervorme te ondersoek, en om betrokke burgerskap aan te moedig. Daarbenewens vind ek dat voetsoolvlak-rolspelers vier hoofhindernisse in die gesig staar om hul veranderingspogings uit te voer: ongelykheid binne die Suid-Afrikaanse onderwysstelsel, toegang tot hulpbronne, burokrasie, en apatie en weerstand jeens verandering.

Ek wys hoe voetsoolvlak-veranderingsagente volhoubaarheid in Suid-Afrikaanse onderwys insluit deur 'n prosesmodel voor te stel. Ek gebruik hierdie prosesmodel om te verduidellik hoe voetsoolvlak-veranderingsagente die vier mikroprosesse van verandering gebruik om óf onderwys vir volhoubaarheid te vorm óf tradisionele onderwys te ontwrig. Ek maak gebruik van twee areas van literatuurwetenskap, naamlik *institusionele werk* en *sosiale bewegingsteorie* om insigte te verkry in elke stadium van die prosesmodel en die betrokke meganismes. Terwyl

instellings soos onderwys nie maklik is om te verander nie en voetsoolvlak-agente se pogings om verandering te beïnvloed stadig bly en deur teenkragte belemmer word, vind ek dat die mikro-prosesse van verandering wat ek geïdentifiseer het mekaar voortdurend versterk. Integraal tot hierdie versterkende siklus was die pogings van grondvlakveranderingsagente om kampioene te vorm ten einde voortdurend die sosiale beweging na verandering te ondersteun. Gevolglik stel ek verdere studie voor om voetsoolvlakpraktyke te ondersoek wat die jeug en opvoeders voorberei vir kollektiewe optrede.

Laastens gebruik ek die insigte wat verkry is om praktiese aanbevelings vir voetsoolvlak-veranderingsagente te ontwikkel, ten einde roetes vir die inbedding van volhoubaarheid in die onderwys uiteen te sit. Namate die behoefte aan herbedagte opvoeding vir volhoubaarheid toeneem, pleit ek vir 'n groter erkenning van die rol van onder-na-bo-veranderingsagentskap om die instelling van onderwys te ontwrig en te herskep.

Dedication

For the youth of this country – your bravery inspires me daily

"Our true destiny... is a world built from the bottom-up by competent citizens living in solid communities, engaged in and by their places."

− David Orr

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List of Acronyms and Abbreviations

CAPS	Curriculum and Assessment Policy Statement
COVID-19	Corona disease of 2019
FET	Further Education and Training
Model – C school	Refers to government or public schools that also receive funding and administration from a governing body of parents and/or alumni
OBE	Outcomes-Based Education
SMS	Social movement schools
WESSA	Wildlife and Environment Society of South Africa

Chapter 1: Introduction

1.1 Introduction

I begin this study by providing the background for my research, followed by an outline of the problem statement and related research questions. I then discuss the research strategy and rationale for the study. I conclude this section with the thesis chapter outline.

1.2 Background

Against the backdrop that education has potential in fostering pro-environmental and pro-social behaviour (Buttigieg & Pace, 2013), an exploration of related literature reveals that traditional education falls short in this regard. Traditional education refers here to mainstream educational practices that tend to favour theories and abstraction (Orr, 2004) and linear models of educating exhibited in common instruction and assessment-based learning (Bernier, 2017). Although education is widely recognised as a significant role player in improving understanding of environmental and social issues (Siraj-Blatchford, Mogharreban, & Park, 2016), traditional education has failed to deliver connected systems thinking and has even enabled behaviours that negatively impact people and the environment (Orr, 2004). Bowers (2010) adds to our understanding of the traditional education system, highlighting that traditional educational processes reinforce dominant narratives and political discourse, resulting in continued denial of the lifestyle shifts required to combat the socio-ecological crisis. This prompted me to ask the question, *"Does our education system adequately serve society and planet?"*

Attempts to better serve society and planet through the education system have led to an increased uptake in education *for* sustainability, helping individuals and communities integrate socio-ecological dynamics into their understanding of the world. As such, the 1970's saw a substantial rise in ecology courses offered at various levels (Le Grange, 2002). Interestingly, despite the increase in environmental education initiatives, environmental degradation continued (Le Grange, 2002). Some research has attributed this outcome to the traditional organisation of schools, educational theories, and policies, which continue to counter the enablement of education for sustainability (Le Grange, 2002). Overall, education for sustainability has not yet affectively disrupted the foundations of the greater mainstream educational systems it exists within (Sterling, Dawson, & Warwick, 2018).

The youth have a particular stake in the discussions and the agenda related to education for sustainability. Siraj-Blatchford and colleagues (2016) point out that young children should be recognised both as the citizen group with the highest stake in sustainability and also as potential change agents in their families and communities. O'Brien, Selboe and Hayward (2018) concur, adding that youth are acutely subject to climate change associated risks and future uncertainty. Despite the apparent involvement of youth in addressing the climate crisis through both small-scale activities and engagement with wider sustainability campaigns, investigations of these expressions and their impacts is found lacking (O'Brien *et al.,* 2018). Simultaneously, we are continuing to educate young children

without urgency towards the state of the planet (Orr, 2004). This disconnect between what occurs in traditional schooling and the demands that are being driven by youth activist individuals and collectives serves as an important juncture for my study (Pigott, 2021). This entails especially investigating the youth's function as bottom-up change agents in addition to the individuals and organisations who support them.

In this context, there has been an increase in what can be described as bottom-up change processes: change processes led by grassroot actors aimed at transforming the education system. Grassroots actors encompass activists, educators, non-profit organisations, and with especial reverence, the youth. These grassroots actors have worked to challenge the status quo of traditional education and bring forward alternatives (Walters, 2017). Countries across the world have witnessed an escalation of various social movements and activism driven by youth in response to climate change and various social justice issues (Pigott, 2021). This escalation has resulted in a significant increase in awareness of the urgency of the global challenges we are facing. Within the South African context, and following global trends, a growing number of grassroots actors are initiating change rather than just being implementers of top-down change, which is seen to have been largely inadequate (Clacherty, 1994).

My research aims to investigate how grassroots individuals and organisations effect change in the South African education system. The South African context thus provides an opportunity to understand how change in education actually occurs and how bottom-up processes led by grassroots actors may expand into larger-scale transformation in the education system.

To explore how change occurs from the bottom-up, I draw on institutional work, framing and social movement literature. Institutional work literature helps me to gain insights into the daily efforts of individuals or groups aimed at influencing institutions, irrespective of whether these efforts are successful or not (Lawrence, Suddaby & Leca, 2011), whereas framing and social movement literature help me to better understand how micro-dynamics of social organisation underpin social mobilisation and may lead to institutional change (Purdy, Ansari & Gray, 2017; McCauley, 2011).

My findings uncover three key characteristics of grassroots change agency, namely that the bottom-up approach of grassroot actors sought to encourage top-down action, that grassroots change agents showed a high level of agility, and that the youth played a particularly important role in shaping the discussions and the agenda related to education for sustainability. I further show that grassroots actors undertake four micro-processes of change: *building relationships, moulding champions, exploring alternative learning,* and *encouraging engaged citizenship.* Finally, I identify four counter-forces that hinder grassroots actors from carrying out their change efforts: *inequality within the South African education system, access to resources, bureaucracy,* and *apathy and resistance to change.*

I contribute to the literature by proposing a process model showing how grassroots change agents embed sustainability in South African education. Building on institutional work and social movement theory,

this process model helps to explain how grassroots change agents utilise the four micro-processes of change to either shape education for sustainability or disrupt traditional education. While institutions such as education are not easy to change and grassroots actors' efforts to affect change remain slow and hindered by counter-forces, I find that the micro-processes of change I identified continuously reinforce one another. Integral to this reinforcing cycle, were the efforts of grassroots change agents to mould champions to continuously support the social movement towards change. Accordingly, I propose further study to examine grassroots practices that prepare youth and educators for collective action.

1.3 Problem statement

The problem statement for my study is as follows:

It has become evident that our current traditional educational system perpetuates the ecological crisis we are facing instead of preparing students for future challenges and a rapidly changing environmental and social landscape. Building on this, top-down approaches to change in South African education appear to have done little to overhaul the education system into one that enables and embeds sustainability. In response, grassroots actors have begun to action change in the education system through bottom-up processes. The urgency for transforming the traditional education to one in which education for sustainability is prioritised has resulted in a plurality of these grassroots actors attempting to take an activist stance, challenge the status quo, and offer alternatives, both in their individual and collectively organised capacities. This spotlights the need to better understand how facilitation of change culminates from bottom-up actions and what the specific micro-processes of change are.

1.4 Research questions

The primary research question of my study is:

- *How do grassroots change agents embed sustainability in South African education?*

I attempt to answer this question through first answering four supportive questions relating to embedding sustainability in South African education:

- *What drives grassroots change agents' engagement?*
- *What are the main characteristics of grassroots change agency?*
- *What are the micro-processes of change that grassroots actors utilise?*
- *What are the counter-forces that hinder the micro-processes of change?*

1.5 Research strategy

I followed a qualitative research approach, anchored in a constructivist paradigm and using two inductive methodologies: grounded theory and narrative inquiry. Rather than seeking to prove a hypothesis by collecting numerical confirmations, my research questions were aimed at in-depth exploration of a specific context to better understand social phenomena (Graebner, Martin & Roundy,

2012). A qualitative approach allowed me to more closely capture the subjective experiences and individual expressions of the informants (Graebner *et al.,* 2012) and to study the meaning of people's lives in everyday contexts (Yin, 2011). Following this research approach enabled me to collect rich qualitative data (Graebner *et al.*, 2012). This aligned with my intentions of gaining an in-depth understanding of a limited sample of participant's unique perspectives on the micro-dynamics behind how they carry out change in South African education.

In line with my intentions to understand the subjective reflections of my participants regarding their experiences and how they perceived their own involvement in change processes, I adopted a constructivist paradigm. I followed Charmaz's (2005) constructionist approach to grounded theory, complemented by a narrative inquiry to better capture the complex motivations influencing my participants' actions.

The unit of analysis for my primary research question is the micro-processes of change themselves. I investigated these processes using a mix of data collection methods. I collected data via a combination of interviews, observations, and photography submissions. I used a literature review to shape the contextual background and theoretical framework for my study. In keeping with grounded theory methodology, my data collection and initial analysis were conducted in tandem with consultation of relevant literature to identify potential variations or complementarities with existing concepts (Gioia, Corley & Hamilton, 2012).

1.6 Rationale for the study

In carrying out this research, I hope to contribute to the increased recognition of the role of bottom-up change agency in disrupting and recreating the educational institution. Additionally, the findings may be useful to inform other empirical research avenues and as a basis for recommendations for further study.

This study may be useful for grassroots change agents who are interested in embedding sustainability in education. The findings can be used to chart pathways towards embedding sustainability in education from the bottom-up. Importantly, my findings support the continued collaboration between grassroots actors to work towards institutional change, irrespective of whether they are able to achieve large-scale outcomes. I anticipate that the insights gleaned from my findings can be used practically to identify potential barriers to change efforts. In the same vein, the insights may be used practically to identify apparent strengths to leverage and reinforce.

1.7 Chapter outline

In this first chapter, I provided the background for my research and the related problem statement. This sets the scene for my research questions and rationale for the study. I also introduced my research

strategy, which I unpack in more detail in Chapter 3. In this section, I go on to provide an outline of the remaining chapters that follow.

In Chapter 2, I review literature to provide further contextual background for my research questions and outline the dominant viewpoints within my research field. I structure my literature review in two sections. First, I provide an overview of the current traditional education system's shortcomings and the need to reorient education to one that embraces and enables sustainability. This is followed by critique of educational reform in this regard. I proceed to provide a historical overview of education for sustainability and curriculum change in South Africa. Second, I combine change agency, institutional work, and social movement theory to construct a theoretical framework that helps in understanding how incremental and micro-level actions may culminate as institutional change.

In Chapter 3, I elaborate on my research strategy to explain the choices that have guided how I approached and carried out my research. I describe my research approach by outlining the paradigm and research methodology that informed my study. I proceed to provide detail on the data collection methods and data analyses techniques I used in this study. I close by discussing the validity, ethical considerations, and methodological limitations of my research.

In Chapter 4, I present my findings for each of my four supportive research questions. I use direct quotes extracted from my interview material to support these findings. I begin by presenting my participants' views on the need for, and the evolution and efficacy of education for sustainability in South African schools. I then provide insight into the characteristics of grassroots change agency. Following this, I identify four micro-processes of change in table format and provide detail for each of these. Lastly, I identify four counter-forces that grassroots actors face in carrying out their actions of change and I unpack each of these in detail.

In Chapter 5, I discuss my findings to answer how grassroots change agents embed sustainability in South African education by using a process model. I show how grassroots change agents utilise the four micro-processes of change to either shape education for sustainability or disrupt traditional education. I draw on two areas of scholarship, namely *institutional work* and *social movement theory* to gain insights into each stage of the process model and the mechanisms at play. I proceed to provide a discussion on the limitations of the study, followed by recommendations for further study. I then utilise the insights from my findings to develop practical recommendations for grassroots change agents to chart pathways towards embedding sustainability in education. Finally, I share my closing reflections on the research journey.

Chapter 2: Literature Review

2.1 Introduction

In this chapter, I provide a contextual background for my research questions and discuss existing literature in order to determine dominant viewpoints within my research field. My literature review is structured around two main sections. In the first section, I provide an overview of the current education system's shortcomings with regard to sustainability and the resultant ecological illiteracy. This is to first highlight the need for change and shift towards environmental education. In doing so, I critique the traditionally top-down approach to change that has been widely executed, and introduce what have been described as alternatives to this approach. In the second section, I combine change agency literature with especial focus on bottom-up change agents, institutional work literature, and social movement theory to construct a theoretical framework. I do this to explore institutional change in the educational institution and unpack the micro-processes of change initiated by a plurality of grassroots actors in South Africa.

2.2 Towards an education for sustainability

To create clarity from the outset in an albeit relatively contentious sphere of terminology, I start by defining key concepts that tend to have overlapping meaning, namely *education for sustainability, environmental education,* and *ecological literacy.* I then discuss the shortcomings of the current education system and the pathways for change. Next, I provide an overview of the history of education for sustainability in South Africa. Finally, I explore how curriculum change has historically taken place in South Africa.

2.2.1 Definitions

While the concepts of *education for sustainability, environmental education,* and *ecological literacy* are interconnected and often used interchangeably, they convey slightly different ideas.

Environmental education. The field of environmental education is complex and the concept itself is open to various interpretations (Reddy, 2020). Reddy (2020) describes environmental education as a responsive process to the need to address global issues. Morag and Tal (2013) further define environmental education as education (both in and out of schools) that focuses on understanding human relationships with the environment and consequently, also the actionable skills required to manage environmental challenges. A more detailed definition is located in the working definition brought about at the Tbilisi Conference (Tbilisi, 1977):

> *"Environmental education is a process aimed at developing a world population that is aware and concerned about the total environment and its associated problems, and which has the knowledge, attitudes, motivations, commitments, and skills to work individually and collectively toward solutions of current problems and the prevention of new ones"*

In my study, I use this concept to detail the history of education for sustainability in South Africa. This is due to the widespread adoption of the concept amongst educators and the like in South Africa.

Education for sustainability. Much the same as with environmental education, which is difficult to define simply (Ramsaroop, 2020), it is challenging to define the concept of education for sustainability. Just as the concept of sustainable development itself remains vague and undefined (Mebratu, 1998), education for sustainability is viewed as an evolving concept subject to ongoing debate (Reddy, 2020). This is owing to the issue that there is no singular view of what sustainability or sustainable development means (Wals, 2007). Robottom (2007) argues that the concept of education for sustainable development, or ESD, (that rebadged environmental education following the United Nations devised *'Decade of Education for Sustainable Development'*) does not conceptually bring anything new. Although this may be the case, the term has remained relatively stable over time. Moreover, it is aligned with The Brundtland report, *'Our Common Future'*, which is seen as the catalyst for sustainable development discourse (Mebratu, 1998). Achievement of sustainable development as it is defined in this report, requires that future generations' resource status is left in the same or better position (Hattingh, 2001).

Importantly, one of the primary objectives of education for sustainability is to help individuals and communities to understand the complexity of environments and the interactions therein so that they may responsibily participate in managing the quality of the environment (Wals, 2007). Additionally, the concept of sustainable development is commonly made up of three connected sectors – environment, society and economy (Hopwood, Mellor & O'Brien, 2005). In accordance, education for sustainability seeks to develop considerations of the interdependent balance between environment, economy, and society (Togo, 2009). For the purpose of my study, I chose to primarily make use of the concept of education for sustainability.

Ecological literacy. Building on these considerations, ecological literacy is another concept that encompasses interdependence. Orr (2004:90) describes ecological literacy as *"an understanding of both the biology of conservation and the political basis of conserving societies."* In addition, ecological literacy encompasses having an understanding of how society and nature systems are interrelated (Cutter-Mackenzie & Smith, 2003). In this study, I refer to ecological literacy when discussing the interdependence between individuals and their broader environment as ecological literacy.

2.2.2 The current education system: shortcomings and the need for change

Below, I first detail the problem with continuing to embrace *traditional education* in order to provide context for the need to *reorient the aims of education.* I move on to explore a few of the *shortcomings of education reforms* to build out the rationale for shifting education *towards ecological literacy.* I provide further context to the concept of education for sustainability by presenting aspects of *resistance*

to education for sustainability reforms and the resultant *need for meaningful education for sustainability.*

Traditional education. In this content, it is valuable to question the origins and purpose of the traditional education that still permeates our current educational systems. The primary argument against the traditional style of education is that it was not designed to suit our current world and therefore cannot respond to current challenges (Robinson & Aronica, 2015). Firstly, traditional education is structured around finding a career, instead of a calling (Orr, 2004). Mass public education systems were founded in response to the labour requirements of the Industrial Revolution (Robinson & Aronica, 2015). Second to this, the schooling of the past 20 years originates from a narrowing of the curriculum that focuses only on test preparation (James & Williams, 2016). Quay and Seaman (2013) draw on Dewey's recollection of pre-industrial education to conclude that learning was previously conducted through informal participation in everyday community routine rather than a curriculum based system. Orr (2004) believes that we have since lost our knowledge of places and what we need to learn to live sustainable lifestyles in these places. Instead, traditional education has empowered behaviours that add to the destruction of the environment. Although students are regarded as *educated*, they are *ecologically illiterate* (Orr, 2004). This reality challenges the belief that all knowledge (regardless of consequence) is valuable (Orr, 2004).

Reorienting the aims of education. The current global social and environmental crises have triggered the need for an educational response. Orr (2004) frames these crises as an educational challenge, lamenting that the skills we once needed to industrialise the Earth are different to the skills we now require. Orr's (2004:39) statement that *"no generation has ever faced a more daunting agenda"* puts into perspective that addressing the crises will be the task of those currently moving through our education system today. As these global issues can no longer be ignored, education needs to adapt (Hill, 2012). Educational reform is integral to developing a new global approach that responds to the complexity of the changing relationships between soceity and nature (Wals, 2007). It is made plain that our current education system requires transformation. Robinson and Aronica (2015:22) remind us, *"the aims of education are to enable students to understand the world around them and the talents within them so that they can become fulfilled individuals and active, compassionate citizens."* Radical reform in the education system is crucial in returning to these aims, but the specifics of reform remain undecided (Orr, 2004).

Shortcomings of education reforms. The problem of education not only lies in the traditional modes of schooling, it also lies in reformist approaches that fail to educate for personal wholeness and living within planetary limits (Orr, 2004). Past reforms have been focused on adapting to a changing economic environment and have placed little focus on sustainable citizenship (Orr, 2004). While there have been a number of education programs that are counter to traditional education, these alternatives do not reach

the majority of students in public schooling, or continue to embrace traditional learning models such as student assessment (Bernier, 2017; Sterling *et al.*, 2018).

Towards ecological literacy. In contrast to the traditional education and education reforms outlined above, there is a call for an educational shift towards viewing our individual actions as influential in affecting the whole system (Bowers, 2010). Education should prepare students to gain a better understanding of the interrelationship between humans and nature (McFarlane & Ogazon, 2011). In order for sustainability to be interweaved into culture and become a process in which people naturally engage in, education should support a shift in mind-set of how we value the environment and our related interdependency (McFarlane & Ogazon, 2011). Human communities must learn to interact with the physical environment to form part of wider ecological systems (Utina, 2017). Further, any malfunction in the ecological system has a consequential impact on subsystems (Utina, 2017). Orr (2004) believes that we are facing an ecological crisis because we do not understand ourselves as belonging to this biotic community. An *ecological intelligence* is required for human behaviour to transition towards valuing the conservation and restoration of ecological systems (Utina, 2017).

Building on this, both formal and non-formal education should be recognised for their potential to promote ecological literacy. In particular, the non-formal education framework is a significant medium for citizen engagement in sustainability (Goldman, Pe'er & Yavetz, 2017). Goldman and colleagues (2017:489) describe non-formal education as a *"a variety of educational institutions such as 'nests', 'branches', 'clubhouses' or 'community centers'."*

Resistance to education for sustainability reforms. However, there appears to be a strong resistance to an educational reform that promotes an ecological intelligence (Bowers, 2010). This resistance comes from a generation of educators and general public that were educated under a different paradigm, rooted in assumptions that came with a predominantly anthropocentric way of thinking (Bowers, 2010). Having studied in fragmented disciplines, some educators lack a sense of the integration of things (Orr, 2004). The persistent belief that the world is made up of divisions and that all things are separate from ecology perpetuates the lack in understanding students have of whole, connected systems thinking (Orr, 2004). While some sustainability curriculums do introduce systems thinking, often this is carried out through linear learning systems (Bernier, 2017).

The need to embrace meaningful education for sustainability. Education for sustainability is required for us to recognise the individual and collective impact we may have on conserving resources for future generations (McFarlane & Ogazon, 2011). Problematically, there are few incentives for faculties to integrate sustainability education into their curricular and most students receive very little exposure to sustainability within their coursework (McFarlane & Ogazon, 2011). It seems that the environmental education that does take place is not central and integrative in the school curriculum; rather, it is taught as a separate field and viewed in isolation from other teaching fields (Morag & Tal, 2013). Furthermore,

the field of climate education is currently uncoordinated and heavily rooted in science education (Henderson, Long, Berger, Russell, & Drewes, 2017). Finally, much of the current environmental education is implemented through knowledge transfer methods that are restricted to classrooms and concerned with examinable knowledge acquisition (Nsubuga, 2020). In this regard, Nsubuga (2020) calls for meaningful environmental learning. In this same vein, we need to embrace meaningful education for sustainability that demonstrates the interdependence between economic, political, and ecological aspects of the modern world (Wals, 2007) and encourages competencies such as civic responsibility and problem solving (Nsubuga, 2020).

2.2.3 Education for sustainability in South Africa: a historical overview

Much of South Africa's history of education for sustainability sits within the field of environmental education. The field of environmental education has a long history, having existed for almost four decades (Reddy, 2020). Various global conferences and summits shaped the aims and guiding principles for environmental education, of which one of the most recent was the world summit on environmental education in Johannesburg, South Africa, in 2002 (Reddy, 2020). Although environmental sustainability features strongly in the National Curriculum Statements and education policies bring focus to encouraging active participation in democratic South Africa, implementation of such has fallen short and schooling is deemed inefficient (Rosenberg, 2008). Accordingly, both government department environmental educators and non-governmental organisations encourage teachers to action environmental education (Rosenberg, 2008). Importantly, environmental education is recognised as being part of the formal education system in South Africa (Reddy, 2020) and various projects have been launched to support implementation (Reddy, 2017). While the importance of including environmental education in formal curricula is indisputable, application remains problematic (Reddy, 2020).

Despite early approaches to environmental education that previously adopted a narrow conception of the environment, it is now widely accepted amongst environmental educators that the concept of environment includes social, economic, and political interactions along with the biophysical, and the approaches have simultaneously been adjusted (Reddy, 2020). Initially, education methods were focussed on nature experiences, conservation awareness, and related fieldwork; environmental education has since broadened to focus on issues that people experience in their local environments (Reddy, 2020).

In South Africa, the introduction of ecology to the biology syllabus in the 1970's continued to follow through as the dominant approach to environmental education in many schools (Le Grange, 2002). In the current CAPS curriculum in South Africa, there is an explicit focus on environment evident in the general aims (Schudel & Lotz-Sisitka, 2020). The environment has significance within the curriculum in the form of content knowledge around environmental concepts (Schudel & Lotz-Sisitka, 2020). Although it is evident that the CAPS curriculum covers environmental education, the implementation

of this type of education is not without its challenges. For one, there is a challenge to ensure that learning depth is not sacrificed because of the intensive breadth that educators are required to cover (Schudel & Lotz-Sisitka, 2020). With the focus on examinable knowledge acquisition, there is less attention placed on meaningful environmental learning (Nsubuga, 2020). Further, simply transferring knowledge has been cited as a failure in developing learners with critical thinking and problem solving skills (Nsubuga, 2020). As an example, although climate change awareness is a commendable education goal, it is not enough in itself; rather, we need to understand why climate change is occurring and what the possible solutions are (Henderson *et al.,* 2017). Henderson and colleagues (2017) argue that an emotional dimension is key in climate change education in order to engage with invoked anxiety, feelings of guilt, and resistance. In sum, this raises the demands for an environmental education that offers a deeper level of engagement.

2.2.4 Curriculum change in South Africa

In South Africa, the structure of the education system coupled with the interdisciplinary characteristics of environmental education pose a challenge to transforming current educational contexts and teaching about climate change and sustainability (Henderson *et al.*, 2017). In particular, top-down approaches to curriculum change in the South African schooling system have been critiqued for inadequately preparing and resourcing educators (Treu, Olivier, Bean, & Van der Walt, 2009), which makes it challenging to institutionalise environmental education within South Africa's existing education structure. Furthermore, curriculum development in South Africa has traditionally happened in isolation to end-users (Clacherty, 1994). Clacherty (1994) advocated for educational reconstruction in South Africa that embodies more fundamental change at ground level, rather than curriculum change that occurs as a largely top-down process. Although this author's argument may be considered dated, it appears that there has not been much improvement in the process of curriculum change that has occurred more recently.

Le Grange and Reddy (1997) raised the concern that institutionalised forms of environmental education brought into the curriculum may result in a diluted environmental education leveraged by the political system rather than one that is truly transformative. Further along the timeline of South Africa's educational history to Clacherty's argument, came the emergence of outcomes based education curriculum (OBE) in 1997 (Le Grange, 2002). Le Grange and Reddy (1997) argued that merging environmental education and OBE was challenging because of the centrist policy and curriculum development processes that occur in South Africa. Second to this, the epistemology associated with OBE is mechanistic and reductionist, which is counter to that of environmental education (Le Grange & Reddy, 1997). While OBE was predominantly instrumentalist in its approach to learning, environmental education is concerned with process instead of predetermined outcomes – this results in an inherent tension between the two (Le Grange & Reddy, 1997).

Following OBE came the curriculum transformation to Further Education and Training (FET) in 2006, which was again perceived by educators as a top-down process, with no buy-in of key actors, making effective implementation very challenging (Treu *et al.*, 2009). Treu and colleagues (2009) found that educators felt that the FET curriculum change occurred too rapidly without adequately preparing or supporting them for its complex design and importantly, that it had been imposed on them from above. Although research shows that multiple stakeholders were consulted in formulating the new curriculum, these operations were admittedly lacking in genuine participation (Treu *et al.*, 2009). It was also found that content building for the curriculum was assigned to the educators themselves – in effect requiring educators to be policy interpreters, some of whom had previously been systematically prevented from gaining the skills and resources needed to engage with this task (Treu *et al.*, 2009). At the time of implementing the FET curriculum, the earlier introduced curriculums, General Education and Training, and OBE were already under critique for similar reasons (Treu *et al.*, 2009).

Additionally, while key stakeholders originally intended to introduce FET in 2002, it was only implemented in 2006 (Treu *et al.*, 2009). The length of time for top-down imposed curriculum change to be implemented and the inadequate preparation for educators described above will not effectively respond to the urgency of the ecological crises we are facing. Building on the understanding that a top-down approach to curriculum change might not adequately and timeously be able to overhaul the education system into one that supports sustainability, I aim to better understand how a bottom-up approach made up of micro-processes of change may work to transform education in South Africa.

2.3 A theoretical framework to investigate micro-processes of change

In this section, I construct a theoretical framework that can assist me in investigating micro-processes of change. First, I start by defining agency and exploring change agency that occurs from the bottom-up. I specifically investigate the youth as an important change agent group for the focus of this study. Second, with the view that education is first and foremost, an *institution*, I use institutional work literature (Lawrence & Suddaby, 2006; Lawrence, Suddaby & Leca, 2009) as a lens to understand the incremental actions through which grassroots change agents engage in change. Third, I use social movement theory to unpack *how* and *why* micro-level social mobilisation occurs (McCauley, 2011).

2.3.1 Change agency

The definition of agency has been the subject of many debates (Heugens & Lander, 2009). For the purposes of this study, agency is defined as a person' ability to pursue a goal that is in accordance with their values (Bazile, Ceruti & Pelenc, 2015). A person's agency is directed towards affecting change or to actively participate in shaping one's destiny (Bazile *et al.*, 2015). Further, a person's agency is not only motivated by self-interest – it involves or can result from commitment to the wider community (Bazile *et al.*, 2015). Bazile and colleagues (2015) argue that care for both *self* and *others* is the primary reason why people use their agency to promote sustainable behaviours. However, whereas collective

action is often hindered by economic and governmental structures, individual level agency tends to be constrained when people feel overwhelmed and helpless in tackling global issues (McFarlane & Ogazon, 2011). In this regard, community empowerment and supportive institutional environments are important factors in enabling people to effectively exercise their agency (Bazile *et al.*, 2015).

Bottom-up change agents. Revolutions rarely emerge from legislation; rather they result from the actions of people at ground level (Robinson & Aronica, 2015). Understanding the work of bottom-up change agents is therefore necessary to gain insights into how transformative change takes place. With specific focus on education, Parnell (2016) argues that curriculum development in educational institutions actually begins at grassroots level through campus-wide initiatives. Although top-down initiatives play a significant role in determining our climate future, bottom-up tactics have particular relevance; specifically when considering their capability to shape behavioural change (Gunningham, 2017). Gunningham (2017) adds that new international arrangements take hold when combined with a sufficient groundswell of support. In sum, the bottom-up level actions of change agents may serve as the foundation for top-down change (Gunningham, 2017). Accordingly, my study focuses on the work of change agents that action change at grassroots level. The grassroots change agents I investigate comprise the youth and supporting educators and non-profit organisations who are actively involved in challenging traditional education. For the purposes of my study, I define *micro-processes of change* as the small-scale undertakings that these grassroots change agents utilise to evolve, shift, or replace traditional education structures and practices.

Young people as a force of change. Young people, especially, are increasingly recognised as a force of change (O'Brien *et al.,* 2018) who participate in sustainability groups. While those responsible for emitting greenhouse gases may be spared the full consequences of this, the youth of today are increasingly aware that they will inherit a hazardous planet and experience the full force of the impacts of these emissions (Chersich, Scorgie, Wright, Mullick, Mathee, Hess, Richter & Rees, 2019). Within this context, O'Brien and colleagues (2018) view the youth as citizens with agency that are able to engage in activism in various ways. Student enthusiasm has the capability to drive sustainability progress as well as solicit engagement from a wider audience (Parnell, 2016). Further to this, Goldman and colleagues (2017) argue that youth movements have the capability to develop environmental literacy amongst the youth. Youth movements are not required to adapt to the constraints of the formal education system, giving them an advantage to more critically observe sustainability issues characterised by economic, social, political, and ecological dimensions and how these influence environmental exploitation (Goldman *et al.*, 2017). Selections of youth are already actively addressing the climate crisis through community-based activities, informal awareness-raising efforts, making sustainable lifestyle choices, and petitioning, while others are participating in more formal voluntary organisations (O'Brien *et al.,* 2018).

Although this is the case, little consideration has been devoted to analysing these expressions amongst the youth and the wider impacts thereof (O'Brien *et al.,* 2018). Current research has a tendency to investigate millennials' lack of both environmental knowledge and participation, instead of focussing on the agency they exhibit at local levels (Campbell, Skovdal & Campbell, 2013). Although the voices of adolescents have rarely been included in discourse, they have recently begun to assert themselves in the climate crisis dialogue – various organised social movements and regular protests in this regard have gained considerable momentum (Chersich *et al.,* 2019). Through directly engaging in disruptions of the norm, the youth may gather insights into social and system change that the educational system is currently inadequate at providing (O'Brien *et al.,* 2018).

Nyoni (2009:86) asked the question, *"how do young people factor as participants in addressing contemporary and future global challenges?",* adding that today's youth are already probing this subject by voluntarily self-organising in order to mobilise action. In a similar tone, O'Brien and colleagues (2018:42) asked, *"How can young people contribute to change within a political climate that is marked by powerful interests, strong rhetoric, and weak action on climate change?"* These questions highlight the importance of gaining greater insights into this generation group's change agency and their role in challenging the dominant lifestyle norms that perpetuate the status quo (O'Brien *et al.,* 2018).

With relevance to the context of my research, the perspectives of African youth are mostly absent from research and policy, yet this group is increasingly affected by the climate crisis (Campbell *et al.*, 2013). Campbell and colleagues (2013) believe that African youth have the potential to become more influential in environmental movements and that their voices may be better acknowledged than they currently are. In South Africa alone, there are approximately 10 million adolescents (10-19 years of age), making up 20% of the population (Chersich *et al.,* 2019). While not all adolescents have equal opportunity to take up the challenges of the climate crisis, a growing number of young individuals across the country have been witnessed organising themselves to create social and environmental change (Chersich *et al.,* 2019). The main pondering is how this organising works to translate into wider change within their educational settings.

In summary, the above discussion opens the door for a more detailed exploration of micro-processes of change that appear to be driven by bottom-up change agents, versus traditionally top-down curriculum change endeavours. This includes reviewing the youth's role in bottom-up change facilitation as well as those individuals and organisations that seek to support their efforts and provide the meaningful skills needed to develop this level of engagement.

2.3.2 Institutions and institutional change

The dynamic nature of institutions. Most definitions of institutions refer to them as fairly long-lasting rules, norms, or procedures that shape behaviour (Mahoney & Thelen, 2010). Institutions contribute to

a sense of stability and predictability in human interactions through setting out the rules that guide behaviour (Beunen & Patterson, 2019). However, while institutions are not easy to change (Mahoney & Thelen, 2010), they are not static, and tend to change over time (Mahoney & Thelen, 2010). Hwang and Colyvas (2011:63) add, *"Institutions, no doubt, emerge, evolve, persist, change, and decline."* Although often examined as fixed structures, it is increasingly acknowledged that institutional stability and change is dependant on sustained efforts (Beunen & Patterson, 2019). Even those who have an interest in the stability of an institution must actively work to uphold its continuity (Mahoney & Thelen, 2010).

The role of individual and collective agency in institutional change. Traditionally, institutional theory has had a tendency to underestimate the significance of agency (Beckert, 1999). While early neo-institutional studies implied that individuals and organisations always comply with institutional pressures, more recent literature has highlighted the role of these individuals and organisations in institutional change (Battilana, 2006; Lawrence & Suddaby, 2006). Institutional theory has thus progressed to give agency a more prominent role in institutional change (Battilana, 2006). Additionally, while institutional literature has tended to attribute institutional change to exogenous shocks that cause major institutional transformation (Mahoney & Thelen, 2010), more recent work has brought focus to incremental or gradual institutional change (Lawrence & Suddaby, 2006; Mahoney & Thelen, 2010). In this regard, my study focuses on institutional change that is incremental in nature.

2.3.3 Institutional work to understand incremental change

Institutional work literature (Lawrence & Suddaby, 2006; Lawrence *et al.*, 2009) is particularly relevant to understand the incremental actions through which grassroots change agents engage in change. Lawrence and colleagues (2011) point out that prior research on institutionalization and institutional change have tended to focus on developing understandings of macro-level change, while the lived experiences of organisational actors have been largely omitted. In alignment with neo-institutional literature shifts to recognise agency as significant in institutional change (Battilana, 2006; Lawrence & Suddaby, 2006), Lawrence and colleagues (2009) developed an alternative path for developing institutional studies, namely *institutional work*. The 'turn to work' resulted from a greater focus on agency and the recognition that actors can influence institutions (Hwang & Colyvas, 2011). Broadly, institutional work reorients traditional theory by shifting the attention to the practical actions that affect institutions (Lawrence *et al.*, 2009). While some of these actions may be considered dramatic, others may be mundane (Lawrence *et al.*, 2009), which in turn, aligns with the shift towards studying incremental institutional change (Mahoney & Thelen, 2010).

Institutional work refers to the intentional efforts that actors carry out to *create, maintain,* or *disrupt* institutional structures (Lawrence *et al.*, 2009). *Creation work* refers to the formation of new institutions

through vesting, defining, advocacy, constructing identities, changing norms, constructing networks, mimicry, theorizing, and educating actions (Lawrence & Suddaby, 2006). *Maintenance work* can be described as work that supports, repairs, or recreates social mechanisms through enabling, policing, preserving, and infusing activities (Lawrence & Suddaby, 2006). *Disruption work* encapsulates efforts to attack or undermine the controlling mechanisms that require members to comply with institutions (Lawrence & Suddaby, 2006).

The concepts of *'intentionality'* and *'effort'* underpin the concept of *'work'* in institutional work (Lawrence *et al.*, 2011). The intentionality of institutional work refers to actors consciously and purposely reshaping conditions or managing the constraints of immediate situations (Lawrence *et al.*, 2011). Effort refers to the physical and mental exertion aimed at affecting change (Lawrence *et al.,* 2011).

Focused on daily instances of agency, irrespective of outcome (Lawrence *et al.,* 2011), institutional work literature is particularly relevant to understand the day-to-day efforts of grassroots actors. Moving beyond the idea that agency results from the heroic action of dominant actors, institutional work helps to gain insights into the efforts of individuals and collectives to transform institutions whether they are successful or not (Lawrence *et al.*, 2009). This aligns with the focus of my analysis on how grassroots actors went about actioning daily institutional change. Although I recognise that there are a plurality of drivers of institutional change that are not incorporated in the field of institutional work (Beunen & Patterson, 2019), institutional work offers a valuable theoretical lens through which to unpack my findings. I found that this is mostly owing to my focus on the purposive activities of individual grassroots actors who are responding to the educational institution locally, creatively, and incrementally on a micro-scale (Lawrence *et al*., 2011). Empirical studies grounded in institutional work primarily demonstrate *how* actors create, change, or disrupt institutions (Hwang & Colyvas, 2011). This focus on the *'how'* is pertinent to answering my overarching research question of *how* grassroots change agents embed sustainability in South African education.

An additional important aspect of institutional work that is relevant to my study is the weight that the scholarship gives to individual change makers as part of collective change. Lawrence and colleagues (2011) argue that although individuals have a significant role in affecting change themselves, multiple actors carry out institutional work (Beunen & Patterson, 2019). Within the concept of institutional work, agency is viewed as a distributed occurrence – it is achieved through the sum of efforts of many individual actors (Lawrence *et al.*, 2011).

2.3.4 Social movement theory and micro-level agency

Social movement theory provides tools for understanding *how* and *why* social mobilisation occurs (McCauley, 2011). I aim to use social movement theory to better understand how grassroots change

agents mobilise for bottom-up change (McCauley, 2011). Although social movement approaches are ordinarily targeted at investigating large-scale change, a social movement approach can also assist scholars in understanding micro-mobilisation (Scully & Segal, 2002). Scully and Segal (2002) caution against mainstream approaches to social movement, which trivialize piecemeal and modest actions. In this regard, Scully and Segal (2002) studied the efforts of grassroots actors in the workplace, asserting that studies have a tendency to underestimate such efforts. Likewise, my study shifts attention from large-scale change in education to zoom-in on the understudied efforts of grassroots actors in South African education.

Voss and Williams (2012) identify three ways of categorizing social movement practices, namely *organising, mobilising,* and *networking.* Importantly, social movements engage in all three fluidly and they occur and overlap at both local and global levels (Voss & Williams, 2012). Concerning networking, social movements can be defined as collective interactions that challenge perceived injustices (McCauley, 2011). Furthermore, the existence of social movements is based on the capability of individuals to engage in collective action for a sustained period of time (Diani, 2003). Social movements are not condensed versions of specific revolts; rather, they are made up of connected events and consist of networks of organisations and interactions (Diani, 2003). In sum, social movements resemble complex network structures (Diani, 2003). Mobilising structures are those informal and formal means in which individuals engage in collective action (McAdam, McCarthy & Zald, 1996). While the primary aims of mobilising are protest actions, the focuses of organising are to increase participation, engagement and capacity, specifically at local level (Voss & Williams, 2012). In view of this, I am particularly interested in investigating the organising category of social movement practices. Framing theory can help us to understand the micro-dynamics of social organising (Purdy *et al.*, 2017).

Framing theory has often been applied to understand the dynamics of social movements (Benford & Snow, 2000; Cornelissen & Werner, 2014). Framing theory offers a lens for investigating how institutions are changed through the daily activities or the intentional efforts of individuals (Purdy *et al.*, 2017). In particular, this theory has shed light on bottom-up micro-processes that influence change (Purdy *et al.*, 2017). Interestingly for my study, framing scholarship explores the processes that activists undertake to construct frames and essentially create connections between individual activists' beliefs and those of greater social movements (Cornelissen & Werner, 2014). These have been referred to as the four '*frame alignment processes'* (Cornelissen & Werner, 2014). Snow, Rochford, Worden and Benford (1986) argue that frame alignment is required for participation in social movements. The alignment processes in *table 1* include: *frame bridging, frame amplification, frame extension,* and *frame transformation* (Benford & Snow, 2000).

Frame alignment processes	
Frame bridging	Snow and colleagues (1986:467) refer to frame bridging as the *"linkage of two or more ideologically congruent but structurally unconnected frames regarding a particular issue or problem."* In cases of frame bridging, individuals may share commonalities in their concerns and viewpoints, but may not have the organisational base from which to pursue their interests (Snow *et al*., 1986).
Frame amplification	Frame amplification is focused on garnering participation in movement activities through the clarifying an interpretive frame to resolve ambiguity (Snow *et al*., 1986). Frame amplification is particularly relevant to movements whose beliefs or values differ from those of the dominant culture (Benford & Snow, 2000).
Frame extension	Frame extension entails enlarging the reach of a frame (Cornelissen & Werner, 2014) beyond the framework's main concerns to also include those concerns that may be significant to potential supporters (Benford & Snow, 2000).
Frame transformation	Benford and Snow (2000:625) describe frame transformation as *"changing old understandings and meanings and/or generating new ones."*

Table 1 Frame alignment processes

2.4 Chapter summary

In this literature review, I shaped the background context for my study by first outlining a few key concepts. I proceeded to unpack the current education system in terms of its shortcomings and pathways for change, acknowledging that the current crises we are facing requires an educational response. I began by interrogating the industrial origins and purpose of traditional education and the corresponding need to reorient the aims of education towards one that develops ecological literacy. I briefly explored aspects of resistance to educational reform that are based in anthropogenic worldviews that favour divisional thinking, concluding that we need to embrace education that adequately prepares us for sustainable futures. Following this, I delved into the history of education for sustainability in South Africa to develop a more granular understanding of the context of my study. I did so by exploring the shifts and shortfalls that have shaped the need for a more meaningful education for sustainability. In order to examine education transformation in South Africa, I reviewed the history of curriculum change and the challenges thereof in South African education. This served to build the argument that top-down approaches to transformation such as curriculum change have not adequately embedded sustainability in education (Reddy, 2020) and framed my aim to better understand bottom-up approaches to change. I then moved on to construct a theoretical framework to investigate the micro-processes of change that grassroots change agents undertake. First, I define agency and explore bottom-up change agency. Second, in view of education as an institution, I explored institutional work as a potential pathway for reviewing institutional change in education (Lawrence *et al.*, 2009). I demonstrated that this field of study assists in understanding instances of daily change agency (Lawrence *et al.*, 2009). Third, I reviewed social movement theory as a body of work that helps us to understand how grassroots change agents mobilise for bottom-up change (McCauley, 2011). Within the scholarship of social movement theory, I explored framing theory as a way of understanding the dynamics of social movements

(Benford & Snow, 2000; Cornelissen & Werner, 2014). In this regard, I described the four frame alignment processes that are required for participation in organising social movements (Benford & Snow, 2000).

Chapter 3: Research methodology

3.1 Introduction

In this section, I explain the choices that have guided how I approached and carried out my research. I begin by elaborating on my research approach by first discussing the paradigm and research methodology that informed my study. I then unpack the methods I used to collect my data, followed by the data analyses techniques I used. Finally, I discuss the validity, ethical considerations, and methodological limitations of my research. In recognising that I, as the researcher, am not entirely neutral to the study (Yin, 2011), I will start by identifying my research lens. A discussion of my chosen research paradigm follows.

3.2 Research paradigm

Given that I aimed to explore those micro-processes utilised by grassroots actors, I anchored my research in a constructivist ontological and subjective epistemological paradigm. To provide context, Bryman, Bell, Hirschsohn, Dos Santos, Du Toit, Masenge, Van Aardt and Wagner (2014) describe constructivism as the belief that social phenomena are continually produced by social actors, or more simply, that they are socially constructed. In alignment, I approached my study with the view that the grassroots actors who I interviewed, actively constructed their experiences. This paradigm is furthermore consistent with my belief that reality is subjective. In concurrence with this paradigm, I intended to understand the subjective perceptions of how individuals considered their own involvement in change processes. In doing so, this allowed me to unpack the participants' involvement within the bounds that their responses would be based on their subjective reflections on their experiences.

A constructivist paradigm allowed me to explore the social context and dynamics taking place. In contrast to positivism, constructivism supports the view that reality is internally constructed and focuses on social processes (Palmer, 1998). Additionally, a constructionist position asserts that social phenomena are constructed from the actions of social actors (Bryman *et al.*, 2014). This aligned with my research questions, which are based on the premise that reality can be or is being reconstructed through change-making processes and that society (individually or collectively through interaction) produces meaning around this. To adequately investigate the range of bottom-up actions that my interviewees participated in, I prioritised collecting data from those social actors that I perceived were actively participating in undertaking change efforts.

Lastly, a constructivist paradigm recognises that qualitative research is rarely a neutral and passive process. It requires the researcher to continuously engage with the data. Throughout the research process I subjectively engaged with my data and this engagement was influenced by my own pre-existing perceptions. To expand, Charmaz (2005) argues that we, as the researchers, share in the construction of qualitative data – our findings are an interpretation rather than a fully objective report. Following this thread, we as the researchers, approach a study with preliminary orienting ideas (Miles,

Huberman & Saldaña, 2014). Guba and Lincoln (1994) further argue that a constructionist inquiry intends to understand and reconstruct the constructions that are initially held by informant and inquirer to both reach consensus, as well as remain open to new interpretations. In alignment, I therefore continually reconstructed my findings as I progressed with the research. At the end of my research, I provided a subjective (albeit rigorous) interpretation of my findings, thus cementing my role as a researcher who shared in constructing the findings I identified. In the next section, I detail the methodology I used to formulate these findings.

3.3 Research methodology

I chose to shape my study using a combination of two inductive research methodologies to facilitate my data collection and analyses. In alignment with Guba and Linclon's (1994) affirmation that the research methodology informs how an inquirer goes about collecting knowledge, my methodology choices laid the foundation for what data I decided to collect, my data collection methods, and how I analysed the data. Consistent with Lal, Suto and Ungar's (2012) reasoning that using a combination of the two approaches can provide a richer understanding of the social phenomenon in question and make findings more accessible to wider audiences, I used a combination of grounded theory and narrative inquiry. Both grounded theory and narrative inquiry are well-recognised qualitative methodologies (Lal *et al.*, 2012).

3.3.1 Grounded theory

In light of my aim to discover emergent patterns associated with the micro-processes of change that my research participants individually and collectively utilise, and finally, to categorise these patterns into meaningful analysis, I used grounded theory as my predominant research methodology. The nature of grounded theory encourages the researcher to be open to the emergence of theory and core issues (Bryant & Charmaz, 2007). Furthermore, grounded theory echoes the qualitative outlook whereby theory iteratively emerges from data collection and analysis, rather than the use of data to test a theory (Bryman *et al.*, 2014). Consistent with this, I adopted an attitude of remaining receptive to emergent issues and ideas, rather than seeking to prove or disprove a fixed hypothesis or pre-researched literary theory. I believe that this approach enabled my unique combination of participants to effectively, guide the study.

Importantly, I performed my data collection and comparative analyses simultaneously so that these two activities informed each other throughout the research process. This decision aligns with the view that a grounded theory methodological approach uses continuous comparative analysis (Lal *et al.*, 2012). The result of this research process was an analytic interpretation of the varying participant's study worlds and the processes of how they construct these (Charmaz, 2005).

Markedly for my field of study, I chose to use a grounded theory methodological approach because of its relevance to social processes. To clarify, grounded theory provides the tools to analyse processes, making it a beneficial choice for studying social justice issues (Charmaz, 2005). Charmaz (2005) describes justice and injustice as enacted performances made possible through the repetition of actions. A grounded theory approach can provide an understanding of the conditions required for the development, continuation, and change of these just and unjust actions (Charmaz, 2005). To expand, the application of grounded theory to social justice studies such as mine locates subjective experiences within larger social structures (Charmaz, 2005), which I believe helped analyse my participants' experiences more holistically.

Pursuant to my chosen research paradigm, I followed a constructionist approach to grounded theory (Charmaz, 2005). Although grounded theory has positivist origins, Charmaz (2005), along with an increasing number of scholars who aim to shift the methodology in new directions, advocates for a constructionist approach to grounded theory. In selecting a constructionist approach to grounded theory, I recognised my role as researcher in interpreting the data and constructing themes from the emergent data patterns, rather than a neutral observer (Bryant & Charmaz, 2007). Essentially, the data I collected through a grounded theory approach was not so much discovered as it was co-constructed between the participants and myself.

3.3.2 Narrative inquiry

I selected narrative inquiry as a supporting methodology to grounded theory based on the value of story to elicit reflection. To further explore my participants' perspectives on actioning change from the bottom-up, I wanted to provide a platform for them to ground their sentiments in their actual experiences. In doing so, I expected that the participants would impart their responses through stories about the actions they had undertaken. I believe that narrative inquiry was valuable for my study because story can assist us to understand our actions and the motivations behind them in a way that holistically recognises human complexity (Buttigieg & Pace, 2013). While narrative inquiry can be conceptualised and applied in a diversity of ways (Thomas, 2012), I used narrative inquiry as a methodological framework to guide my interactions with participants and my interpretation of the data (Lal *et al.*, 2012).

Adopting this research methodology provided me with the opportunity to explore the individual experiences, and thus constructed knowledge, of a sample of grassroots actors. Researchers collect narratives to examine how we experience and understand the world around us (Buttigieg & Pace, 2013). Narrative inquiry recognises human experience as a means of constructing and interpreting knowledge (Buttigieg & Pace, 2013). To expand, narrative inquiry steers away from facts towards meanings, recognising that the validity of what participants say cannot be discounted as non-knowledge (Thomas, 2012). Thomas (2012) differentiates narrative inquiry from other qualitative research methodologies as a multi-layered process that deals with individuals' lives. It was in view of this that I recognised the

merit of analysing individual experiences to better assist in understanding the micro-processes of change enacted by broader social groups. Consequently, I included an aspect of personal narrative representation in the study, in conjunction with my grounded theory findings.

My research questions were partially answerable by probing my interviewees' emotional responses and personal experiences. It can be summed up that narrative inquiry investigates an experience and the significance thereof (Thomas, 2012). In alignment, I specifically made use of narrative inquiry because of my interest in my participants' thoughts and feelings. Whereas it has been made evident that grounded theory emphasises fragmentation of data to uncover patterns, thereby somewhat diluting the impact of individual experiences and producing simplified representations of complex issues, narrative inquiry communicates findings in more accessible ways to a wider audience (Lal *et al.*, 2012). In this way, I took care not to eliminate personal voice from the research interpretations (Lal *et al.*, 2012).

To further unpack the contrast with grounded theory, narrative inquiry utilises a more diverse range of disciplines to communicate findings – this can include representation in the form of literature, visuals, or performances (Lal *et al.*, 2012). I chose to include a visual narrative representation in the form of photographs to capture the micro-processes of change activities research participants were involved in. The participants specifically captured these photographs themselves (delivered through e-mail).

At the time of writing the research proposal, I had intended to both observe and take photographs of my participants in relevant settings (such as organised climate change protests), to capture contextual experiences and cross-check these with other data. Due to the COVID-19 pandemic, I was unable to conduct in-person research. Inspired by photovoice methodologies, I decided to allow participants to submit their own photographs instead. When participants express their voice through photography, this results in localised images that reflect contextual realities (Napawan, Simpson & Snyder, 2017). Wang and Burris (1997) first introduced the photovoice technique to enable participants to record their community concerns and promote knowledge production about important issues using photography. The intention behind the photovoice technique is to amplify voices that may be typically excluded from decision-making, thus inciting bottom-up social change (Derr & Simons, 2020). I found this to be in alignment with the phenomena I had undertaken to study.

I specifically focused on photography submissions by young participants, with the hope of providing an additional platform for them to express their voices. On further investigation of the photovoice technique, Derr and Simons (2020) reveal that it can be a useful tool to elevate youth participation in environmental education that addresses their concerns. The potentials of visual research methods pertinent to my study lie in enabling young people to have more involvement in the process of data generation, to explore sensitive issues, and to express themselves comfortably (Simmonds, Roux & ter Avest, 2015).

Narrative-photovoice, is perhaps a more apt descriptor of the mode of narrative inquiry presented in my

study. Simmonds and colleagues (2015), introduce *narrative-photovoice* as a methodology that muddies the boundaries between photovoice and narrative inquiry with the aim of helping the researcher to move beyond patterns of interpretations to make actual inferences from the data. Following Evans-Agnew and Rosemberg's (2016) description of the divide between photovoice research that takes a participatory action research approach and photovoice that is used in grounded theory research designs to describe a lived experience, my study more closely correlates with the latter. While photovoice is largely associated with participatory action research because the participants become engaged in the research as collaborators by using photography to reflect upon their realities, the method has been used in a wide diversity of contexts (Derr & Simons, 2020). In so saying, I recognise that the photovoice-inspired method I have used to elicit a narrative response from my participants does not necessarily align with the emancipatory outcomes associated with the method (Derr & Simons, 2020).

3.3.3 Combining methodologies

By combining the two methodologies, I aimed to categorise the participants' experiences of bottom-up change through analysing emergent patterns, whilst also utilising the stories of real-world incidences as an effective means of further unpacking these experiences. Both grounded theory and narrative inquiry are widely recognised for their assistance in helping researchers to understand psychosocial processes (Lal *et al.*, 2012). I believe that employing a combination of the two methodologies has merit in understanding micro-scale change-making activities that collectively combine to form social processes.

Furthermore, Lal and colleagues (2012) argue that the strengths of one of these research methodologies can counterbalance limitations experienced with the other. While grounded theory is critiqued for its tendency to over-simplify or dilute complex phenomena, narrative inquiry is critiqued for producing overly personal narratives (Lal *et al.*, 2012). Despite this difference, Lal and colleagues (2012) argue that the two can be complementary. Grounded theory shows the researcher how patterns relate, and narrative techniques provide temporality – in summary, applying grounded theory and narrative techniques as a combination can result in a multidimensional understanding (Floersch, Longhofer, Kranke & Townsend, 2010). Although both of these methodologies informed my study, grounded theory was the predominant methodology used, while data collected and analysed from the narrative inquiry was used as supportive material.

3.4 Research methods

I collected the data for my study from a variety of sources and made use of different research methods to inform my triangulation strategy and enhance the credibility of my findings. This decision aligns with Yin's (2011) suggestion that conclusions are likely to be reached from triangulating the data from a range of sources and Maxwell's (2005) notion that qualitative research designs often rely on integrating data sourced via a variety of methods. Maxwell (2005) further argues that one of the basic principles of a qualitative study is to analyse and collect data simultaneously to make decisions on

emerging conclusions and continually refocus interviews and observations. In consideration of this, and following the premise of grounded theory, I followed a non-linear approach to utilising my selected research methods in tandem with data analyses.

3.4.1 Conducting a literature review

Following grounded theory methodology, I began my study with a limited exploratory literature search, which progressively evolved into a more extensive literature review as I proceeded with data collection and analyses. Keeping in mind Yin's (2011) advice that the literature review should be selective rather than comprehensive at the early stages of the study, I started with a selective review to report on the existing theory that relates to my research subject, the context for undertaking my research, and to refine my preliminary considerations. In further support of my choice to limit my review at this stage, Gioia and colleagues (2012), advise against an extensive literature review at the early stages of the research because this leads to prior bias. I therefore conducted my early explorations of the literature to determine the relevance of my research questions and motivate my interest in the research field, rather than forming an argument. I conducted informal searches to determine possible gaps in similar research, and notably, to also assist me in planning my research design and data collection methods. Having chosen a direction for my study, I then also made use of literature to enhance my understanding of current education in South Africa.

As my research progressed, I continued to develop the literature review in parallel with data collection and analyses to be able to compare emerging findings with a theoretical framework. The literature I reviewed certainly broadened my understanding of what was and is currently happening, and informed how issues have been historically framed. I explored three main bodies of literature to provide an overview of the current education system, and evolutions in environmental education, as well as micro-processes of change framework based on the interconnected literature of institutional work, social movement, and framing theory.

To maintain credibility, I looked to seminal authors in their respective theoretical fields and sourced the information that comprises the literature review from academic, peer-reviewed journal articles, postgraduate research reports that are situated within the same theoretical field, and published books. Supportive of this rigour, Yin (2011) highlights the importance of considering the authenticity and authoritativeness of the sources reviewed. To source relevant and authentic literature, I made use of several key search words such as 'sustainability education', 'framing theory', and 'social movement theory' to access search results on research databases and the online Stellenbosch University library. Lastly, I followed a snowballing technique to further expand my literature collection through observing the reference lists cited in beneficial articles.

3.4.2 Data collection

Aside from presenting a literature review to provide the theoretical background to my study and assist in framing the findings, I collected the primary qualitative data for analyses through online interviews. I went on to triangulate this data with what I observed from online sources as well as the photography that was submitted according to the narrative-photovoice inquiry. A more detailed description of the methods of data collection I used follows.

Interviews. Recognising that I required flexibility to change my interview questions as the research progressed, I chose to conduct semi-structured interviews. This aligns with Gioia *et al*. (2012) who emphasise that semi-structured interviews are central to good qualitative research. I also used open-ended questions in my research interviews. I began with a working draft of proposed questions, rather than a completely scripted questionnaire. This allowed me to vary my questions according to how participants responded and encouraged them to be more conversational. In Appendix A, I provide a sample interview guide of proposed questions. In concurrence with Maxwell (2005), whilst the research questions themselves, pertain to the overall things that I, as the researcher, wanted to understand, the interview questions were constructed to generate the data required to understand these things.

Driven by my belief that my research questions were suited to longer, more comprehensive interviews, conducted with fewer participants, I limited my sample size to 18 interviewees. This decision was also in keeping with Miles and colleagues' (2014) suggestion that the qualitative approach to sampling interviewees generally takes the form of in-depth studies on smaller samples selected based on the relevance of their context. At the early stages of my research, I followed a purposeful sampling approach to my data collection. Yin (2011) notes that qualitative research primarily uses purposive sampling. In this way, I was able to adequately capture a smaller, heterogeneous range of responses taken from systematically selected settings and activities, versus a larger sample that is random or substantial (Maxwell, 2005). To challenge my personal bias and preconceptions, I intentionally selected participants that I suspected might have different perspectives.

In line with my research questions, I focused on making contact with grassroots organisations and individuals, rather than larger education organisations. All of my research participants were based in South Africa and immersed in local education-related spaces to confine my study to this specific context. I identified several participant organisations to engage with and interview, namely, the African Climate Alliance, the Earth Child Project Eco Warriors Club, Plant the Seed, the WESSA Schools and Youth Programme, the Two Oceans Aquarium, the Collective, Artivists, and the youth division of Project 90. I then moved on to use a snowball sampling technique whereby I made initial contact with a small group of these participants and established new contacts through these networks to expand my sample size.

Youth activist groups were a key source of participants for the interviews I conducted. The United

Nations defines youth as the age bracket of 15 to 24 years (United Nations Department of Economic and Social Affairs, n.d.). In line with this definition, I interviewed younger members belonging to a few of the prior mentioned grassroots organisations. At the time of conducting my research, all of these individuals were immersed in the secondary school system. As identified in the literature review, this age bracket (and future generations to come), are the most vulnerable to the impacts of the climate crisis. The youth members that I engaged with ranged from young activists that have leadership roles in the identified organisations, to individuals who were also leading change within their school settings.

It was also valuable for me to interview persons outside of the youth age bracket that founded, worked closely with, or were employed in organisations that had active roles in supporting youth climate activism or education for sustainability initiatives. Notably, this also included educators. In total, the research sample for my study included 8 non-profit organisations, 3 environmental educators, 5 youth activists, 1 environmental education researcher, and 1 government official. *Table 2* outlines the participant categories I interviewed as associated with their codes.

Code	**Categories**
NPO	Non-profit organisations
E	Environmental educators
R	Researcher (environmental education)
G	Government official (Education department)
YP	Youth participants

Table 2 Participant category codes

Observation. I made use of observation as a supportive data collection method for my study. Yin (2011) advocates for the use of observation as a method of collecting primary data, highlighting that the data is not filtered, but rather perceived by the senses. In addition to this reasoning, I felt that observation was a helpful method for me to crosscheck against insights gained in interviews, and explore participants' change processes in action versus recounts. Secondly, I felt it would assist with gathering data from younger change agents that may have difficulty articulating themselves during interviews. The observation I conducted entailed me passively sitting in on online webinars that were held by youth activist networks or NGOs that I had conducted interviews with. Additionally, I observed the co-ordinations of digital protest action over social media. Further elaboration on my motivation for the inclusion of social media responses as a form of secondary, supportive data follows.

I originally intended to conduct in-person observation sessions to better understand the participants of my study within their actual change-making contexts. Unfortunately, the global COVID-19 pandemic halted this plan. At the time of my data collection process, containment measures forced the suspension of public climate crisis demonstrations that required people to gather in large groups as well as the

suspension of schools (with the exception of those that could continue with online learning) in South Africa. Although prolonged immersion within educational settings and outdoor youth activist protest spaces to observe participant behaviours and conversations could not take place, there was still room for observation to take place in digital non-contact spaces. Youth activists coordinated digital protest posts over social media platforms such as Facebook and Instagram. Mavrodieva, Rachman, Harahap and Shaw (2019) highlight that advocacy organisations use social media to communicate their message and encourage followers to join. I found that this was indeed the case with many of the individuals and organisations I had interviewed. McKenna, Myers and Newman (2017) add that social media provides qualitative researchers with an impressive opportunity to gain insights, given that a large percentage of digital content is unstructured data of a qualitative nature.

In light of the increased presence of youth activists' online efforts instead of in-person activist events, I recognised that analysing participant behaviour and conversations on social media platforms was valuable to my study. The success of social movement organisations' capability to mobilise individuals to pursue or resist social change is dependent upon their capacity to connect with people (Xiong, Cho & Boatwright, 2019). I observed first-hand how this capacity to connect with people was swiftly moved more and more into the online world. Further to this, online platforms and digital communication can be used as enablers for social movement campaigns, community formation, and rapid information exchange by breaking geographic boundaries and reaching wider audiences (Xiong *et al*., 2019). In sum, by utilising social media, activists and social movements have been able to participate in the framing of issues, furthering public discourse, and advocating for collective action (Xiong *et al*., 2019). Not unlike what my participants discussed during interviews, social media has served as a means for organising global climate protest events amongst the youth. As an example, I attended the webinar presented in *figure 1* in order to observe the activities of youth activists online.

Figure 1: *Online mini series: Youth in action*

I captured observations from attending the webinar in the memo shown in *figure 2* below:

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- Social media is an instrument for speaking out. The youth speak clearly and with clarity about the change they want to see and the immediacy of the issues at hand. The information shared on these webinars is publicly and freely available.
- Youth have a vital role in influencing government to make change at policy-level, and hold those in power accountable. Youth display persistence and passion.
- Youth are offering new perspectives. They are going to be the next taxpayers and lawmakers.
- The youth are facing a different context to older generations, but where do our struggles intersect? And where can we harness collective power? There is a need to educate other youth through a social movement. An intergenerational rebellion. Youth can rise up to the challenge.
- There doesn't appear to be friction between youth and adult speakers on the platform – rather they are supporting each other.
- Barrier to engaging more youth in South Africa is funding and problem immediacy versus future focus. Need continuous support, transport etc. Access to data. Challenge for online platforms.
- Without education, how can't you take action.
- A multiplicity of voices has the potential to bring people together.

Figure 2: *Observation: Sample memo one*

Narrative visuals. As is unpacked in my discussion on narrative inquiry, I utilised visual narrative representation to support my findings and retain the impact of the participants' personal experiences and emotional responses. This included a series of photographs that documented the micro-processes of change that youth participate in. These photographs were captured by youth participants that are engaging with the climate crisis either through activism or sustainability activities. A sample of youth participants that were interviewed in the study, 'narrated' their experience in the form of photographs that they felt depicted a sustainability-related activity that they participated in or an expression of how they viewed creating change. I asked participants to follow a loosely constructed prompt to express how they engage with sustainability education-related change or being a change-maker in this space. I also allowed them the opportunity to discuss and ask questions about the task.

The photographs submitted were not accompanied by a caption or written text – instead, I viewed them as supplementary data to the oral interviews I had conducted with the participants. This aligns with Simmonds and colleagues (2015), who note that the photograph should be seen as the primary source of information in the photo narrative, whilst the explanation of the photograph is secondary. Through the combination of these two data collection methods, I hoped to first and foremost, encourage youth participants to personally reflect on the same subject matter. In addition, I aimed to highlight the voices of young people in my study through the extra dimension of a visual representation of localised contexts that cannot be fully understood from an outside gaze. By following this approach, the participants chose

their response based on the narrative they wanted to share or construct. Rather than viewing this 'construction' as problematic, I viewed it as evocative of authenticity and in alignment with my constructionist research paradigm. As the interpreter of the photovoice-narratives submitted, I intentionally looked for commonalities between these images and the patterns that were emerging from interviews.

At the time of data collection, the participants did not have access to taking photographs of their local contexts of outdoor climate protests, beach clean-ups, tree planting projects, or other ecological restoration initiatives until such time as the pandemic protocols were eased. This being said, participants may have had access to past photographs of such activities or were able to express their 'photovoice' by submitting a photograph of a protest signboard they posted on social media, artworks they prepared to relay their messages online, or subject matter found in their immediate surroundings or gardens. I followed an ethical process of collecting the photography submissions by obtaining informed, written consent from the participants for the use thereof. Participants were made aware that they did not have to participate or capture photographs that revealed their identities. For the sake of anonymity, I blurred the faces of young people present in the photographic subject matter.

3.4.3 Data analyses

I used qualitative coding techniques to analyse the data I collected from interviews and observations (Miles *et al.*, 2014). For the submitted photographs, I used a narrative approach (Lal *et al.*, 2012). My decision to combine the two analysis approaches aligns with Maxwell (2005) who advocates for a combined approach that employs both *categorising* strategies such as coding, and *connecting* strategies, such as narrative analysis. I underwent a process of data collection and analyses that spanned roughly three months.

Since I conducted my primary source of data collection through interviews and chose to follow a grounded theory approach, my primary choice of technique for analysing the data was coding. Bryant and Charmaz (2007) identify coding as an integral process of grounded theory. Briefly, coding in a qualitative research design aims to rearrange data into categories and facilitate comparison across these, which enables the researcher to generate and support theoretical concepts (Maxwell, 2005). I used coding to assist in conceptualising underlying patterns to explain what is happening (Bryant & Charmaz, 2007), and was thus able to provide meaning to the data I collected. By coding in parallel with data collection, I was continuously presented with opportunities to readjust my interview guide or ask follow-up questions according to emergent patterns. In concurrence with Miles and colleagues (2014), I viewed coding as a deeply reflective way of categorising similar data to be able to cluster segments of information into research themes. This process created the blueprint for me to draw further conclusions.

I followed a coding process that was iterative and broken up into phases. As part of these phases, I first took steps to process the raw data for further analyses (Miles *et al.*, 2014). This included jotting down information from recordings and making interview notes and shorthand legible. I then transcribed the interviews using digital transcription software and reworked the transcriptions to remove errors. Finally, I used coding to categorise similar data chunks into themes and sub-themes. I used a combination of rearranging post-it notes and the computer software, ATLAS-ti5, to assist in the data analyses.

Coding with ATLAS-ti5. Initially, I coded the data in ATLAS-ti5 by setting out several high-level themes and grouping larger chunks of the first transcriptions I had collated into these themes. I continued to add sub-themes and assign hierarchies to the different content. This part of the coding process gave me an idea of what information was on-hand and what themes were less meaningful as I progressed with conducting interviews. As is shown in *figure 3*, I used colours assigned to each preliminarily defined theme to fragment large chunks of participant responses. This assisted me to identify patterns across the different participant groups.

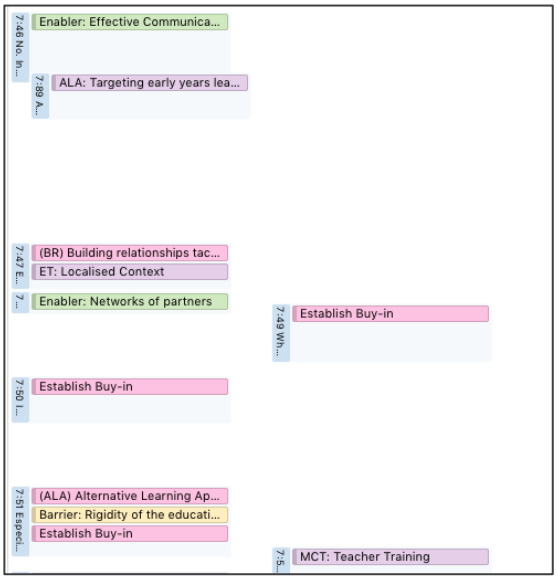

Figure 3: *ATLAS-ti5 early coding*

Coding with post-it notes. Following this phase of my coding process, I felt that the computer software became constraining and shifted my preliminary themes onto post-it notes. I began manually adjusting the themes by rearranging and editing the post-it notes to grapple with possible ways of organising the content into a coherent story. As is shown in *figure 4*, I then moved on to organise these themes into one selected interpretation of my findings and condensed the bulk data chunks. To challenge my own biases, it was important for me to remain willing to change my interpretations to suit emerging findings, which I felt was more effective to undertake using this tangible coding method. I continually reshuffled and shaped the colour-coded themes as more data became available.

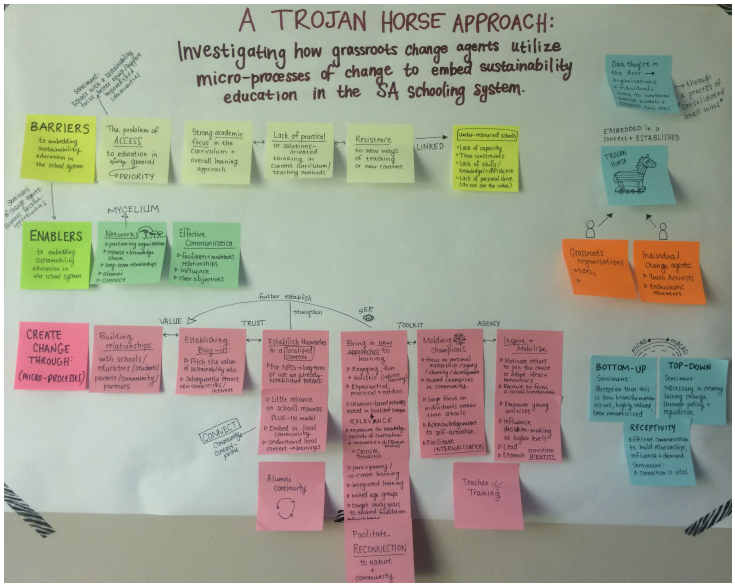

Figure 4: *Coding with post-it notes*

Memoing and capturing. I coded the data (in the search for emergent concepts) in conjunction with the use of memoing and capturing. I used memoing as a sense-making process to tie data clusters together and extend beyond simply recounting the data (Miles *et al.*, 2014). I captured analytic thought through generating memos (Miles *et al.*, 2014) and found this process of regular memo-writing to be

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- How much weight does curriculum really have in the process of education? I'm finding that environmental education-focused organisations are doing work in the spaces of *personal leadership and personal growth*, rather than curriculum content. There is a huge focus on *experiential learning and outdoor learning*, also. Participants speak often about *reconnecting to nature.* This seems to have very little to do with what students are learning in their textbooks.
- It's almost as if the *barriers* to educating children to be equipped for the future are too great to bypass within the school system - these processes require *resources, passion, champions*… this simply isn't realistic to amplify across all South African schools, at least not by only relying on current top-down structures.
- *Networks.* Micro-processes of change exist within a mycelium of different role players and activities. I'm starting to see that this is key in affecting change.
- Actual change is difficult to measure, but interviewees do attest to *small victories.*
- NPO's that I have met with so far are definitely grassroots and they interact with other bottom-up players, but they also *assist as contact points* between impoverished communities and their wider communities of citizens, officials and funders.
- Personal and behavioural change | Agency | Personal Identity. Embedding sustainability in schools requires that we embed sustainability in our lives. There is a process of internalisation.
- Personal *relationship building* is a driver of embedding sustainability. Trust | Inspiration | Guidance.
- Efforts are focused on *moulding individuals,* more than whole schools.
- Rigidity in the education system is a barrier.
- *Localising your approach* is key. Becoming *established in a school context* is also a driver.
- *Access* to education is a high priority in South Africa.

instrumental in fostering reflexivity and my continuous engagement with the research subject matter. Furthermore, this helped me to further refine my research questions and encouraged me to have the flexibility to amend codes as needed. Along the same thread, Miles and colleagues (2014) warn of the dangers of getting locked into patterns and advise subjecting meaningful coded themes to cross-checking until there is better empirical evidence of reinforcement. In *figure 5* and *figure 6*, I show examples of the memos I captured throughout my data analyses. Although I continually revised and reworded the codes I set out, I found that many of my initial conceptions of interpretation carried through until the end of the process.

Figure 5: *Coding: Sample memo one*

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- Education is deeply entrenched and supportive of a particular system. Schools not only exist at the source of *becoming* sustainably-minded, but they also perpetuate existing systems. They offer a reflective mirror of society as an institutional structure.
- The youth participants are definitely the most energising of my interviewees. Their bravery, outspoken demeanor, and 'stop at nothing' attitude inspire me daily. It is clear they care so deeply for what is to become of their futures and are willing to put everything else that is important to a 17-year-old completely on hold to show up for each other and for us, people and planet.

Figure 6: *Coding: Sample memo two*

Reviewing literature. Following my preliminary interpretation of the data, I returned to reviewing relevant literature to compare the data with a theoretical backing. I also found it valuable to return to my initial research questions and reflect on whether the themes I had drafted were answering them. Following Miles and colleagues (2014), codes emerged inductively as I collected more data and consulted more literature. This phase was important so as to avoid moulding existing data to force-fit a fixed set of themes, and to remain open to rival perspectives.

Extracting key quotes. In the final stages of rearranging codes, and after having collected a more substantial set of data, I extracted key quotes from the transcriptions I felt were most interesting. I found this process valuable in determining which codes still shared structural unity (Miles *et al.*, 2014). I refined the themes into a more final version of interpretation and arranged these in a table format with the corresponding quotes that I felt best represented each of them. Lastly, Yin (2011) observes that a good study must go further than presenting the literal analysis of data by interpreting the results and drawing overall conclusions to capture the wider significance of the research. Therefore, I followed the final data analysis with a summary of my findings as well as recommendations for further study in the field.

3.5 Validity of the study

Throughout my research process, I made a point of assessing potential validity threats to my study to ensure that I was adequately questioning my data collection and analyses credibility. Validity relates to the authenticity of research results and findings (Maxwell, 2005). Accordingly, validity concerns all researchers (Thomas, 2012). In alignment, I unpack aspects of the validity of my research in the following section. Remaining cognisant of the level of validity required for my research, I approached my research with rigour and the integrity to continuously question where I may have been mistaken about what was going on. This is supported by Yin's (2011) argument that a valid study requires the proper collection and interpretation of data so that conclusions of the study accurately reflect the context studied.

In agreement with Yin (2011), I aimed to validate as many claims made in my study as possible to strengthen the overall validity of the research. Whilst quantitative researchers design controls to deal with validity threats in advance, qualitative researchers do not have the benefit of control variables and formal comparisons (Maxwell, 2005). In qualitative research, most validity threats will have to be ruled out after the research has commenced by using collected data to deem any outlying interpretations as implausible (Maxwell, 2005). Maxwell (2005) notes that this approach requires the researcher to identify specific threats and develop ways to rule them out.

3.5.1 Intensive involvement in the study to collect rich data

To increase the validity of my findings, my first strategy can be described as an intensive involvement in the study to collect rich data. Maxwell (2005) argues that long-term participant observation makes the research less dependent on inference and assists in ruling out premature theories. Building on this strategy is the *'rich data'* approach (Maxwell, 2005). Whilst I did not find it necessary to arrange repeat observations and interviews (Yin, 2011) with my informants, I did conduct intensive interviews in order to produce an in-depth understanding of their context, and thus collect richer data. By employing intensive interviews, I collected detailed, rich data that is varied enough to reveal the entire story (Maxwell, 2005) as viewed from a particular participant's perspective.

3.5.2 Data triangulation

The second validity strategy I made use of was data triangulation. The decision to triangulate data enabled me to review the research context from a variety of different perspectives and compare them to uncover insights that might otherwise have been hidden as well as to validate whether patterns I had identified were confirmed by further data. Bryman and colleagues (2014) describe triangulation as the process of using a plurality of methods or sources of data to crosscheck findings in social phenomena studies. A triangulation strategy reduces the risk of systematic biases (Maxwell, 2005). Bryman and colleagues (2014) provide the example of validating observations with interview questions in order to uncover misunderstandings and produce greater confidence in the findings. During my data collection

process, I triangulated my data by cross-checking my primary findings from the interviews I conducted with what I had observed in a selection of online webinars and social media responses. It is my understanding that this gave greater validity to my research.

Consequent to the interpretive nature of narrative inquiry, I took ownership of the subjective role I held as both the collector of data in this study, as well as the interpreter of the photographic narratives. White and Drew (2011) highlight that in narrative inquiry, the responsibility of interpretation belongs to the researcher involved. I thus created the narrative by myself, through the approaches I used, and based on my subjective interpretation of what was relayed. With this in mind, and with specific reference to validity in narrative research, there could be discord between what participants reported of their experiences and the meaning I inferred from these reports (Thomas, 2012). White and Drew (2011) argue that similarly to stories told in interviews, the images generated by participants are created in both context and relationship. There is a need for storytelling to render the photograph meaningful, demonstrating that photographic records only present a partial truth (White & Drew, 2011). Through undertaking this interpretive process of creating meaning from the photograph submissions in an attempt to extract the 'story', I acknowledge that the validity of my research is closely linked with my constructionist, ontological stance.

It should be noted that the findings I presented have to some degree, been reconstructed on account of my subjective analyses of the data and use of language to summate the conclusion thereof. The issue of validity extends to the data I collected from the interviews. Similar to that of the photography submissions, interpretation is also implicit in the process of storytelling through verbal communication. Additionally, my participants' accounts are partial and situated, and cannot be deemed complete reflections of the situation (Thomas, 2012). Rather than direct access to the participants' experiences, I only had access to what they shared about these, which lead to further reconstruction of this information (Thomas, 2012).

A further validity issue is that I may have influenced my participants' presentation of their truths (even if this was unintended). In the case of research interviews, White and Drew (2011) explain that the researcher clarifies their perspectives with the interviewee during the interview, thereby automatically commencing with data analysis in tandem with data collection. The interview transcriptions themselves are then edited and shaped by researchers (White & Drew, 2011). By encouraging participants to engage in dialogue on a given topic, converting the audio transcription into written form, and then analysing the text with the intention to scan the transcript for emergent themes (White & Drew, 2011), it is evident that there may be more than one interpretation of the data. Thomas (2012:215) affirms "there is no way that we can remove the "us" from our analyses." In line with how this may influence the validity of my research, I have noted my responsibility in shaping the narrative that has been presented in my findings.

3.6 COVID-19 and ethics

Given the development of the COVID 19 pandemic, I adhered to both Stellenbosch University's and the national South African government's rules and regulations regarding social distancing. All interviews I conducted took place over online video platforms such as Skype and Zoom. All interviewees signed consent forms before commencing with the scheduled interviews and their anonymity was retained. Photography captured by research participants was collected via e-mail upon receiving informed consent for the use thereof. I conducted observation in online settings such as live video webinars and publicly available social media responses.

In addition to the considerations highlighted above, I strictly adhered to the plan set out in my ethics application, approved by Stellenbosch University with REF: SPLSID-2020-14703. Each of my participants filled out a consent form and I retained their anonymity in my study. In Appendix B, I share the templates for the consent forms I prepared. I personally contacted my participants via email using the contact details that were publicly available on their websites to ascertain whether they had any interest in being interviewed for my research. Additionally, to ensure the protection of private information, I requested that participants made the initial contact directly with new proposed participants who they identified to first obtain their permission before I contacted them. For the photograph submissions, participants were not required to submit a photograph of subject matter that revealed their identity. Following the same process used for conducting interviews and observation, participants submitting photographs were required to provide written consent for the analysis of these in the research study. Finally, I stored all the data that I collected electronically using Microsoft OneDrive to ensure a reliable and secure storage process.

I was particularly cognisant of the challenges involved in collecting data from social media platforms. It may be difficult to obtain informed consent from social media contributors or even to verify their authenticity (McKenna *et al.,* 2017). Aside from this, user-generated content allows for less direction by the researcher, which results in the time-consuming need to filter irrelevant data (McKenna *et al.,* 2017). In the same vein, qualitative data derived from social media platforms exists in large volumes, which may be daunting for the researcher to analyse (McKenna *et al.,* 2017). Considering the above challenges and ethical deliberations, I believe it was important for me to use data collection from social media and online platforms in a considered and selective manner. I carefully selected webinars to attend and social media responses to follow that I was both made aware of by interview participants, and that directly related to the information they had shared during the interviews. As is the case with all other participants in the study, participants observed in social media settings remained anonymous and the personal information displayed on their accounts also remains unshared.

3.7 Methodological limitations of the study

I acknowledge the scope of my study has significant limitations. With relevance to these limitations, Bryman and colleagues (2014) note that the findings from a research sample can only be generalised to that sample's specific context. A key limitation for my study is thus that my findings cannot necessarily be applied to the wider global context and conclusions are confined to the specific settings in which my participants are engaged. Second, Yin (2011) argues that understanding social behaviour patterns requires the researcher to study a specific context. Therefore, I could also only collect limited data from limited collection units as defined by the context I determined from the outset.

Another key limitation of my study is my personal biases based on my own schooling experiences or emotional responses to the climate crisis. Approaching this study with these biases resulted in some degree of influence over the participant responses and biased interpretations of their responses. I aimed to continuously challenge my personal bias and assumptions by undertaking separate self-reflective journaling throughout the research process. Although the constructionist nature of my research approach indicates that I can never be truly neutral, to remain as impartial as possible, I attempted to structure my interviews in such a way that I erred on the side of listening and observing rather than sharing and prompting.

The development of the COVID-19 pandemic and subsequent lockdown that took place throughout my research process may also be viewed as a limitation to my study due to the predicted decline in youth activism and the closing of schools at the time of data collection. These events limited my communication with participants involved in these institutions or related educational organisations. Second was the limitation of technology and data access – I was only able to collect data from those participants who had adequate technological access. I responded to this limitation by collecting a larger amount of data from interviews with participants that I was able to communicate with (via online platforms) and taking on a more in-depth exploration of sustainability education activities and social movement operations that had a digital presence.

3.8 Chapter summary

This chapter presents a detailed discussion on my qualitative research strategy for the study. I chose to conduct my research by combining the two inductive methodologies, grounded theory and narrative inquiry, with an underlying constructionist research paradigm. I used an evolving review of relevant literature to construct the theoretical background to my findings and root the study within prior bodies of research. In section 3.4, I outlined the mixed methods of data collection I used, namely, semi-structured interviews, observation, and narrative visuals collected via photography submissions. Following this, I discussed coding as the technique I used for analysing the data. I went on to further unpack the validity and delimitations of the study. In the next chapter, I unpack my research findings.

Chapter 4: Research findings

4.1 Introduction

In the following chapter, I provide an overview of my findings relating to my four supportive research questions. I make use of direct quotes extracted from my interview material to support what I observed. I begin by presenting my participants' views on the need for, and the evolution and efficacy of education for sustainability in South African schools. Following this, I provide insight into the characteristics of grassroots change agency involved in advancing education for sustainability. I discuss the role of youth activists within the wider context of bottom-up change agents as well as the capabilities these change agents have displayed to pivot their actions. I then outline the four key microprocesses of change that I identified in table format, followed by an in-depth discussion where I provide detail for each theme and its related sub-themes. Finally, I show that the grassroots actors that I interviewed face four key counter-forces that hinder their efforts to affect change. I unpack each of these in detail.

4.2 The drivers of grassroots change agents' engagement in education for sustainability

I begin by sharing my research participants' perspectives on what factors drive their engagement and the need for change in education. My participants put forward three focus areas, including: detailing the shifts in education for sustainability in South Africa that participants have perceived, participants' level of confidence in the curriculum and their demands for change, as well as educative activities that extend beyond schools to include extra-curricular learning.

4.2.1 The need for sustainability education

Early in my investigations, I identified that there had been a significant evolution in the way environmental education has been delivered in South Africa in the last 20 years. In particular, participants spoke of a transition from environmental education that is focused on textbook learning, and later nature-based field trips, to education that is actions-oriented. This was well articulated by participant E3, who explained that environmental education in South Africa has transformed from *"a textbook that would tell you how ecosystems and things functioned"* and *"education in the environment where field trips were given the great green light"* to *"environmental education for the environment, which was more about recognising human impact."* Beyond educators who are at the coalface of witnessing this evolution, other participant groups, such as government representatives and environmental education researchers, observed that they have seen progress. As expressed by participant G1: *"Slowly, but surely, you are seeing some tangible change taking place… I think everybody's trying to play a part to make sure that environmental education grows."* Participant R1 provided more granular detail and explained that there is now a stronger realisation that the environment is intertwined with other socio-political and economic aspects, highlighting: *"One big thing that's shifted is the broadening understanding of what environment and then environmental education is…"*

In alignment with the value of this shift, many of my participants expressed that education as a whole (beyond the confines of the concept of *environmental* education), should have a role in advancing sustainability. There was a resounding declaration amongst my participants that education is indeed an important tool for driving sustainability. As expressed by participant E2: *"If we're going to achieve sustainable development, you can't just keep treating symptoms, we need to get to the root of the problem and I think that that lies in education."* Similarly, participant NPO6, who approached this inquiry from the lens of a non-profit organisation that rolls out sustainability-focused infrastructure for the purpose of education, expressed: *"The vegetable gardens were never meant to supplement the feeding scheme or to provide food for somebody in totality, but were more of an education tool."*

Additionally, the majority of participants involved in youth activism, suggested that education is not only used as a vehicle for improved uptake of sustainable practices, but also purposeful activism. This is aptly expressed by one of the youth activists I interviewed, who explained that education gives depth to protesting efforts in that it improves understandings of problems: *"Education and activism go hand-in-hand because once you educate people, you give them the power to think for themselves… and once they start seeing the problems for themselves, they start wanting to change things"* (Participant YP4). Furthermore, several participants opined that schools (as educational institutions) are valuable for imparting soft skills. Participant YP2 made this case by suggesting that the soft skill, 'empathy': *"has to be taught to people"* and that: "*the school is a good place to do that."*

In *photo 1*, a youth activist is pictured outside of her school premises, holding up a sign that summarises her demand to government officials for increased climate literacy in the school curriculum. The photograph illustrates this particular participant's view that education is integral to combat the catastrophic effects of climate change.

Photo 1: *Youth activist demands education*

Participants identified that education plays a significant role in advancing sustainability and meaningful activism as well as the shift *environmental* education, in particular, has undergone. This being noted, it

became apparent that the youth I interviewed were still dissatisfied with the level of education they are receiving, specifically concerning the climate crisis. As an example, YP4 was disheartened that the current climate education in South Africa does not get to the crux of climate change. She (YP4) lamented: *"It's being done in a way that blames ordinary people instead of the industries because we get taught, you know, put a brick in your toilet so you don't waste the water, turn the tap off when you're brushing your teeth."* Much the same, participant YP3 shared: *"A lot of schools don't talk about the climate crisis… it's something you have to research on your own, like if you have news apps on your phone"* and noted that the situation is worse in township areas: "*they just don't have people teaching them about climate change or sustainable ways of living like not throwing rubbish into rivers."*

The key complaint of youth participants was that current climate change education (and indeed, sustainability education) lacks depth and direct investigation of the related systemic causes. For example, participant YP4 reflected: *"I remember when we did technology, we had to make things out of recycled stuff – it's all those types of things… it's not connecting the systemic problems to the climate problems."* Similarly, participant YP2 mentioned that the current education is surface level: *"We don't learn about the systems that enforce it happening – we don't learn about the actual tangible harms of it. If it is touched on, it is touched on very lightly."*

Interestingly, a few of the participants who I interviewed raised the notion that sustainability education in schools is not a sufficient mechanism for change in isolation. Depending on one's theory of change, not only may sustainability education not be enough, but it also may not adequately respond to the immediacy of the crises we are facing. As expressed by participant YP4: *"There's a lot of ways they [her school] could be more sustainable, but at the same time, it needs to be done on a much larger scale than just on a school level."* Participant NPO6 offered that although education is important: *"We can't expect people's behaviour to change without the system changing… you've got to change the way society works, ultimately I think that's the only way we're actually going to combat this environmental degradation"* and highlighted that education is a slow process, acknowledging that: "*we don't have 50 years for change to take place. It's got to happen sooner than that."*

In *photo 2*, several youth activists gathered at a climate protest in the City of Cape Town to call for change. The banner they are holding reads 'System Change. Not Climate Change!', which is illustrative of their demands for system-wide change that extends well beyond small-scale sustainability projects in schools.

Photo 2: *System change, not climate change*

When asked to imagine their ideal sustainability-infused school, multiple participants mentioned that the school infrastructure itself should reflect sustainability. For example, participant NPO4 responded: *"I would build schools that incorporate as many sustainability principles into the building design as possible. Learners should be able to draw on the walls and move desks around and they should be about fun, inviting spaces."* One of the youth activists I interviewed reflected on how sustainability is currently integrated into their school and brought some of the hypocrisy to my attention. *"It's one thing to put posters around telling people not to use straws and then the tuckshop still has straws. You know, you say that plastic bottles are bad, but you're still selling bottles"* (Participant YP4). Beyond the depth of the content learners are receiving, I wondered whether an overhaul of schooling infrastructure – or even processes and policies – are also prerequisites to an evolved environmental education.

Overall, these results depict a range of mixed feelings around the evolution, adequacy, and efficacy of sustainability education in South African schools. To deepen my understanding of the school scape as experienced by the participants who I interviewed, versus the literature I had read, I delved into the curriculum and its usefulness.

4.2.2 The need for change in the South African CAPS curriculum

Throughout my interviews, almost all of my participants mentioned the need for curriculum change. In particular, participant E3, an educator, reflected on the need for the curriculum to align with changing circumstances: *"We're constantly hearing about this 'no new normal' or 'no business as usual' and education should be responding to that."* He (participant E3) also expressed that the curriculum needs to be flexible and empowering for teachers rather than a year-on-year duplication. Participant NPO4 alluded to the constraints that adhering to the national South African education curriculum places on teachers and schools: *"They (public schools) are really constrained by curriculum requirements… it's a tick box exercise… A lot of schools and teachers don't have the luxury of teaching anything or exposing learners to stuff over and beyond what they're required."* Throughout my interviews, I gathered a range of similar responses that the current curriculum provides inadequate sustainability education, juxtaposed with some (less than the prior), feedback that the curriculum *is* supportive of sustainability education.

A few participants were of the opinion that the inclusion of environmental education in the curriculum is a priority. Participant G1 defended the adequacy of including environmental education within the current curriculum, stating: *"I can safely say that environmental education is an important aspect of the South African curriculum"* and that the South African curriculum has "*sort of ingrained it into all the different types of subjects."* Similarly, educator, participant E1 acknowledged the content itself exists: *"Actually if you download the Natural Science and the Life Science documents, you will see that towards the end of the year, the fourth term includes environmental studies."* Similarly to participant G1, participant E1 also emphasised the integration: *"In their English studies, I've seen now in Geography… everywhere… lots of their comprehensions or essay topics are now environmentally orientated."*

It became clear that participants who believed environmental education *is* included in the content of the curriculum, were not advocating that it is effective. When commenting on the efficacy of environmental education content, participant G1 conceded: *"Teachers have this content that should be taught. Does it fulfil the environmental requirements that we see that the sector expects? That is open for debate…"* He (participant G1) also expressed that the efficacy of the curriculum in solving issues outside of the classroom is challenging to measure: *"Children are being taught about climate change, but then you might get the question, how do you measure whether the classroom-based education is having an effect on tangible change on outside society?"*

While a few of the participants I interviewed argued that environmental education is integrated into the curriculum, others were less certain of this, especially when it came to the topic of climate change education. For example, participant NPO7 said: "*The CAPS curriculum is so stuffed with information, they do miss a lot of what they should be teaching and climate change is one of the big ones, I mean it's not really in the curriculum at all."* Similarly, participant YP3 cited the curriculum when asked about the adequacy of the sustainability education she was receiving: *"It definitely is a curriculum thing… I think it [climate science] should be a subject, like it should be something that is mandatory to be taught because it's really important."* She (participant YP3) added: *"I think not all teachers are equipped to teach it and they don't know a lot about it."*

Aside from teachers not having the capability to teach climate science, many of the participants cited other challenges brought about by the South African CAPS curriculum. Later in my findings, I provide more granular detail on the specific barriers to embedding sustainability education that participants identified. To broadly provide context for this discussion, I touch on a few of the concerns participants raised.

Overloaded curriculum. All of the participants that I questioned about the CAPS curriculum highlighted that it is overloaded. As an example, participant G1 expressed: *"There's no doubt about it that the CAPS curriculum is overloaded"*, and that due to the time allocation required to complete the curriculum,

"*there's no opportunity for you to go back and consolidate certain components that need strengthening."* Additionally, a few participants shifted the discussion to how the curriculum is structured and being taught. As expressed by participant YP1 who raised the topic of assessment with the curriculum, noting that it is structured around examination: *"It's learning to write the test and pass; it's not a learn to remember, or learn to find out more about what you're passionate about or find out more about yourself"* and added that, *"it's not just about changing the curriculum, it's about changing how the curriculum is taught to children."* In alignment, participant NPO8 observed that it is no longer a question of integrating sustainability education into the curriculum, but bringing it to life: *"We fought so hard over the years to get environmental education or the environment into the curriculum… we must stop talking about integrating it…we just have to make it come alive."*

Unrelated to practice. Following the thread of challenges of the CAPS curriculum, many of the participants expressed that the curriculum is not practical or relatable. As an example, although participant NPO2 acknowledged that *"so much has changed within the curriculum",* she still felt that *"it's not progressive enough to meet the needs of South African youth"*, and attributed this to the curriculum being *"very theoretical".* In addition, she (NPO2) acknowledged the jargon-filled content students are learning does not prepare them for the world, and that although *"there are aspects of climate literacy"*, this information is neither contextualised, nor solutions-based*: "It doesn't address the social needs of many local communities that are dealing with the effects of climate change."* Participant NPO1 added: *"It feels like so much emphasis is put on the learner to learn through their books. It's very academic… of course academics has its place, but I don't think enough emphasis is put on the experiential side of learning."* Another pain point that was raised by a few of the participants is the inflexibility of the CAPS curriculum across varying contexts. To elaborate, participant E3 shared that the national Department of Education should consider the diversity of schools: *"Whether they're under a tree in Limpopo or a very well-resourced model-C school in Claremont, you're not going to write a curriculum that both of those two schools would have to carry out to the letter."*

The need for greater embeddedness. A few of the youth participants who I interviewed readily shared ideas for how to improve sustainability education; in particular, including sustainability education in Life Orientation (a mandatory subject for High School students in South Africa). Participant YP2 pointed out that certain subjects could be better utilised to integrate sustainability education than others, noting that subjects that do include this type of content are not mandatory: *"Probably the best place a kid can go to learn about this stuff is Biology, but not a lot of kids like Biology or even take Biology at a later stage in schooling"*, and that Life Orientation would be a better fit: *"One of the things that all kids will take is Life Orientation, which already is kind of a disaster in that it's really not well utilised to teach people valuable life orientation skills."* Participant YP3 agreed with this sentiment, and expressed: *"If we could use that [Life Orientation] to talk about women's rights or racism or LGBTQ rights and then climate science, that would be awesome, but we don't."*

4.2.3 The need to embrace extra-curricular learning activities

Below, I highlight that although participants perceived schools as significant community builders and the school curriculum itself as a platform for educating for sustainability, much of this type of education occurs outside of the classroom in the format of extra-curricular learning. Additionally, a related insight is that these extra-curricular efforts should align with existing curriculum content to both maximise learning outcomes and provide access for grassroots actors to carry them out.

Interestingly, a few of my participants pointed out the role of schools as central to communities. Participant NPO6 provided supportive commentary: *"Schools are the centre of community… and if you want to reach the community, schools are always seen as an easy way to do that."* Further to the significance of schools as central to existing communities, participant YP1 described the role of schools as community builders: *"It [school] has so much potential to build this strong community of people that can help each other build on each other's ideas."* These two outlooks strengthen the case for embedding sustainability education within the school system to reach communities. Building on this thread, one participant highlighted that sustainability education in particular, is broader than schools: *"It's [sustainability education] broad, you know. Beyond teachers and schools, it's communities"* (Participant NPO 3). As highlighted previously in discussions focused on the CAPS curriculum, despite the influence schools may have on communities, they do present challenges to adequately embed sustainability education.

Outside of efforts to improve the sustainability focus in the school curriculum, much of the sustainability education that is offered by non-profit organisations is extra-curricular or *beyond the classroom.* Housing sustainability education within an 'after-school' environmental club or extramural activity offers an alternative to disrupting what could be deemed a fairly inflexible system. Participant E3 explained: *"A lot of the initiatives seem to be almost beyond school. They're kind of sidestepping school as a little bit of an annoyance."* Similarly, participant G1 said, *"I think your extramural activities run by your NGOs play a crucial part in ensuring that this type of education gets the attention it deserves."* Participant R1 raised an interesting point that aligns: *"Ironically, we are having more success moving forward with that [agentive approach to environmental education] in informal learning, in community-based learning, in the social movements type stuff, than in in the schooling system"*, and pinned this down to: *"School is the whole system and it has structures that can't be responsive. Or they should be, but they aren't."*

Many of the research participants explained that extra-curricular sustainability education has a few advantages. For example, NPO6 discussed participation as one of these: *"In township schools, there are no extra murals… so when you provide them with an extra-curricular activity like an environment club, we had all the brightest kids join us."* He (NPO6) also added that extra-curricular activities can have a larger impact on fewer learners, versus a smaller impact on more learners: *"I do think that*

although you're not having the impact on the entire school, those 30 or so kids that attended that environmental club, they really take it home and they get a lot bigger and better understanding." Participant NPO7 pointed out that there are various ways to learn and that extra-curricular programs are helpful to *"reach those kids that might struggle in their typical classroom environment."*

Most participants did highlight the need to ultimately align extra-curricular activities with the school curriculum, especially in order to combat time constraints. Participant E2 offered a perspective of an educator that is pressed for time within the confinements of the school day: *"You have to do it [sustainability education] as an extramural activity because you have to do projects that you can't do within school time"*, but added that these activities can be linked with classroom lessons: *"When you have your Biology lessons, you can link them together."* Participant NPO6, a key member in a grassroots non-profit organisation, shared a similar viewpoint: "*We knew what definitions they needed to understand that would be part of the curriculum. So whenever we did, for instance, take them [the learners] down to the river, we would talk about what biodiversity is…"* He (NPO6) also noted that this was one way of gaining access to schools who have time constraints: "*That way it also made the teachers a lot more open to us taking away their time because that is one of the biggest obstacles."* Expanding on overcoming the obstacle of educators' capacity, participant E2 added: *"That's why I think WESSA specifically drills in that it [Eco Schools] must be linked to the curriculum – so that teachers don't feel like it's extra work because they don't get paid for it."* Participant NPO7, a representative of WESSA, concurred: *"I think all we want to achieve is to become supportive of the teachers because we know how much work they have to do and we always want to align our courses to the curriculum… so that it'll help the teacher in the classroom."*

Beyond extra-curricular activities offered by non-profit organisations, my findings revealed that there are other ways in which learners develop sustainability 'consciousness' and related skills. When engaged in a discussion around the importance of developing empathy as a soft skill, participant YP2 responded: *"It's something that I learned through debating. I had to debate motions that were about seeing things from people's perspective."* He (YP2) added, *"I happen to be politically active and also, I am surrounded by people who are very similar to that, being in a youth climate activist organisation… I really haven't learned anything about that from school."* Another youth participant discussed personal reading as a form of learning: *"I read the autobiography of Malcolm X and that was a big changer"* (Participant YP 4). She (YP4) elaborated that she is permitted access to and exposed to information, *"I think it's because I've been allowed to – I've been exposed to the information, I've got access to the information and I've got people who encourage that thinking instead of suppressing it."* These two examples both speak to the influence of like-minded support systems.

4.3 Key characteristics of grassroots change agency

In this section, I highlight three key characteristics of grassroots change agency. First, I found that grassroots change agency was characterised by a predominantly bottom-up approach to change that sought to encourage top-down action. Second, grassroots change agents showed a high level of agility – they were able to pivot and adapt their change tactics in evolving contexts. Third, the youth played a particularly important role in shaping the discussions and the agenda related to education for sustainability.

4.3.1 The role of bottom-up efforts

Many of the participants I interviewed shared the view that bottom-up change agency played a crucial role in promoting change. As an example, youth activist, participant YP1 explained: *"The top-down will only change if there's a fault in the bottom",* and emphasised her belief that: *"People have to speak out before we can see a difference."* When I asked participant NPO5 about her view on the role of grassroots change agents, she responded that although their work is challenging, she sees grassroots activism as *"a kind of marathon relay… there will always be something even if you win one fight",* but that *"most revolutions in history really came from a grassroots place even though they may have had other pressure points."*

A few of the non-profit organisations I interviewed purposely sidestepped top-down power structures such as government departments. When questioned whether participant NPO3 carried out change processes in *public* schools, he responded: *"All private, just purely because of the fact that it's a lot easier to work with them… with government schools there's a lot of red tape, paperwork and administration."* However, he (participant NPO3) did note that their organisation followed the model of reaching out to *"schools that are private and independent to get their support"* and then asking them to assist *"other schools that are less privileged."* Participant NPO4 shared a similar sentiment about bypassing public schools: *"Our stuff really at the moment is more aligned to your former model C schools, more sort of independent private schools, schools that are really operating well"* and pinned this down to their tendency "*to have a bit more flexibility"* and that public schools would "*want you to be endorsed by say the Department of Basic Education."*

A few other participants highlighted the reasons as to why they support bottom-up change, namely the ability of bottom-up players to be nimble and passionate as well as inspire a 'power-to-the-people' mind-set. Participant NPO4 acknowledged *"there will always be space for the bottom-up"* due to their ability to *"move faster and realise what's needed a lot quicker than the government will."* Participant NPO1 highlighted passion: *"There's a lot more heart, and there's more volition. Choice. I want to do this because I understand why I'm doing it, not because someone's telling me to do it."* One educator I interviewed, participant E1 contrasted top-down players who are *"really good at policymaking and document writing"* with bottom-up players who *"are the ones that wear gumboots and get their hands*

dirty and, you know, look scruffy, but always have a smile on their face because they're doing something they love." Another educator, participant E2 spoke with passion: *"I've always been groundswell. I think that the true power lives with people and if you can create a whole lot of conscious citizens that can all enact change, then essentially you've changed the world."* Participant NPO2 echoed similar sentiments and explained that we need to change *"that perception that there's this upper body that needs to hold everyone and tell us how to… or lead us for change to happen"*, and instead empower *"each human being to be the change."*

While these reflections from my participants may suggest a romanticised view on bottom-up tactics, my findings revealed that these were mainly used to raise awareness and encourage top-down action. Participant NPO4, who represents grassroots through-and-through, expressed: *"bottom- up work is good and rewarding work"*, but acknowledged that wider scale change *"needs to be driven from top-down as well."* Youth activist YP2 reflected on his own grassroots efforts: *"Personally, I am a vegan and I do gardening projects with people, I try to make as little waste as possible and I've organised a bunch of clean-ups in my personal capacity",* but argued that the onus to create change does not sit with individual citizens: *"I place a very big emphasis on system change. One of the chants that we sang at last year's protests was system change, not climate change."*

A few participants furthered this discussion by highlighting the need for interchange between bottom-up and top-down role players and their contrasting activities. As an example, participant E1 expressed: *"So I think if we can connect the two, then that would be great because then we have people doing the paperwork and then the people actually doing the 'do'."* Similarly, grassroots participant NPO1 conceded: *"It's going to be more of a meeting in the middle, I feel, if you've got the grassroots and the top-down approach."* Participant NPO2 recognised *"the people on the ground are doing the work",* but that for meaningful change to take place, "*there needs to be an interchange between what's happening on the ground and what's happening on top"*, emphasising that *"if we don't work together then nothing's going to happen."* In concurrence, participant NPO3 spoke about his personal efforts to share knowledge gained from working with communities with top-down actors: *"I'm starting to build connections with the people in the country that write the curriculum. I'm trying to make those connections because those are the people that you can bring the grassroots lessons to."*

However, several participants explained that establishing these connections and receiving adequate responses to bottom-up pleas from top-down players is no easy feat. When I asked whether their organisation works with government, participant NPO4 said: *"No we don't… we don't quite have the networks to get ourselves in contact with the right people I suppose in those spaces."* Even more concerning was participant E3's honest discussion around the sluggish response from top-down senior curriculum planners who were not receptive to hearing about *"the climate change or environmental collapse agenda, despite the scientific backing for those perceptions"* and were concerned that this

would disturb the institutional status quo *"of those still committed to mainstream growth and development."* Participant NPO5 shared the sentiment of poor receptivity: *"There's some degree of acknowledgement. I wouldn't go so far as to call it receptivity,"* and referred to responses she had received as *"lip-service"* or to "*quell the anxiety or the frustration of the public."* Similarly, the youth activists I interviewed largely felt that responses to their engagement efforts with the top-down have been inadequate and borne out of the purpose to appease rather than transform. *"We really didn't get much response or engagement from Minister Creasy, we just got the standard letter… we still find that if changes do get made, they are small… they are made to make us complacent"* (Participant YP2).

Although this level of engagement disheartened the youth activists I interviewed, my findings revealed a pattern that this only encouraged them to push for change more fiercely. This is evident in what participant YP5 shared about interactions with government ministers: *"It can be very demoralizing… that's why you need people to say that we know they're not doing their job and we're going to solve these problems anyway and secondly, we're still going to protest and put pressure on them to actually do their job."* Participant YP3 had a similarly upbeat response: *"Sure it's demotivating when they say stuff and then they don't follow through, but that gives us even more reason to continue to push."*

4.3.2 The capability of change agents to pivot

I identified that bottom-up actors working to affect change in education for sustainability were able to reposition themselves and alter their modes of operating according to their learnings in the field. This finding provided insight into the level of agility, which is required by these actors to change out and evolve the micro-processes of change they implemented.

Another context-giving notion worth mentioning is that many of the change agents who I interviewed (a few of whom have been established in their change processes for many years), demonstrated capabilities to adapt their activities and organisational models over time. Participant NPO6 reflected on the beginning of his journey, *"We knew what we wanted to do, which was provide environmental education and get people to live more sustainably, but we just didn't really know how to run an organisation… but we learned along the way."* Similarly, participant NPO4 highlighted the shift that his organisation underwent from *"running in-person workshops with school learners"* to pivoting towards "*moving more of our attention away from the learner to the teacher"*, and eventually to *"building curriculum and customised projects for schools."* I found it interesting to hear about how the change agents not only evolved their change processes over longer periods within their operating environments, but were also willing to exhibit resilience in the face of the much more sudden impacts of COVID-19.

During the early stages of the pandemic, non-profit organisations chose to focus on the positive implications of lockdowns and decreased social interactions by adapting to new ways of engaging with learners. For example, participant NPO2 expressed how the lockdown helped their organisation to also

engage with the parents of learners through them sharing their mobile phones: *"So it's like the parents are learning and they also have daily home activities and I try by all means to engage everyone in the family. So it's great because now it's spreading to a whole community."*

Youth activists explained that they had also significantly shifted the way they went about change agency activities. Participant YP4 explained that activism efforts have been difficult *"because you can't do much if you can't go to people and see people"*, and that they have switched to using social media, but that this is not without challenges: *"even media is still a little bit exclusive because not everyone has access."* Participant YP3, added that their youth organisation attempts to resolve this through supplying money for data and discussed the creative ways in which they continued to have a presence: *"When we want to take action, we organise a digital strike… what we've done a lot is we've gotten people to take pictures holding a sign and we post that on our social media."* While some youth activists remained involved in activism efforts on social media, others reflected that time away from in-person protests provided space for reflexivity as expressed by participant YP4: *"I've really taken this time to look at my own beliefs and my own ideas and analyse those and deconstruct, and decolonize and unlearn."*

4.3.3 The role of youth change agents

In alignment with my decision to bring the voices of youth to the fore, I highlight that youth are the primary focus of the micro-processes of change carried out by non-profit organisations and educators within the scope of education for sustainability. In turn, youth display a keen interest in these efforts based on their historical dedication to activism and enthusiasm to participate in shaping better futures.

Perhaps not surprisingly, all of the non-profit organisations I interviewed carried out their activities with the ultimate goal of improving education for youth as opposed to adults. Participant NPO6 explained: *"We found that [adult education] a bit challenging. Kids are much easier"* and that children who are younger, are easier still: *" Once they get to high school, they start getting really cool and they don't really want to put so much energy into it."* He (NPO6) added that as a result, the impact of this work is not immediate: *"Our focus was really on the kids as a means of accessing the community, so it was never going to be quick change… those kids would now have to grow up and then get into the workspace before that change can take place."* This shaped my study around change agents (the youth) that may only affect shifts over longer time horizons.

Most of the youth participants who I interviewed cited their interest in sustainability as their concerns about inheriting an unjust future. One of the youth participants, participant YP5, elaborated on why youth are important voices in sustainability-focused activism: *"It's the future and because youth are the ones who are obviously going to be more present in the future than most adults, we're the ones who are going to have to be dealing with it."* Participant YP3 added: *"we are always thinking about our futures and climate change is an issue that threatens our futures so of course we'd want to get involved and talk about it"* and that adults will not necessarily experience the same impacts, but need to understand

the youth's point of view: *"It's really important that we make them understand how we're feeling... they're the people in power, so they can make a change."*

Almost all of the youth activists I questioned about what youth can bring to activism responded that youth offer energy and see the world differently to adults. In response, participant YP2 expressed: *"There's a lot of passion within the youth, but also a very different perspective… also the ability to engage with people in a very different way… we have very different social lives to the people around us…"* He (participant YP2) added that the youth are more inspirational and referred to Greta Thunberg: *"If that was an adult doing what she was doing, no one would care."* Participant YP5 also pointed out the flexibility of the youth in participating in change: *"The climate crisis requires a paradigm shift from each individual with how they think about things and it's a lot easier for young people to change their lifestyles or to understand the change that needs to happen."* Participant YP3 shared a similar sentiment: *"I think youth always bring a different and unique perspective."*

In *photo 3*, two youth activists are seen holding up a flag that symbolises the global movement of Pride. The participant who submitted the photograph described how he and a friend hoisted the flags on their school premises to raise awareness around and show solidarity for the Pride movement. He explained that one of his educators was inspired by their passion and dedication to express their worldviews in an all-boys school that had never witnessed similar actions before.

Photo 3: *Flying the Pride flag*

Additionally, one participant reflected on the historical role that the youth have had in systems change – this gave further weight to including the voice of the youth in my research. Participant NPO5, who works closely with youth activists, shared that the youth *"have always played a massive role in any revolution or any change in the system, especially in South Africa"* such as "*the anti-apartheid struggle"* and linked this to the sense of urgency that the youth inspire: *"I think when school children*

are political and they're taking to the streets, you've got to realise that something with society is really wrong and has to change…"

When I engaged in dialogue with the youth activists I interviewed about how the climate crisis made them feel, there was overall agreement that youth activists experience climate anxiety and overwhelm. For example, participant YP1 said: *"I can 100% relate to that [climate anxiety]. There have been times when I've been so overwhelmed by people not wanting to hop on the sustainability train and it's just been really daunting."* Similarly, participant YP5 expressed a sense of helplessness: *"It's definitely difficult because you want to try and change things, but you don't know how. Yeah. It's a very heavy feeling."*

Despite this, the youth activists who I interviewed displayed resilience, optimism, and a dedication to amplifying their message. For instance, when I inquired about what motivates him despite the challenges the youth face, participant YP2 explained that a sense of optimism and hope drives him: *"I tend to be very optimistic just in my general demeanour, hoping that eventually, something will happen… if enough is done, something's going to happen eventually."* The same participant spoke energetically about amplifying their cause: *"It sounds superficial, but the more followers we have on Instagram, the more people reading our articles, the more of a voice we get"* and explained that an amplified voice creates legitimacy for the youth: *"that legitimacy is what's going to make the people at the top want to do things and need to do things."* Encouragingly, many of the older participants I interviewed spoke fondly of the youth's mandate for change and supported their voice. For example, NPO2 said: *"I feel like with this uprising of these young people saying climate change is an issue, I'm hoping that the department will listen and change its policies and find ways to embed that knowledge into the school system."* Participant NPO1 cautioned against underestimating the youth when engaging with them: *"The young people actually know more than what we think they do."*

On the flip side, many of the youth activists I interviewed also shared that adult change makers have supported them in carrying out activism efforts. Participant YP2 reflected on his personal experiences of adults helping with tasks that youth are unable to undertake alone: *"There are certain things that we aren't able to do such as getting permits and stuff, going to meetings with people who might not take a kid seriously… driving around places"* and reflected that the relationship is not only often symbiotic, but that some adults have offered mentorship or skills transfer: *"We have one guy who has been in PR media and activism all his life and he's become a role model to me in that I'm doing a lot of media stuff now – so he'll show me how to write emails in a way that is most appealing to editors and how press releases work…".* A few youth activists made the distinction between different adult actors. As an example, participant YP3 expressed: *"It really depends on the group of adults that we're talking to. Government? No. The adult support group at our youth organisation? Yes…"*

4.4 Micro-processes of change

Through analysing the responses from my research participants, four key data themes emerged. I categorised these themes as the micro-processes of change that a variety of grassroots actors undertook to embed sustainability in South African education. These micro-processes that encourage change are detailed in *table 3*.

	Theme	Sub-themes
1	Building relationships	• Establishing buy-in with key stakeholders
		• Securing support through developing rapport
		• Engaging in partnerships for collaboration
		• Networking to leverage shared resources
2	Moulding champions	• Training teachers to champion education for sustainability
		• Capacitating ownership through leadership development
		• Developing leadership skills to empower the youth
3	Exploring alternative learning	• Conducting experiential learning
		• Embracing localised participation
		• Imparting soft skills
		• Creating engaging learning experiences
		• Nurturing environmental connection
4	Encouraging engaged citizenship	• Inspiring personal agency
		• Mobilising participation in social movements
		• Submitting demands to political entities

Table 3: Data Themes: Micro-processes of change

In the following section, I look at each theme and related sub-theme in more detail.

4.4.1 Building relationships

The participants who I interviewed all, to varying degrees, interacted with a variety of people that held a level of influence over whether the organisation, educator, or youth activist were enabled to affect change. Many participants identified good relationships as integral to enabling grassroots actors to carry out sustainability education activities. Demonstrative of this finding, participant NPO6 acknowledged that their extra-curricular programs and environmental clubs only run when they *"have a good relationship with those schools and teachers"*, and participant NPO1, who felt that a particular school principal they worked with understood the value of their offering, attributed this to *"relationship building over the last couple of years."* Within the overarching theme of constructing these good

relationships through *'building relationships'*, four sub-themes emerged, namely: *'establishing buy-in with key stakeholders'*, *'securing support through developing rapport'*, *'engaging in partnerships for collaboration'*, and *'networking to leverage shared resources'.*

Establishing buy-in with key stakeholders. A clear pattern emerged from my findings, intimating that grassroots actors work to establish relationships by garnering buy-in from those that hold positions of power. As was clearly articulated by participant NPO3 who stated, *"If you don't have the buy-in of people, you're not getting anywhere"*, many of the participants held the opinion that buy-in is essential for operating. Similarly, participant NPO4 highlighted that their agenda became *"an easier push"* once they were able to meet with upper management and *"get them to kind of buy into what we were proposing."* Interestingly, many of the participants highlighted that buy-in can be established by demonstrating the value and credibility of their activities, as was indicated by participant NPO2 who said that schools "*need to see the value in our work in order for them to allow us to continue offering our services."* Likewise, participant NPO6 recognised that stakeholders were more likely to buy-in to their program when they could "*walk their talk."*

Interestingly, aside from ensuring that grassroots actors can carry out their actual activities, one participant also noted that stakeholder buy-in was important to gain an understanding of the structures they would be operating in. Participant NPO2 saw the need to work with and value the input of curricula advisors and school principals because their organisation is *"coming into a school system"*, so they *"need to know how that structure or that system works."*

Securing support through developing rapport. While many participants identified establishing buy-in with schools and principals as a way to achieve growth, a few others recognised the difficulty of securing school-wide support. Securing this support required developing credibility through having a good rapport with stakeholders. Evidential of this, participant NPO2 noted that their environmental education initiatives *"grew through invitation"* and that they were "*called to those schools."* Similarly, participant NPO6 chalked up building "*a really good rapport with the teachers and with the principals"* as one way of getting stakeholders to put in a "*good word to go and start at the next school."* While participant NPO3 echoed their sentiments of the importance of stakeholder involvement, he recognised that the *WESSA Eco Schools* model that calls for "*entire school, student and teacher body involvement" was "practically very difficult to get right".* It's possible that this challenge could be attributed to the different authority structures within schools, as was highlighted by participant NPO4 who differentiated between some schools in which teachers *"have full autonomy over what they can do"* and others in which *"all the decisions have to be run through the department head or go through the principal."* Some participants discussed the need to adapt to each unique context when building relationships, as expressed by participant NPO4 who said: "*You really have to speak their [the school's] language."*

Beyond gaining initial entry into carrying out change activities at schools, a few of the participants highlighted that failure to overcome these difficulties of securing support from power structures could result in an inability to operate. Participant NPO7 conveyed this sentiment: *"I don't think any organisation that's trying to offer environmental education actually can do it well if they do not work together with the education department of whatever province they happen to be in."* This finding was also well articulated by participant NPO6 who noted, "*once you build credibility, then you start getting people to donate"*, highlighting that continually establishing credibility also opens access to funding. Following this thread, building relationships not only requires initial groundwork, but also includes continual efforts to network and partner.

Engaging in partnerships for collaboration. Almost all of the participants who I interviewed, consistently described their participation in networking and partnering activities as was expressed by participant NPO3:*"More than 50% of the actual project time was preparation time, which was me and my team physically going out and making the connections."* My findings revealed that grassroots actors recognise the need to collaborate with others and to create partnerships to achieve their objectives. This finding is well illustrated by participant YP1 who spoke reflexively of her realisation that "*it's very hard to get the public to listen to you when you're just one person"* and participant NPO3 who pointed out the sheer scale of tackling issues in the schooling system: *"One organisation cannot effectively manage 700 schools and make sure that they're all meeting and growing and making the most of the program."* Participant YP5 highlighted that many of these organisations share a similar vision: *"We want the same thing"* and that this can be achieved through working together.

Most of the participants who discussed the importance of partnerships, referred to this as an antidote to silo thinking. Participant NPO7 clearly expressed the need to do so: *"You have to be in partnership with other NGOs as well, you can't just do your own silo approach."* Similarly, participant NPO5 highlighted "*opportunity for collaboration with civil society, different youth groups, and coalitions"* as a way to "*overcome our tendency to work in silos and work more together."* Participant YP5, whose primary role in a youth activist group is to create partnerships, acknowledged the role of partnerships in intersectionality: *"It's good to have people from different parts of society tackling different issues come together because we know that these issues don't exist in isolation."*

Networking to leverage shared resources. Many of the participants who I interviewed not only echoed the sentiment of participant NPO1 who mentioned, *"we do feel like we are part of a larger network"*, but also furthered this by acknowledging the significance of networking in gaining access to and providing resources. As an example, participant NPO6 described his organisation as one that *"piggybacked on so many other organisations"* to get *"resources from them."* In the same vein, participant NPO3 partnered with a school that was "*going beyond their means and their resources"* to *" fill that gap"* and to *"create the networks and bring in the resources that they needed."* Participant

G1 spoke about the success of the Gauteng Environmental Education "*to pool resources"* as opposed to past activities where *"people were working independently"* and as a result, *"over subscribing to certain areas at the expense of not supporting others."* Tellingly, participant NPO1 highlighted that their organisation no longer works directly with schools; instead they *"partner with the principal or teacher"* who then assist "*with an administrative role."*

Additionally, a few of the participants also identified networking as a way to expose young people to future advancing opportunities. Representative of this, participant NPO2 described the exposure that youth gain from activist work such as being *"invited to summits or conferences where there are opportunities for them to grow and to meet new people and make new friends."* Similarly, participant NPO1 gave an anecdotal example of fostering connections between youth in the 'You Lead Warriors' program with a company involved in solar energy installations: *"We keep on saying to the You Lead warriors that it's important that you make these connections and keep these connections because moving forwards they are keys to the future."*

4.4.2 Moulding champions

My findings revealed the apparent existence of champions within schools and their surrounding communities, but importantly that they require support, and often training or activating existing leadership qualities. For the purpose of my research, I defined these champions as individuals who defend or support a cause – in this case, education for sustainability. These champions are key to assisting grassroots actors to carry out their activities. When discussing champions, participant NPO4 noted: *"Every school has a champion teacher or a teacher that's passionate and willing to try new things"* and that there is a need to *"work with them and support them as best you can."* Similarly, participant NPO6 warned: *"If you don't have a champion teacher or you don't have a champion in that school or community, you don't have a program."* Second to *'training teachers to champion education for sustainability'*, my findings also revealed grassroots actors' focus on moulding champions or champions-in-training through *'capacitating ownership through leadership development'*, and *'developing leadership skills to empower the youth'*. This was encapsulated in participant NPO1's vision to *"capacitate young people to be leaders of the future and more specifically, climate leaders"* through focusing their organisation's efforts on leadership skills development.

Training teachers to champion education for sustainability. Teachers were identified as both the primary champion actors that exist within the school system as well as the actors that require the most support. Participant NPO4 argued that many organisations *"do focus on learners",* but that educators *"need to become a big focal point"* and that this has been their organisation's conclusion after *"years of gaining an understanding of how the schooling ecosystem works."* Many of the youth activists I interviewed, anecdotally referred to champion educators that inspired and encouraged them. As examples, participant YP4 spoke about her history teacher who encouraged students to *"think critically*

about everything" and participant YP1 reflected on how her biology teacher *"looked at everything in a complex, connected manner"* and encouraged her to *"join the eco portfolio."* Following this thread, participant NPO4 described educators as the *"infrastructure and drivers of the school."*

The majority of the non-profit organisations who I interviewed, made the case for increasing teacher-training activities as one way to advance education for sustainability. As an example, participant NPO2 advocated that sustainability education *"needs to go hand-in-hand with training, where teachers are being trained on how to implement these topics."* Correspondingly, participant NPO4 acknowledged the importance of teacher training to *"provide processes that really support teachers"* in order to *"develop them as human beings",* and came full circle to explain: *"If you have good human beings in your school, your learners will be taught well no matter what."* Additionally, participant NPO6 identified teacher training as a *"win"* and noted that sustainability education *"materials are there",* but that the focus should be on *"training the teachers to use them."* Beyond equipping educators to effectively make use of curricula content, interestingly, participant NPO2 described their particular focus on assisting educators with *"classroom management"* and *"a different approach to learning"* centred on creativity. To provide further justification for the need for training to mould champion educators that are capacitated to teach education for sustainability, Participant R1, aptly responded to the subject:

> *"A teacher needs to be able to understand the problem and be sufficiently motivated and concerned about it to want to do something from a position of care or ethical commitment – and then be able to work within the, dare I say constraints of the curriculum, to still enable the broader agentive, open-ended reflexive, critical stuff that is required for environmental learning. That's why a lot of attention is being paid at the universities now to work at the level of initial teacher education – to try and bring in a new generation of school teachers who have that approach. These are small steps in the big system."*

<u>*Capacitating ownership through leadership development.*</u> A few of the non-profit organisations who I interviewed alerted me to the need to create a sense of ownership for sustainability education to be truly embedded in schools. As anecdotal evidence, participant NPO6 discussed the challenge of implementing *"vegetable gardening and recycling programs"* that only work *"for a year or two if you don't have somebody that you're paying to be there"* and conceded that he hadn't seen *"schools take ownership"* of these sorts of projects. One way of resolving this issue is to capacitate leaders within schools and surrounding communities.

<u>*Developing leadership skills to empower the youth.*</u> The majority of the non-profit organisations who I interviewed discussed leadership skills development as integral to their educative activities. In particular, these skills development initiatives were aimed at empowering youth to become champion change agents. As was expressed by participant NPO3:*"We want to engage the youth and empower*

them to be leaders in their communities, in their schools." In the same spirit, participant NPO6 reflected on how their organisation, at first unknowingly, started "*doing a lot more leadership training than environmental education"* and noted that the two go *"hand-in-hand."* As an example of shifting agentive ownership through advancing youth leadership, participant NPO5 discussed the objective of the youth activist organisation she was involved in to *"become a fully youth-led."*

Along the same lines, a few of the participants who I interviewed identified the need for educators to facilitate leadership through acknowledgement and allowing space for learner-led opportunities. This was well illustrated through participant NPO2's response: *"I guess when those kids are being seen, they feel recognised and then they feel like they can then step into their own power."* Participant E1 echoed this sentiment: *"You [the educator] have to step back – you're actually just the facilitator. The kids have to come up with the project themselves and you have to sort of see who becomes the leader."* Similarly, participant NPO5 discussed her vision to empower youth "*to know that they can run with things",* instead of viewing the organisation as hierarchical. Participant YP2, one of the youth activists I interviewed, expressed how volunteering in this same organisation taught him *"how leadership works, how to facilitate meetings and how to make sure that everyone is included in things fairly."*

4.4.3 Exploring alternative learning

Of the participants who I interviewed, all of those participants categorised as non-profit organisations and educators, were engaged in carrying out educative activities that opposed traditional approaches to learning. For the purpose of my research, I viewed these traditional approaches as those that are academically oriented or assessment-based, classroom-bound, rigid in structure, and highly textbook driven. I refined the alternative learning approaches that participants advocated for into five key sub-themes, namely: '*conducting experiential learning', 'embracing localised participation',* '*imparting soft skills',* '*creating engaging learning experiences',* and '*nurturing environmental connection'.*

Conducting experiential learning. The majority of the participants who I interviewed flagged experiential and practical learning methods as integral to education for sustainability. From worm farming and testing river health, to maintaining organic outdoor gardens, non-profit organisation participants across the board referred to a variety of practical learning activities that they are engaged in. Participant NPO4 felt that "*practical learning is imperative."* As anecdotal examples echoing this sentiment, participant NPO8 advocated that students *"need to get that experience [of river systems] beyond the classroom",* while participant NPO6 insisted that "*without showing them [the students] the correct way"* to recycle waste, "*they're not going to learn at all."* In the same vein, participant NPO2 prided her organisation for bringing *"a different approach that is very practical",* having designed a *"living classroom program"* that accommodates "*kids who are gifted in different ways",* as opposed to only those who are academically strong. In concurrence, participant E2 considered directly *showing*

students in contrast to *telling* them to be where *"big change could occur."* Lastly, when I asked about her dream schooling system, participant YP3 commented: *"Practical learning would be awesome."* She (YP3) elaborated that this would aid in digesting information: *"It's one thing for someone to lecture you about the causes of climate change, but it's different to see it actually happening."*

In particular, these participants also discussed practical learning activities that take place outside of the traditional classroom and that are geared towards facilitating embodied experiences. Participant NPO4 reasoned: *"I don't think that they [children] can be taught very well through the classroom space."* Similarly, participant NPO2 asserted that we should let learners *"get their hands dirty, build stuff and be curious about the world"* rather than keeping *"them behind the desk with pen and book."* Participant YP2 lamented: *"As much as we can teach kids in a classroom about the biodiversity of South Africa, that doesn't mean anything to a kid who doesn't know what that looks like."* Participant R1 took experiential learning a step further by referring to *"embodied learning"* that extends "*beyond the environmental educational cliché of kids going for walks in nature*" to the *"micro opportunities for a child to actually touch the soil"* as a way of fostering *"connection to a place and a process that adds up over a life-time."* Participant NPO2 provided a poignant sketch of how practical experiences of connection can become embodied knowledge:

> *"I always ask them [grade 1 students] where they think their vegetables come from. 99% of them would say Pick 'n Pay or Shoprite... And they have no concept that that vegetable comes from the ground, or that somebody grows your food, you know, on a big farm. It goes to the factories, it's packaged and then it goes to the shop, but there's no concept of that, so when they see it, it's like, "oh, wow", and they watch it grow and then we harvest it and we make this big salad. Then they eat it and all the leftovers go to the worms and the worms give us compost, which we use to plant our garden. They get to witness and see and be part of that whole full cycle, you know. I believe no child can forget that once they've experienced it. It becomes part of who they are."*

<u>*Embracing localised participation.*</u> Most of the non-profit organisations who I interviewed shifted the conversation from only advocating for practical learning, to action-oriented learning that is specifically real-world aligned and contextual. Participant NPO3 was of the view that *"the value in exposing students to real-world solutions is immense"* and that this can be achieved through teaching *"case studies."* In agreement, participant NPO8 highlighted that their organisation's action projects *"have more meaning than just an extramural activity"; instead*, they served to *"impact on everybody's lives."* Similarly, participant NPO4 insisted that students should participate in projects that *"add value in some way to their surrounding community."* Participant E1 added that educators should link projects to "*something that the kids are going through"* and that environmental education is about *"being able to come up with hands-on solutions."* As a contextual example of this, participant NPO2 explained that

their organisation's decision to focus on *"waste management"* is based on the premise that the students they work with *"deal with and see it every single day of their lives."*

Imparting soft skills. In addition to practical learning activities, most of the participants who I interviewed discussed progressing beyond academic aims to also educate for personal development, or for what can be deemed as soft skills. To elaborate, participant E1 discussed the dichotomy of environmental education as a good way of *"teaching both soft skills and hard skills"*, but highlighted that *"there is a huge movement towards more personal orientation rather than academics."* Participant NPO4 reflected on a specific program their organisation had implemented that targeted *"soft skills"* such as *"active listening."* In agreement, participant NPO8 expressed that education for sustainability should include *"some kind of critical thinking, inquiry and experimenting."* In the same vein, participant NPO1 suggested that *"young people don't necessarily ask questions or easily accept something for what it is"*, which their program sought to counter by encouraging students to ask 'why'.

Creating engaging learning experiences. Another finding worth pointing out was the inclination of most of the grassroots actors I identified to favour education that is engaging or interactive as a beneficial alternative approach to learning. As one instance of this, participant NPO3 highlighted the need for lessons to be *"very creative and very engaging"* because their programs weren't compulsory and therefore necessitated *"keeping students engaged."* On the receiving end of the learning experience, participant YP2 complained: "*In most situations, the classroom is a place of boredom and academic focus"* and furthermore that *"for most kids that's not an engaging environment."* Participant NPO2 provided insight into how their organisation kept students engaged: *"We dance in our lessons, we sing. It's hands-on..."* Similarly, participant E2 described their tactics to encourage children to develop "*their relationship with nature"* as "*fun and interactive, self-initiated play."*

Nurturing environmental connection. Lastly, the majority of participants shared a common understanding that nurturing a connection with the environment is an important aspect of education for sustainability. Participant NPO2, who expressed this, described her program as follows: *"It's mostly about reconnecting and building a sense of love and belonging."* Further illustrative of this, participant NPO1 believed that *"nurturing an appreciation for the natural environment is really important."* Additionally, he (NPO1) identified that *"once you have a connection"* with the Earth, *"you've got more of a reason to want to protect it."* Along the same lines, participant E1 felt that if students were *"connected with the Earth in a positive way"* they would be more likely to retain that consciousness *"through growing up."* Participant E2, another educator, explained that her own research highlighted *"that spending frequent time in nature, specifically under the age of 11, helps children develop something called nature connectedness."* Her (E2) definition of this term aligns with the prior stated sentiments: *"Nature connectedness is essentially a measure of how much you want to preserve it and how willing people are to practice sustainable development."*

Most of the non-profit organisations I interviewed provided anecdotal evidence of their focus on fostering the connection between their students and nature through outdoors activities such as hiking. In particular, they sought to achieve this connection by first highlighting why the environment should be protected or valued. Participant NPO7 articulated their organisation's aim to advance children's understanding of the ocean by focusing on *"wonderment and why it's important to protect it."* Similarly, participant NPO8 spoke about remedying the disconnect students experience between sustainability issues presented in the curriculum and their lived experiences through enabling them *"to see the value of what we are advocating for."* Reinforcing that these sorts of approaches to learning have the potential to foster nature connectedness, youth activist participant YP2 reflected on his experience of participating in a gardening project: *"I was never a gardening person before this and now I'm going down to the garden whenever I can because that's the connection to nature that I was missing."*

4.4.4 Encouraging engaged citizenship

The link between education for sustainability and developing engaged citizens became a recurring theme throughout my interviews. Many of the participants who I interviewed shared the perspective that the schooling system should encourage students to be advocates for change. This is expressed by participant E3 who upheld that schools ought to recognise the *"importance of advocacy"* as a *"key component of the politics of living."* He (E3) went on to further describe the politics of living as the *"exchange of power agreements between people."* Participant R1 provided further elaboration in her reference to the shifts that have taken place in environmental education: *"More attention has been focused on agency. It's [environmental education] about developing critical citizenry."* My findings revealed that grassroots actors work towards increasing engaged citizenship through various ways, three of which are: '*inspiring personal agency', 'mobilising participation in social movements',* and '*submitting demands to political entities'.*

<u>*Inspiring personal agency.*</u> The majority of the non-profit organisations I interviewed pointed out their increased focus on education and activities that empower youth to have agency and inspire them to participate in [climate] activism. Illustrative of this, participant NPO7 commented that their organisation's biggest drive was to *"be able to empower kids to realise that they do have the power to change something"* instead of relying on their parent *"to do things for them."* Similarly, participant NPO2 described how her organisation provided mentorship for young climate activists and explored *"climate justice advocacy."* When sharing an example of what he considered environmental education, participant E3 reflected on taking their students to *"marches in Cape Town and demonstrations"* and that he often observed other schools there that encompassed *"an ethos of student empowerment and engagement."* The participants I interviewed discussed instances of inspiring personal agency that can be categorised into two spheres: '*youth activism'* and '*community initiatives.'*

- ***Youth activism:*** Notably, all of the youth I interviewed displayed the agentive behaviour that these participants encouraged in the format of their efforts to create change through youth activism. The sample of youth I heard from all spoke with enthusiasm about the role of activism. Youth activist, participant YP2 shared that joining an activist organisation meant *"having an active voice"* and that by default, *"putting your voice out there legitimizes other voices around you."* Equally hopeful about the prospects of activism, participant YP3 referred to activism as *"a really effective way to get things done"* and celebrated the capacity of social media to capture global activist movements such as the *"incredible Black Lives Matter protests."* Participant YP5 highlighted that activism is *"specifically important in situations when your government, or when the change that needs to happen isn't actually taking place"* in order to both *"change people's mindsets individually"* as well as *"put pressure on government."*

- ***Community initiatives:*** Interestingly, a few of the participants who I interviewed shared examples of how their initiatives inspired forms of agency that extended beyond only participating in youth activist groups. These examples ranged from students taking personal ownership over school projects to embracing 'sustainability' within their own homes and communities. Participant NPO1 reflected on the efforts of one student who displayed agency by using leftover supplies from the day's gardening activities to create her own flourishing garden at her home: *"Without us motivating her to do this, she did it all by herself, she created this garden…To see her do that, having had that planting experience with us and then doing that at home, that was really awesome to see."* Participant NPO6 proudly shared a second example of how students from a township in Cosmo City, Johannesburg, had taken initiative without his guidance and came up with the idea to engage with surrounding car washes and *"educate them about our water scarcity problems."* Along the same lines, participant E1 explained that most of her students now recycle at their homes on their own accord: *"You're actually just the facilitator, the kids have to come up with the project themselves."*

<u>*Mobilising participation in social movements.*</u> Key to the activism efforts of the youth I interviewed, most of them described the variety of ways in which they garnered support for the movements they joined and causes they defended. I categorised these ways of mobilising participation into *spreading the word*, creating *platforms for increased dialogue*, and *creating a sense of community.*

- ***Spreading the word:*** Amongst other means of 'spreading the word' to advance their cause and gain traction that youth cited, the advents of encouraging participation through raising awareness, sharing information, and developing personal connection stood out. Participant YP5 reflected on her experiences of speaking at school assemblies where she

and other members of her environmental club would share what they were passionate about as a method of raising awareness: *"I think it became more relatable that way, people were like, "Oh, I can see why that's important. I also want to participate!""* In a similar vein, participant YP2 upheld that *"the more people know about what's going on, the more people are aware of their power."* Building on this, he (YP2) explained that their activist organisation takes a *"very informational approach to get through to the adults."* Participant YP4 added that her collective specifically shared information through art to get other people involved: *"Wherever there's art, there's some form of connection."* Participant NPO2 shared a moving excerpt of how she encouraged her students to share information:

> *"I always say to the students that if somebody doesn't know, then it's your role to teach them because you know and now you have to pass on that information to others. Because if I didn't exist, you wouldn't have known. I taught you. Now it's your duty to go and spread that knowledge to others. And they do it so beautifully. I often get videos of them doing their thing… whatever issue they came across. They'll say please spread this video. And they write to me and say "I told my mom about this."*

Photo 4 depicts a youth activist participating in an artistic performance at a shopping mall in Johannesburg, South Africa, to raise awareness around the issue of plastic pollution. The participant described how she uses art as an activism medium to start conversations with members of the public and thereby inspire others to join her cause.

Photo 4: *Art for activism*

As examples of how information was shared and how awareness was raised, participant YP3 noted *"organising strikes through social media"* and *"sharing articles"*. Similarly, participant

YP2 explained that they encourage other youth to join protests through *"posters, advertising a daily announcement [at school] and doing speeches."* Furthermore, these activities extended beyond external members of the public to internal members of youth activist organisations too. Participant NPO5 provided an example of how their organisation realised that there were *"discrepancies of environmental literacy"* amongst their own youth activist members and that they then shifted their focus to also share information through *"internal education"*.

In *photo 5*, multiple youth activists are pictured in a collage that was posted publicly on Instagram. The picture illustrates youth activists mobilising to voice their concerns and raise awareness over social media platforms.

Photo 5: *Youth activists on social media*

- ***Platforms for increased dialogue:*** Many participants mentioned the need for creating platforms that encourage two-way information sharing through dialogue. As one example, participant YP4 expressed: *"I definitely think more dialogue should be introduced [into schools] and there should be more room for kids to speak about and provide critique on the system. Sometimes the best things come from class discussions."* Additionally, she (YP4) felt that dialogue is an important tool to foster inclusivity: *"They [activists] tend to speak over the people they're trying to help… instead of speaking over people and speaking for people, give them a platform."* Participant YP1 explained that failures in the youth organisation she had joined could be attributed to *"a lack of communication, which lead to a lack of trust."* Interestingly, participant G1, representative of a top-down voice, shared a similar view: *"There needs to be that dialogue that takes place between the different entities… there should be an outlet for these learners to voice their frustrations and indeed get some input at a particular level."* Participant YP2 felt that although he felt some of his English and History lessons had been discursive because of

their focus on politics, encouraging open discussion in the classroom space was not *"a regular thing"*.

Interestingly, a few of the non-profit organisations I interviewed described their efforts to create spaces that encouraged dialogue and self-initiated engagement with one another. As expressed by participant NPO2 who thought of herself as a facilitator rather than a teacher: *"We co-create the space and we also have a lot of space for our kids to share with teachers things that we don't know."* For participant NPO4, creating a platform for dialogue extended beyond the student-educator relationship to also encourage teachers to *"have deep and meaningful conversations with each other that they wouldn't normally have in their staff room."*

- ***Creating a sense of community:*** The youth participants I interviewed consistently described the various activist collectives, organisations, and eco-clubs they had joined as spaces to engage with like-minded people, receive support, and express themselves. For instance, participant YP5 expressed: *"It's so helpful when you know that you have people around you who are interested in the same things as you and who want to help you…I think that support is very important."* Participant YP3 shared a similar sentiment, adding that for her, joining the young climate activist movement entailed *"focusing on what you believe, finding like-minded people and then protesting to help make a difference."* Participant YP1 provided a granular anecdote of how she regularly engaged in community activities such as eco-bricking and beach clean-ups to build personal relationships. She (YP1) reflected on the importance of these activities in creating *"a small bond that shows people that they're not alone."* Participant NPO5 felt that although the youth contingency she worked with had to overcome societal divisions, a lot of the members were like-minded or *"very similar in the way they thought and got along very well despite age."* She (NPO5) pointed out that *"there could be a personality type to an activist."*

  Encouragingly, all of the youth I interviewed viewed these communities as supportive, cohesive, and inclusive. Participant YP3 reminisced on a climate protest she had attended for the *"incredible vibe"* and being able to *"talk to anyone."* Along the same lines, participant YP2 felt that protests are a space for youth to *"be angry, if you need to be angry", "perform music and art and poetry"*, and *"expose people to the real magic of how people can work together."* Participant YP1 said that marches encourage people to *"find an importance in themselves", "feel the energy of being together",* and *"add to a movement."* In addition to marches and protests, participant YP4 shared similar views about the actual activist collective she had joined: *"This space is open for everybody …one of my favourite things about it is connecting with people and being able to trust people."* Similarly, participant NPO5 noticed a shift amongst youth members in her organisation to attempt to *"make the space really inclusive."*

Submitting demands to political entities. Of the engaged citizenship efforts that the youth activists who I interviewed participated in, submitting various demands to the South African government was widely discussed. One of these demands was for better integration of climate literacy at school-level in order to adequately prepare young people for the future. Participant YP2 maintained that youth activists attempted to drive change through these demands, and referred to one demand as the need to *"initiate climate adaptation education in schools."* Participant YP1 used similar wording in describing her demand for *"mandatory curriculum integration of sustainability and change in the future."* Finally, participant NPO2 shared her hope for the government to heed these demands and *"find ways to embed that [climate literacy] knowledge into the school system so that every child in South Africa knows what climate change is, how it's affecting them on a daily basis and how to take action."*

4.5 Counter-forces that hinder change agency

In response to my fourth supporting research question, I identified four counter-forces that hinder grassroots change agents from carrying out efforts to embed sustainability in South African education. These are stated in *table 4.* Importantly, these barriers and challenges are neither an exhaustive list of the potential challenges that could exist, nor do they necessarily occur in isolation from one another.

	Counter-forces	**Supporting evidence**
1	Inequality within the South African education system	*"There are so many schools that don't even have classrooms… in the Global South, it's a lot more difficult to try and get people to prioritize these things [sustainability education initiatives] when there are so many big changes needed."* (Participant YP4)
2	Access to resources	*"Funding is a big thing that we need to think very strategically around… teacher workload is a constraint… it's difficult to sell a program to teachers if it means that they've got to put in some extra hours."* (Participant NPO8)
4	Bureaucracy	*"There are lots of bureaucratic processes that hinder and prevent us from access into schools."* (Participant NPO8)
5	Apathy and resistance to change	*"There's still a very large barrier to getting people involved, which is a real shame. I think a big problem that we have especially with young kids is apathy."* (Participant YP2)

Table 4: Counter-forces that hinder change agency

Below, I look at each barrier in more detail and provide additional supporting evidence.

4.5.1 Inequality within the South African education system

My interviews indicated a resounding sentiment amongst almost all of the participants that implementing education for sustainability is challenging to undertake in a country where there is an immediacy of need for education itself and that this is due to widespread inequality. As was expressed by participant NPO8: *"The past inequalities still haunt us today, we still see the disparities in the schooling system."* Participant NPO2 attributed inequality within South African education to historical *"systemic oppression"* and highlighted that *"good quality education has become a privilege."* As an instance of how this plays out she (NPO2) pointed out that *"some teachers are not even literate"* and that this makes it challenging to empower learners in *"township schools"* to *"catch up with learners attending private schools or ex model-C schools."* Aside from inequality manifesting as a *"digital divide"* (participant NPO5), participant NPO5 also emphasised that *"inequality in terms of education, and that includes then environmental education and literacy"* has been a barrier for addressing the *"divide between what some of the youth activists understand and what some don't."* Participant YP3 offered that people who are focusing on *"what they're going to eat and how they're going to get to school"* do not have the *"energy to think about issues like that [climate change]."* Although the immediacy of needs for basic education and services takes precedence above implementing education for sustainability, another perspective is that these initiatives could be viewed as potential solutions. In this regard, participant E1 questioned whether environmental education projects will be prioritised *"if we're struggling to open up schools because they don't have water sources to wash their hands",* but pointed out that *"if done right"* these sorts of projects *"could actually solve a lot of these problems."*

4.5.2 Access to resources

When queried about the challenges of implementing sustainability initiatives in education, the majority of the participants mentioned the overall lack of access to resources. The two primary resources they referred to in this regard were *'funding'* and *'teacher capacity'*.

Funding. A few of the participants discussed the frustration they experienced in securing adequate funding to ensure both the longevity of their initiatives as well as the reach to serve underprivileged target audiences. For instance, participant NPO7 expressed that one of their most significant barriers to embedding sustainability education is *"trying to reach the disadvantaged in our communities"* and that the issue of reaching students in outlying areas *"loops back to funding."* Participant YP3 explained that involving underprivileged youth in activism initiatives also requires access to funding for *"transport"* and *"data"*. Participant E3 discussed the challenges of carrying out an environmental education program: *"It was under-resourced almost always"*, and importantly, warned against accepting funding from sources that are not aligned with the same values as the program: *"I think that one has to be sort of careful where one gets sponsorships from."*

Teacher capacity. Almost all of the non-profit organisations I interviewed highlighted the issue of *"teacher fatigue"* (participant G1) as a barrier to implementing education for sustainability within schools. As was expressed by participant NPO3, teachers are *"busy people"* and *"struggle to take on that extra burden."* Similarly, participant NPO4 explained that teachers become *"inundated with what they've got to do at the school",* which makes it *"very difficult for those processes to be taken up."* As an antidote, participant NPO6 proposed ensuring that any programs, which external organisations would like to carry out during school time should be *"beneficial to the teacher."*

4.5.3 Bureaucracy

A few of the non-profit organisation participants highlighted that bureaucracy is an additional constraint that they face when both establishing and implementing their initiatives and programs. As reflected by participant E1 who discussed her interaction with the WESSA Eco School model: *"There's a lot of bureaucracy that goes behind this",* and attributed the *"regulations and protocols"* as hindrances of *"collaborations."* Participant NPO6 shared his disdain for making contact with public school administrators to gain entry: "*You waste a lot of time trying to organise meetings that nobody shows up at."* Along the same thread, he (NPO6) conveyed how school staff are changed out through governmental enforced processes: "*Sadly the principal gets changed two years later and then the new principal doesn't want to hear anything about the program you've been implementing."*

4.5.4 Apathy and resistance to change

Lastly, a few of the participants also cited general apathy or resistance to change as potential barriers. For instance, participant NPO4 highlighted older teachers who might be *"more stuck in their ways"* are *"not willing to look outside of what they know and what they do."* Participant YP5 added hopelessly: *"A lot of people genuinely don't care and you can try as much as you like to speak to people, but sometimes they just don't want to listen."* Participant YP1 reasoned that when faced with change, *"it's much easier to say that it's somebody else's problem than to actually accept that it's your problem"* and that remedying this requires a degree of "internalisation." As a rebuttal, participant R1 said that putting failures down to apathy is *"an over-simplification"* and argued that individuals who didn't attend functioning schools themselves might not feel enabled to *"participate in those discourses"* and therefore *"stay out of it [advocating for alternative education]."* Following the same thread, participant YP4 attributed the resistance she received as *"hopelessness"* related to historical, government inaction, or that people choose not to engage because *"they don't want to feel guilty."*

Chapter 5: Conclusion and Recommendations

5.1 Introduction

I engaged in the study to find out more about bottom-up change in education for sustainability. My overarching question was to explore *how* grassroots change agents embed sustainability in South African education. I approached this question by organising my study around four supportive questions. I set out these research questions to identify: (i) the drivers of grassroots change agents' engagement (ii) the main characteristics of grassroots change agency, (iii) the micro-processes of change that grassroots actors utilise to embed sustainability in South African education, and (iv) the counter-forces that hinder the micro-processes of change. I approached these questions by investigating the variety of day-to-day activities that a sample of grassroots actors undertook to advance education for sustainability. In this chapter, I discuss the key findings for these four research questions by the use of a process model, with the ultimate aim of answering my overarching question. I identify parallels between my findings and the literature review presented in Chapter 2. I go on to discuss limitations of the study and to provide recommendations for further study, followed by four practical recommendations for grassroots change agents that draw on my findings. Finally, I share my closing reflections on the research journey.

5.2 Discussion

I start by proposing a process model that summarises how grassroots change agents embed sustainability in South African education, either shaping education for sustainability or disrupting traditional education. I then draw on the two areas of scholarship discussed in Chapter 2, namely *institutional work* and *social movement theory* to gain insights into each stage and the mechanisms at play. I found that the language of institutional work was particularly useful to understand the intentionality guiding the actions of grassroots change agents. Out of the three forms of institutional work identified by Lawrence and colleagues (2009), namely *creating, maintaining,* and *disrupting* institutions, I found that the grassroots change agents were mainly engaged in institutional work of creation and disruption. I used social movement theory to unpack the practices used by grassroots change agents to increase movement participation, foster engagement, and build capacity (Voss & Williams, 2012). Three categorisations identified by the literature were particularly useful to gain insights into these practices, namely *mobilising, organising,* and *networking* (Voss & Williams, 2012). Within the scholarship of social movement theory, framing theory helped me to gain a better understanding of the micro-dynamics of how grassroots change agents went about organising social movements (Purdy *et al*., 2017). Accordingly, I identified a number of parallels between the micro-processes of change and the four frame alignment processes documented in the literature (Cornelissen & Werner, 2014).

5.2.1 A model showing how grassroots change agents embed sustainability in education

Figure 7 illustrates how grassroots change agents utilise a number of micro-processes of change to engage in collective action that either contributes to shaping education for sustainability, or to disrupting traditional education. In Chapter 4, I categorised these micro-processes of change as *building relationships, moulding champions, exploring alternative learning,* and *encouraging engaged citizenship*. With the model illustrated in *Figure 7*, I show how the micro-processes are connected and contribute to the process of institutional change. At the start of the model, the grassroots change agents build relationships in order to engage in collective action. Once engaged in collective action, they use two different types of tactics that each lead to a different change pathway. On the one hand, they explore alternative ways of learning that shape how we understand education for sustainability. For instance, non-profit organisations may introduce an experiential, outdoor learning program to foster environmental connection amongst students. This supports a change pathway that is primarily driven by bottom-up efforts. On the other hand, grassroots change agents encourage engaged citizenship efforts to actively challenge or oppose traditional education methods and curriculum. For instance, youth activists rallied to send a list of demands to government, calling for better integration of climate literacy in school curriculums. These efforts support a change pathway that calls on top-down efforts to shape and implement education for sustainability. These two change pathways 'close the circle' by moulding champions: developing students and educators who take on the role of (new) grassroots change agents. However, *figure 7* also highlights that the efforts of grassroots change agents are hindered by counter-forces. As identified in Chapter 4, these are: *inequality within the South African education system, access to resources, bureaucracy,* and *apathy and resistance to change.* The counter-forces work against the efforts of grassroots change agents and serve to maintain and perpetuate the status quo of traditional education. While this model may appear linear, it is important to note that the micro-processes of change I observed did not occur in a sequential or linear pattern; rather they overlapped and were often utilised simultaneously and interdependently.

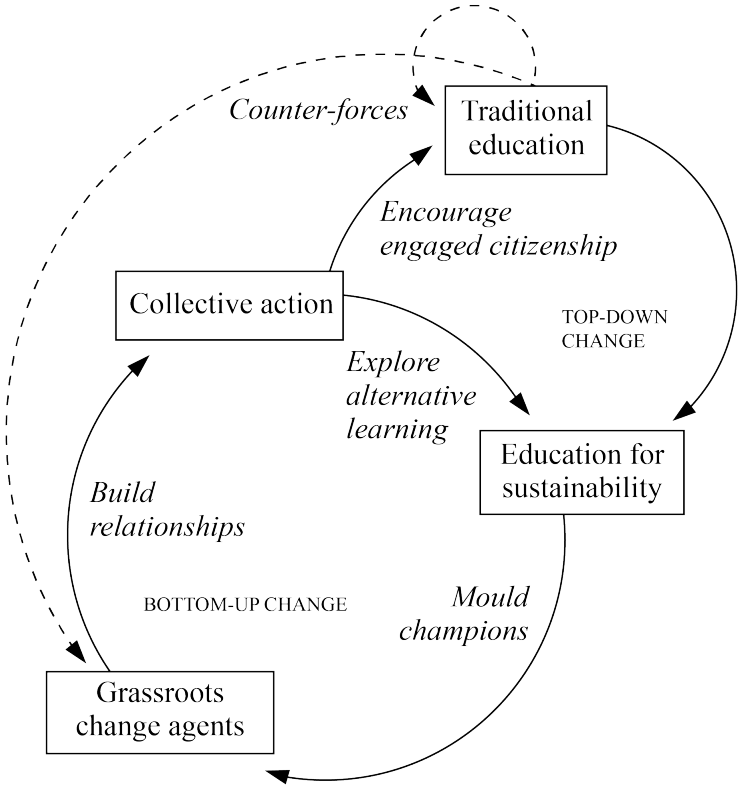

Figure 7: *A process model of how grassroots change agents embed sustainability in education*

5.2.2 Micro-processes of change and institutional work

Building on the institutional work literature, the micro-processes of change utilised by grassroots actors can be described as *intentional efforts* to either engage in institutional *creation work* – by shaping education for sustainability – or in institutional *disruption work* – by challenging traditional education beliefs and practices (Lawrence *et al.*, 2011).

The intentional efforts of grassroots change agents. The concepts of *effort* and *intentionality* are core to the scholarship of institutional work (Lawrence *et al.*, 2011). As discussed in Chapter 2, Lawrence and colleagues (2011:56) describe *effort* as the struggle that individuals and groups undertake to *"step out of their established roles, adopt a reflexive stance, and engage in the institutional work necessary to transform the conditions under which they live and work."* I found that this description of effort aligned with how the different categories of grassroots change agents engaged in change: (i) *Educators* went above and beyond what traditional schooling required of them to champion education for sustainability initiatives and encourage engaged citizenship amongst students. (ii) *Non-profit organisations* worked together with multiple stakeholders to make changes in traditional education by encouraging agentive behaviour and developing young leaders. (iii) Finally, *youth* took on the role of activists to demand change in their schools and communities.

In institutional work scholarship, *intentionality* points to the consciousness and the willingness of actors to influence institutions, irrespective of outcomes and how successful they might be (Lawrence *et al.*, 2011). In alignment, grassroots change agents consciously and wilfully engaged in shaping education for sustainability or in disrupting traditional education, despite uncertainty of the outcome. This was most evident in the persistence and passion the grassroots actors displayed when engaging in their work, despite the many challenges and the counter-forces they faced. The need to shift the purpose of education towards supporting sustainability as the predominant driver for grassroots change agents' engagement highlights the intentionality behind their efforts. Intentionality was also shared through collective action. Accordingly, many grassroots change agents, such as non-profit organisations and educators, played an indirect role to support and enable the youth rather than engage in direct action. My findings showed that grassroots change agents engaged in micro-processes of change without necessarily working towards particular outcomes – rather they worked as part of a collective of actors under the broader objective of affecting system-wide change. At an individual level, grassroots change agents embraced failure, learned from one another, and continuously pivoted to remain agile in their change efforts.

Exploring alternative learning as creation work. The concept of institutional *creation work* (Lawrence *et al.*, 2011) helps to describe why and how grassroots change agents *explore alternative learning*. Lawrence and Suddaby (2006) describe institutional creation work as the formation of new institutions. By exploring alternative learning, grassroots change agents shaped education for sustainability, thereby creating new educational assumptions and practices. For instance, non-profit organisations created practical learning programs as a way of helping students to understand complex curriculum concepts. In another instance, educators and non-profit organisations created learning activities focused on imparting new soft skills to encourage personal development. These two instances are in alignment with the grassroots change agents' need for more effective education for sustainability.

Encouraging engaged citizenship as institutional disruption work. The institutional work of *disruption* can be described as efforts to attack or undermine the controlling mechanisms that require members to comply with institutions (Lawrence & Suddaby, 2006). Grassroots change agents worked to disrupt traditional education by mobilising to demand change that occurs from the top-down. They did so through *encouraging engaged citizenship.* One example was the disruptive protest work that youth activists engaged in to demand policy change from government. Another example lies in the tactics used to engage top-down policymakers to affect change in the school curriculum. In one instance of this, actors were able to ultimately introduce marine sciences as a subject at high-school level. These efforts align with the grassroots change agents' need for greater integration of sustainability in the curriculum.

Counter-forces that hinder the reinforcing micro-processes of change. Testament of the difficulty to

change institutions (Mahoney & Thelen, 2010), grassroots change agents faced a number of counter-forces that hindered their efforts to utilise the micro-processes of change. Although institutions do change over time, they have the tendency to persist (Mahoney & Thelen, 2010). The persistence of the institution of traditional education is thus sustained despite the agentive work of grassroots actors. While the process model demonstrates that grassroots change agents are continuously engaged in intentional efforts to actively shape education for sustainability and disrupt traditional education through daily activities, change remains slow. This is due in part to the counter-forces that both act against the micro-processes of change grassroots actors utilise and perpetuate the institution of traditional education.

5.2.3 Micro-processes of change and social movement literature

Drawing on social movement theory, I found parallels between my findings and the tactics described in the literature, namely *mobilising, organising,* and *networking* (Voss & Williams, 2012).

Networking. Consistent with social movement literature, I found that the grassroots actors who I interviewed were engaged in complex network structures (Diani, 2003). This is particularly evident in grassroots change agents' efforts to *build relationships*, which created the groundwork necessary for collective action. Further, their actions comprised a plurality of connected events and interactions across time (Diani, 2003). For instance, non-profit organisations encouraged students to branch out beyond their programs to join and collaborate with other youth activist collectives. As discussed in Chapter 2, although individual actors have a significant role in carrying out change work, they cannot influence institutions in isolation and therefore do so collectively (Beunen & Patterson, 2019). While the grassroots actors who I interviewed were not necessarily all engaged in formalized social movement organisations, it was evident that their localised efforts to affect change rarely occurred in isolation.

Mobilising. One way in which youth change agents sought to mobilise participation was by *encouraging engaged citizenship.* The efforts of youth to increase participation in collective action can largely be described as mobilising efforts (McAdam *et al.*, 1996). I identified several types of mobilising efforts: spreading the word and creating platforms for increased dialogue to recruit participants, creating a sense of community and space for expression amongst participants, leveraging social media and publications to raise awareness, and submitting demands for government to action. These efforts closely align with the six mobilising tactics described in social movement literature (McAdam *et al.*, 1996). McAdam and colleagues (1996:339) describe these tactics as: "(a) attract new recruits, (b) sustain the morale and commitment of current adherents, (d) generate media coverage, (e) mobilise the support of various "bystander publics", (f) constrain the social control options of its opponents, and (g) ultimately shape public policy and state action."

Organising. Consistent with the literature, grassroots change agents used the four frame alignment processes to organise ideas and direct action (Snow *et al*., 1986). *Frame bridging*, which refers to

linking commonalities through an organisational base (Snow *et al*., 1986), is useful to describe the micro-processes of change that grassroots actors undertook to establish buy-in in a context, engage in partnership, and leverage shared resources. In effect, grassroots actors sought to establish a base in which to embed themselves, by working towards harmonious objectives with allies such as schools and other grassroots change agents. Along the same lines, *frame extension,* which entails enlarging the reach of a frame to include concerns of potential supporters (Benford & Snow, 2000), was evidenced when grassroots change agents worked to establish buy-in, secure support, and collaborate with others on specific initiatives. Both *frame bridging* and *frame extension* are helpful concepts to explain why grassroots change agents chose to put their efforts into making connections and adapting their language to suit stakeholders who could grant them credibility. Additionally, these tactics helped the youth to establish a sense of community in their collective movements and to attract the participation of new youth recruits. The concept of *frame amplification,* concerned with the clarification of interpretive frames to resolve ambiguity (Snow *et al*., 1986) is useful to describe the efforts of grassroots actors to mobilise participation through dialogue and awareness-raising. Additionally, grassroots actors demonstrated efforts to amplify their stance on educating for sustainability by *exploring alternative ways of learning* to gain clarity amongst youth and educators alike. Whether through conducting learning that is experiential and engaging, or encouraging participation in local sustainability projects and educating to foster environmental connection, grassroots change agents found creative ways to align students with the need to embrace sustainability. Finally, *frame transformation*, which refers to changing old understandings to replace them with new ones (Benford & Snow, 2000), adequately describes how grassroots actors worked to introduce new ways of educating, thereby shifting what learning for sustainability meant.

Moulding champions to develop change agents. Although *moulding champions* is not discussed in social movement literature, this micro-process of change played an important role in supporting and reinforcing the social movement towards change. Social movement literature has tended to focus on the activists and organisations who are already directly involved in collective action (Edwards & McCarthy, 1992), paying relatively little attention to how movements mould or shape new participants who become committed to enact social change despite challenges. My findings showed that this activity of moulding new movement participants was particularly important to sustain action. Grassroots actors did so by training educators to be champions and developing leadership skills amongst youth to encourage agentive behaviour. Scholarship on social movement schools (SMS) (Isaac, Jacobs, Kucinskas &McGrath, 2020) provides a useful theoretical framework to better understand the tactics grassroots actors used to develop change agents by moulding champions. Learning to become an activist or change agent involved in collective action requires organisational spaces that are created by movements to train, educate, and mentor – these spaces can be referred to as SMSs (Isaac *et al.*, 2020). My findings reflect that the individuals and organisations who *facilitate* activism are particularly important (Edwards

& McCarthy, 1992). In line with SMS scholarship, I propose that it would be valuable to deepen understandings of how the grassroots individuals become committed to participating in social movements (Isaac *et al.*, 2020). It may be useful to specifically examine grassroots practices concerned with preparing youth for collective action, and in turn, the teacher education to capacitate educators to do so.

The moulding of champions creates a reinforcing change cycle. As such, education is not only transformed through the institutional work of creation and disruption (Lawrence *et al.*, 2011), but also through the efforts of grassroots change agents to mould champions. This finding lead me to view the micro-processes of change I identified as part of a reinforcing, closed cycle. While the micro-processes of change continuously reinforce one another, institutions such as education are difficult to change by nature of their persistence (Mahoney & Thelen, 2010) and grassroots change agents efforts' to affect change remain slow and hindered by a number of counter-forces.

5.2.4 Concluding findings

In conclusion, by using a process model that summarises how grassroots change agents embed sustainability in South African education, I demonstrated that grassroots actors make use of two change pathways to do so. Grassroots change agents either work to shape education for sustainability or work to disrupt traditional education. Additionally, of especial interest were the efforts of grassroots actors to mould champions in order to develop (new) change agents. Although it is encouraging that grassroots change agents are able to reinforce change in a close cycle in this way, the existence of counter-forces that hinder their efforts ensures that change remains slow and that traditional education persists.

5.3 Limitations of the study

Aside from the methodological limitations of the study discussed in Chapter 3, the findings of this study are constrained by two other limiting factors. First, I focussed on how grassroots actors worked to affect change rather than the outcome of these processes. Although Beunen and Patterson (2019) do sympathise with the immense challenge of reviewing the actual outcomes of institutional work, they believe this is necessary to fully understand the interactions between actors and structures. For the scope of my study, focusing on the actual outcomes of change within the educational institution would necessitate study over the long-term and would therefore have been unreasonable to achieve within my parameters. Second, I did not investigate opposing framing activities. This provided me with only a partial view of the dynamics at play.

5.4 Recommendations for further study

To contribute to more holistic understandings of the identities of the grassroots actors themselves, the power dynamics between them and dominant institutional structures, and the challenges they face

concerning opposing framing activities, I identified several opportunities for further study. Below, I detail three research avenues for further study.

Transforming and reproducing grassroots change agent identities. Firstly, I propose further research to provide a more detailed inquiry of the specific roles and identities of the grassroots actors themselves and the commonalities and nuanced differences between them. Further research could be situated within the broader scholarship of identity work that relates to the interpretative activities involved in both altering and reproducing identity (Alvesson & Willmott, 2002). In this regard, scholars could extend this study by exploring grassroots change agents through an identity lens (Creed, DeJordy & Lok, 2010).

Legitimising newly established practices. Second, it may be worthwhile to further explore the micro-processes of change through the theoretical lens of *institutional legitimacy* (Imerman, 2018). Reay and colleagues (2006) call for improved understandings of how emergent practices and ideas spread to become legitimate. Accordingly, I propose further study of the processes employed to legitimise those practices and ideas of education for sustainability initiated by grassroots actors in the South African context. Institutional change is either influenced or contested by institutional legitimacy (Imerman, 2018). In this regard, the field of institutional legitimacy could enable better understandings of the power dynamics (Imerman, 2018) that inhibit or reject grassroots actors' efforts to disrupt the educational institution. Incorporating this theoretical lens could thereby add to my analysis of both the barriers that grassroots change agents face in being able to truly embed their work in contexts as well as guide analysis of the power dynamic interplay between bottom-up and top-down actors in education.

Strengthening the link between barriers and opposing framing activity. Lastly, there would be value in interrogating opposing framing activities (Benford & Snow, 2000). Actors are confronted with a variety of challenges when engaging in frame alignment to organise social movements (Benford & Snow, 2000). Similarly, my research revealed a number of counter-forces that grassroots change agents face when engaged in efforts to shape education for sustainability and disrupt traditional education. Further study may be valuable to strengthen the link between these counter-forces and the forms of challenges that contest framing processes: *'counterframing', 'frame disputes',* and *'dialectic between frames and events'* (Benford & Snow, 2000).

5.5 Practical recommendations for grassroots change agents

In this section, I provide a set of practical recommendations for grassroots change agents who aim to participate in embedding sustainability in South African education. The following practical recommendations have been shaped by the insights I gathered from my research participants relating to both the processes they utilise to affect change as well as the barriers they face in carrying out their sustainability for education initiatives. Notably, these recommendations are applicable to the broader context of my study, although they may also have relevance across other educational contexts.

Establish and participate in communities of practice. I suggest that grassroots change agents continue to embrace collaboration and collective action by establishing and participating in communities of practice that are grounded in the evolving landscape of education for sustainability. Whether comprised of small localised clusters or larger networks that interact with government officials and policymakers, communities of practice can serve as spaces for regular interaction and morale-boosting between people who have a shared passion for embedding sustainability in South African education. Furthermore, these spaces could be beneficial in gathering a diversity of thought, shared knowledge, and learnings from failures in the field.

Engage in dialogue with multiple role players. I propose that grassroots actors continue to facilitate communication between both themselves and top-down actors to both critically share perspectives, and increase participation to work towards their common objectives. Where opportunities for such have not yet been initiated, I encourage harnessing open dialogue to elevate the voices of grassroots change agents and advance receptivity to their programs and practices. Additionally, dialogue is integral to recreate alternative narratives to those intertwined with the existing educational institution.

Leverage embeddedness to understand local contexts. Likened to the concept of the 'Trojan horse', I suggest that it is important for grassroots actors to work towards affecting change within the established education structures they operate in if they are to effectively overthrow existing mental models and win over top-down gatekeepers. This undertaking requires a deepened awareness of local challenges and opportunities, establishing long-term relationships, identifying points of intersection to avoid duplication of efforts, making the links between education for sustainability and current curriculum objectives explicit, and training champions who can be accountable for local ownership.

Shape new or alternative narratives in tandem with disruption. Aside from working to disrupt traditional education, the role of the grassroots change agent is to also actively create and encourage the uptake of alternative ways of educating that are more aligned with sustainability. I propose that grassroots actors who aim to affect change in education, continue to present practical solutions and elevate alternative narratives alongside critiquing and challenging the existing structures and top-down change efforts.

5.6 Closing reflections

As we navigate the unfolding complexity and severity of people and planet in crises, it is more urgent than ever to rally together and play our part, however small, in creating change towards a more sustainable society. Too often, we become deflated by the sheer scale of the challenges we face, and disenchanted by the top-down structures that seemingly hold our collective fate in their decision-making. In *'The future we choose'*, authors Figueres and Rivett-Carnac (2020:56), share the story of a stonemason who worked on the construction of a great cathedral – although he would never personally complete the entire cathedral, he worked patiently on just one section, *"knowing he was part of a great*

collective endeavour that would lift the hearts and minds of generations." Through this study, I used the scholarship of institutional work to assist me in gaining a granular understanding of bottom-up change agency in South African education. My analysis of the micro-processes of change provided a rich collection of insights that showed how grassroots actors work collaboratively from the bottom-up to shape education for sustainability and disrupt traditional education. My research findings offer a window into the lives and daily actions of a sample of these grassroots change agents, ranging from non-profit organisations and educators, to youth activists. My findings contribute to the relatively unexplored forms of bottom-up efforts that work to stimulate or complement top-down action.

I set out on my research journey cautious of trivialising 'small wins', and with the hope to hone in on the collective efforts that sit behind them. I draw on Scully and Segal (2002) who encourage scholars to avoid both overstating large-scale change that may still leave institutions intact and simplifying small-scale change as trivial relative to the wider challenges at hand. An alternative approach is to recognise that piecemeal change comprises localised, fragmented, and opportunistic change efforts and that the efficacy thereof should not be prematurely judged (Scully & Segal, 2002). In this same vein, my study aims to showcase a myriad of small-scale change efforts that should be celebrated for their capabilities to contribute to the sum of bottom-up change. My hope is for this study to contribute to charting pathways towards embedding sustainability in education for change agents at grassroots-level. My study serves as a vehicle for retelling the stories of grassroots change agents as part of an institutional change process in itself (Scully & Segal, 2002).

Ultimately, for sustainability to become truly embedded in education, change agents should aspire for their initiatives, programs, and practices to be legitimised to the point where they are no longer questioned. Interestingly, my findings revealed some evidence of this on a micro-scale. While non-profit organisations were able to win over gatekeepers with rewarding results and establish themselves in their contexts, sometimes over many years, educators normalised educating for engaged citizenship through championing field trips and encouraging dialogue, and youth activists routinely organised protests at their schools. Still, a natural tension exists between efforts to embed sustainability in education and the sustained persistence of the inherently opposing institution of traditional education. As the need to educate for sustainability grows in parallel to this persistence, my hope is for us to continue to both recognise and support the efforts of grassroots change agents to disrupt traditional education, shape education for sustainability, and indeed, *reimagine education* altogether.

References

Alvesson, M. & Willmott, H. (2002) Identity regulation as organizational control: Producing the appropriate individual. *Journal of Management Studies,* 39(5): 619 – 640.

Battilana, J. (2006) Agency and institutions: The enabling role of individuals' social position. *Organization*, 13(5): 653 – 676.

Bazile, D., Ceruti, C. & Pelenc, J. (2015) Collective capability and collective agency for sustainability: A case study. *Ecological Economics*, 118: 226 – 239.

Beckert, J. (1999) Agency, entrepreneurs, and institutional change. The role of strategic choice and institutionalized practices in organizations. *Organization Studies*, 20(5): 777 – 799.

Benford, R, D. & Snow, D, A. (2000) Framing processes and social movements: An overview and assessment. *Annual Review of Sociology*, 26: 611 – 639.

Bernier, A. (2017) From Linear Industrial Structures to Living Systems: A Design Shift in Education for Sustainability. *Education Sciences*, 7(43): 1 – 33.

Beunen, R. & Patterson, J, J. (2019) Analysing institutional change in environmental governance: exploring the concept of 'institutional work', *Journal of Environmental Planning and Management,* 62(1): 12 – 29.

Bowers, C, A. (2010) Educational reforms that foster ecological intelligence. *Teacher Education Quarterly*, Fall: 9 – 31.

Bryant, A. & Charmaz, K. (2007) *The SAGE handbook of grounded theory: The coding process and its challenges*. London: Sage Publications.

Bryman, A., Bell, E., Hirschsohn, P., Dos Santos, A., Du Toit, J., Masenge, A., Van Aardt, I. & Wagner, C. (2014) *Research methodology*. Cape Town: Oxford University Press Southern Africa.

Buttigieg, K. & Pace, P. (2013) Positive youth action towards climate change. *Journal of Teacher Education for Sustainability*, 15(1): 15 – 47.

Campbell, E., Skovdal, M. & Campbell, C. (2013) Ethiopian students' relationship with their environment: implications for environmental and climate adaptation programmes. *Children's Geographies*, 11(4): 436 – 460.

Charmaz, K. (2005) Grounded theory in the 21st century: Applications for advancing social justice studies, in Denzin, N, K. & Lincoln, Y, E. (eds.). *Handbook of qualitative research 3rd edition.* Thousand Oaks, California: Sage. 507 – 535.

Chersich, M, F., Scorgie, F., Wright, C, Y. Mullick, S., Mathee, A., Hess, J., Richter, M. & Rees, H. (2019) Climate change and adolescents in South Africa: The role of youth activism and the health sector in safeguarding adolescents' health and education. *South African Medical Journal*, 109(9): 615 – 619.

Clacherty, A. (1994) Trends in environmental education in South Africa, in Levy, S (ed.). *Projects speak for themselves 2nd Edition*. Houghton: Sharon Levy.

Cornelissen, J, P. & Werner, M, D. (2014) Putting framing in perspective: A review of framing and frame analysis across the management and organizational literature. *The Academy of Management Annals*, 8(1): 181 – 235.

Creed, D, W, E., DeJordy, R. & Lok, J. (2010) Being the change: Resolving institutional contradiction through identity work. *Academy of Management Journal,* 53(6): 1336 – 1364.

Cutter-Mackenzie, A. & Smith, R. (2003) Ecological literacy: the 'missing paradigm' in environmental

education (part one). *Environmental Education Research*, 9(4): 497– 524.

Derr, V. & Simons, J. (2020) A review of photovoice applications in environment, sustainability, and conservation contexts: is the method maintaining its emancipatory intents? *Environmental Education Research*, 26(3): 359 – 380.

Diani, M. (2003) Chapter one: Introduction: Social movements, contentious actions, and social networks: 'From metaphor to substance'?, in Diani, M. & McAdam, D. (eds.). *Social movements and networks relational approaches to collective action*. Oxford: Oxford University Press. 1 – 18.

Edwards, B. & McCarthy, J, D. (1992) Review: Social Movement Schools. *Sociological Forum,* 7(3): 541 – 550.

Evans-Agnew, R, A. & Rosemberg, M, A, S. (2016) Questioning photovoice research: Whose voice? *Qualitative Health Research,* 26(8): 1019 – 1030.

Figueres, C., Rivett-Carnac, T. (2020) *The future we choose.* London: Manilla Press.

Floersch, J., Longhofer, J, L., Kranke, D. & Townsend, L. (2010) Integrating thematic, grounded theory and narrative analysis: A case study of adolescent psychotropic treatment. *Qualitative Social Work*, 9(3): 407 – 425.

Gioia, D, A., Corley, K, G. & Hamilton, A, L. (2012) Seeking qualitative rigor in inductive research: Notes on the Gioia methodology. *Organizational Research Methods*, 16(1): 15 – 31.

Goldman, D., Pe'er, S. & Yavetz, B. (2017) Environmental literacy of youth movement members – is environmentalism a component of their social activism?, *Environmental Education Research*, 23(4): 486-514.

Graebner, M, E., Martin, J, A. & Roundy, P, T. (2012) Qualitative data: Cooking without a recipe. *Strategic Organization*, 10(3): 276 – 284.

Guba, E,G. & Lincoln, Y, S. (1994) Competing paradigms in qualitative research, in Denzin, N, K. & Lincoln, Y, E. (eds.). *Handbook of qualitative research 3rd edition.* Thousand Oaks, California: Sage. 105 – 117.

Gunningham, N. (2017) Building norms from the grassroots up: Divestment, expressive politics, and climate change. *Law and Policy,* 39(4): 372 – 388.

Hattingh, J. (2001) Conceptualising Ecological Sustainability and Ecologically Sustainable Development in Ethical Terms: Issues and Challenges. *Annale,* (2): 1 – 30.

Henderson, J., Long, D., Berger, P., Russell, C. & Drewes, A. (2017) Expanding the foundation: Climate change and opportunities for educational research. *Educational Studies*, 53(4): 412 – 425.

Heugens, P. P. M. A. R. & Lander, M. W. (2009) Structure! Agency! (and other quarrels): A meta-analysis of institutional theories of organization. *Academy of Management Journal*, 52(1): 61 – 85.

Hill, A. (2012) Developing approaches to outdoor education that promote sustainability education. *Australian Journal of Outdoor Education*, 16(1): 15 – 27.

Hopwood, B., Mellor, M. & O'Brien, G. (2005) Sustainable development: Mapping different approaches. *Sustainable Development*, 13: 38–52.

Hwang, H. & Colyvas, J, A. (2011) Problematizing actors and institutions in institutional work. *Journal of Management Inquiry,* 20(1): 62 – 66.

Imerman, D. (2018) Contested legitimacy and institutional change: Unpacking the dynamics of institutional legitimacy. *International Studies Review,* 20: 74 – 100.

James, J, K. & Williams, T. (2016) School-based experiential outdoor education: A neglected necessity. *Journal of Experiential Education*, 40(1): 58 – 71.

Lal, S., Suto, M. & Ungar, M. (2012) Examining the potential of combining the methods of grounded theory and narrative inquiry: A comparative analysis. *The Qualitative Report*, 17(41): 1 – 22.

Lawrence, T, B. & Suddaby, R. (2006) Institutions and institutional work, in Clegg, S, R., Hardy, C., Lawrence, T, B., Nord, W, R. (eds.). *Sage handbook of organization studies, 2nd edition*. London: Sage. 215 – 254.

Lawrence, T, B., Suddaby, R. & Leca, B. (2011) Institutional work: Refocusing institutional studies of organization. *Journal of Management Inquiry,* 20(1): 52 – 58.

Lawrence, T, B., Suddaby, R. & Leca, B. (2009) Chapter 1: Introduction: Theorizing and studying institutional work, in Lawrence, T, B., Suddaby, R. & Leca, B. (eds.). *Institutional work: Actors and agency in institutional studies of organizations*. New York: Cambridge University Press. 1 – 27.

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

Le Grange, L. & Reddy, C. (1997) Environmental education and Outcomes-based Education in South Africa: A marriage made in heaven? *Southern African Journal of Environmental Education*, 17: 12 – 18.

Mahoney, J. & Thelen, K. (2010) *Explaining institutional change ambiguity, agency, and power.* New York: Cambridge University Press.

Mavrodieva, A, V., Rachman, O, K., Harahap, V, B. & Shaw, R. (2019) Role of social media as a soft power tool in raising public awareness and engagement in addressing climate change. *Climate*, 7(122): 1 – 15.

Maxwell, J, A. (2005) Chapter 7: Designing a qualitative study, in Bickman, L. & Rog, D, J. (eds.). *The Sage handbook of applied social research methods, 2nd edition*. 214 – 253.

McAdam, D., McCarthy, J, D. & Zald, M, N. (1996) Chapter 1: Introduction: Opportunities, mobilizing structures, and framing processes - toward a synthetic, comparative perspective on social movements, in McAdam, D., McCarthy, J, D. & Zald, M, N. (eds.). *Comparative perspectives on social movements.* New York: Cambridge University Press. 1 – 22.

McAdam, D. (1996) Chapter 15: The framing function of movement tactics: Strategic dramaturgy in the American civil rights movement, in McAdam, D., McCarthy, J, D. & Zald, M, N. (eds.). *Comparative perspectives on social movements.* New York: Cambridge University Press. 338 – 355.

McCauley, D. (2011) Bottom-up Europeanization exposed: Social movement theory and non-state actors in France. *Journal of Common Market Studies*, 49(5): 1019 – 1042.

McFarlane, D, A. & Ogazon, A, G. (2011) The challenges of sustainability education. *Journal of Multidisciplinary Research*, 3(3): 81 – 95.

McKenna, B., Myers, M, D. & Newman, M. (2017) Social media in qualitative research: Challenges and recommendations. *Information and Organisation*, 27: 87 – 99.

Mebratu, D. (1998) Sustainability and sustainable development: Historical and conceptual review. *Elsevier Science Inc.*, 18: 493–520.

Miles, M, B., Huberman, A, M. & Saldaña, J. (2014) *Qualitative data analysis: A methods sourcebook.* 3rd edition. Los Angeles, London and New Delhi: Sage Publications.

Morag, O. & Tal, T. (2013) A longitudinal study of environmental and outdoor education: A cultural change. *Journal of Research in Science Teaching*, (9): 1019 – 1046.

Napawan, N, C., Simpson, S. & Snyder, B. (2017) Engaging youth in climate resilience planning with social media: Lessons from #OurChangingClimate. *Urban Planning*, 2(4): 51 – 63.

Nsubuga, Y. (2020) Chapter 6: Towards meaningful environmental learning beyond the classroom, in Reddy, C. (ed.). *Environmental education: Principles and guidelines for teachers.* Cape Town: Juta and Company. 104 – 120.

Nyoni, D. (2009) Chapter 4: Youth participation in addressing global challenges: the promise of the future, in Corcoran, P, B. & Osano, P, M. (eds.). *Young people, education, and sustainable development: Exploring principles, perspectives, and praxis*. The Netherlands: Wageningen Academic Publishers. 85 – 90.

O'Brien, K., Selboe, E. & Hayward, B, M. (2018) Exploring youth activism on climate change: dutiful, disruptive, and dangerous dissent. *Ecology and Society*, 23(3): 42 – 54.

Orr, D, W. (2004) *Earth in mind: On education, environment and the human prospect*. Washington, Covelo and London: Island Press.

Palmer, J, A. (1998) *Environmental education in the 21st century: Theory, practice, progress and promise*. London and New York: Routledge.

Parnell, R. (2016) Grassroots participation integrated with strong administration commitment is essential to address challenges of sustainability leadership: Tools for successfully meeting in the middle. *Journal of Environmental Studies Science,* 6: 399 – 404.

Pigott, A. (2021) Young climate activists have far more power than they realise. *The Conversation* [Electronic], 26 October. Available: https://theconversation.com/ [27 October 2021].

Purdy, J., Ansari, S. & Gray, B. (2017) Are logics enough? Framing as an alternative tool for understanding institutional meaning making, *Journal of Management Inquiry,* (28)4: 409 – 419.

Quay, J. & Seaman, J. (2013) *John Dewey and education outdoors: Making sense of the 'educational situation' through more than a century of progressive reforms*. Cambridge, Rotterdam, Boston and Taipei: Sense Publishers.

Ramsaroop, S. (2020) Chapter 5: Environmental education: Subject matter and frameworks for mediation, in Reddy, C. (ed.). *Environmental education: Principles and guidelines for teachers.* Cape Town: Juta and Company. 86 – 103.

Reay, T., Golden-Biddle, K. & Germann, K. (2006) Legitimizing a new role: Small wins and microprocesses of change, *Academy of Management Journal,* 49(5); 977 – 998.

Reddy, C. (2020) Chapter 3: Environmental education: A response, in Reddy, C. (ed.). *Environmental education: Principles and guidelines for teachers.* Cape Town: Juta and Company. 43 – 56.

Robinson, K. & Aronica, L. (2015) *Creative schools: The grassroots revolution that's transforming education*. New York: Viking.

Robottom, I. (2007) Re-badged environmental education: Is ESD more than just a slogan? *Southern African Journal of Environmental Education*, 24: 90 – 96.

Rosenberg, E. (2008) Eco-schools and the quality of education in South Africa: Realising the potential. *Southern African Journal of Environmental Education*, 25: 25 – 40.

Schudel, I. & Lotz-Sisitka, H. (2020) Chapter 4: Environmental learning in the South African curriculum: Informing curriculum engagement through a historical review of policy, research and

practice, in Reddy, C. (ed.). *Environmental education: Principles and guidelines for teachers.* Cape Town: Juta and Company. 58 – 85.

Scully, M. & Segal, A. (2002) Passion with an umbrella: Grassroots activists in the workplace, *Social Structure and Organizations Revisited,* 19: 125 – 168.

Simmonds, S., Roux, C. & ter Avest, I. (2015) Blurring the boundaries between photovoice and narrative inquiry: A narrative-photovoice methodology for gender-based research, *International Journal of Qualitative Methods,* 14(3): 33 – 46.

Siraj-Blatchford, J., Mogharreban, C. & Park, E. (eds.) (2016) *International perspectives on early childhood education and development*. Switzerland: Springer International Publishing.

Snow, D, A., Rochford, Jr., E, B., Worden, S, K. & Benford, R, D. (1986) Frame alignment processes, micromobilization, and movement participation. *American Sociological Review*, 51(4): 464 – 481.

Sterling, S., Dawson, J. & Warwick, P. (2018) Transforming Sustainability Education at the Creative Edge of the Mainstream: A Case Study of Schumacher College. *Journal of Transformative Education*, 16(4): 323 – 343.

Tbilisi 1977. United Nations Education, Scientific, and Cultural Organisation (UNESCO) conference in cooperation with the UN Environment Programme (UNEP), Tbilisi, Georgia (USSR) from October 14 – 26, 1977.

Thomas, S. (2012) Narrative inquiry: Embracing the possibilities. *Qualitative Research Journal*, 12(2): 206 – 221.

Togo, M. (2009) Students as agents of social change: Student initiatives at Rhodes University, South Africa. *Southern African Journal of Environmental Education*, 26: 232 – 240.

Treu, P., Olivier, M, A, J., Bean, P. & Van der Walt, J, L. (2009) A group of educators' stance on the implementation of South Africa's further education and training curriculum. *Teaching and Teacher Education*, 26: 343 – 350.

United Nations Department of Economic and Social Affairs. [n.d.]. Definition of youth. United Nations, New York, New York, USA. [Online] Available: http://www.un.org/esa/socdev/documents/youth/fact-sheets/youth-definition.pdf. [10 September 2021].

Utina, R. (2017) Ecological intelligence of coastal community on biodiversity conservation. *Journal of Biological Sciences*, IV(1): 54 – 57.

Voss, K. & Williams, M. (2012) The local in the global: rethinking social movements in the new millennium. *Democratization,* 19(2): 352 – 377.

Wals, A, E, J. (2007) Learning in a changing world and changing in a learning world: Reflexively fumbling towards sustainability. *South African Journal of Environmental Education,* 24: 35 – 43.

Walters, S. (2017) The SDGs won't be met without active citizens fortified with new knowledge. *The Conversation* [Electronic], 27 July. Available: https://theconversation.com/ [27 October 2021].

Wang, C., & Burris, M, A. (1997). Photovoice: concept, methodology, and use for participatory needs assessment. *Health Education & Behaviour*, 24(3): 369 – 387.

White, J. & Drew, S. (2011) Collecting data or creating meaning? *Qualitative Research Journal,* (11)1: 3 – 12.

Xiong, Y., Cho, M. & Boatwright, B. (2019) Hashtag activism and message frames among social movement organizations: Semantic network analysis and thematic analysis of Twitter during the #MeToo movement. *Public Relations Review*, 45: 10 – 23.

Yin, R, K. 2011. *Qualitative research from start to finish*. New York: The Guilford Press.

Appendices

Appendix A: Sample interview guide

Interviewee: _____

Duration: _____

Date: _____

Platform: (online) _____

Topics discussed:_____

_____

_____

Post-interview comments / leads / reflections:

_____

_____

_____

_____

Additional observations:

_____

_____

1. Introduction and greetings:

- Greetings and questions the interviewee may have.
- Thank you for your agreeing to participate in this research. Your participation is voluntary and you may withdraw at any time if you feel uncomfortable.
- As identified in the consent form, your personal information will be confidential.
- To effectively facilitate note-taking, I'll be recording today's conversation. These recordings will be destroyed after they have been transcribed.
- The duration of this interview will be 1 hour, in which time we'll cover several semi-structured questions.

2. Interviewee background:

- Briefly describe your role in relation to education in South Africa
- How do you view the climate crisis we are facing today?
- What are some of your major frustrations with the educational system in South Africa / the way we currently aim to mitigate the impacts of the climate crisis?
- How did you become involved in sustainability work / education / this project / initiative / organisation?
- What motivates your work / involvement in this project / initiative (X)?

3. Definitions:

- How would you define the climate crisis and the impacts it has on your community?
- What does eco-literacy / eco-citizenship mean to you?
- What practices should be implemented in a school for it to be considered sustainable?
- What is your current experience with the South African schooling curriculum?

4. Strategy and support:

- What strategy do you employ at X or in your personal capacity to do X?
- What resources / networks / support systems are available to assist you in carrying out the above?
- How do you communicate your message?

5. Drivers and barriers:

- Have you encountered resistance to carrying out your strategy at X?
- What are some of the factors in achieving eco-literacy / eco-citizenship?

- What are some of the major challenges in your work?
- How can some of the barriers you face be overcome?
- Where are the opportunities for growth in this space?
- How receptive are students / educators / governments / the private sector to your initiatives / activities?
- Could you describe any barriers / frustrations you encounter that may be shared across your networks of similar organisations / role players / across country borders?
- What are some of the obstacles that are unique to South Africa?

6. Evaluating change:

- Can you tell me about some of X's accomplishments / the system's improvements thus far?
- Have you observed noticeable change / impact – long-term or short-term? What changes?
- What hasn't changed / where are your obstacles to accomplishing your goals?
- Have you observed an uptake of this strategy / behaviour / similar actions / belief? How so?
- How do you assess / evaluate your successes in this field?
- Do you feel that your activities have translated into wider change / facilitated curriculm change? How so?

7. Covid-19 and a post-pandemic world:

- How has the current reality of COVID-19 and social distancing impacted X's strategy?
- Will (and if so, how are) social media, online platforms, and technology be utilised to achieve your objectives or support this organisation / project / initiative/ goal?
- What is the importance of place-based learning in embedding a sustainability-driven philosophy or related activities into the schooling system?

8. Looking to the future:

- Imagine your ideal school / your ideal education system – what does this look like?
- Who are the role players needed to / what motivates greater participation in building out this vision?
- What are the criteria for a school / schooling system with sustainability at the forefront of its philosophy?
- How do you see this impacting wider society?
- How do you envision the South African education system / eco-literacy will evolve / devolve in years to come?

Appendix B: Informed consent forms

INFORMED CONSENT FORM

You are invited to take part in a study conducted by Lauren Bauer, from the School of Public Leadership at Stellenbosch University. You were approached as a possible participant because of your experience in the environmental education and/or sustainability spheres in South Africa.

---

1. Context and overview of the research

The research investigates how grassroots processes and activities embed sustainability / sustainable behaviour in the South African education system.

- The research aims to identify the ground-up developments that enable climate, sustainability or eco-literacy at school-level.
- The research aims to understand whether and how these developments contribute to wider change or curriculum change.

The findings of the study are expected to be presented in an academic thesis and accompanying journal articles.

2. Principal researcher

The research falls part of Lauren Bauer's Masters study at the School of Public Leadership at the University of Stellenbosch. If you have any questions or concerns about this study, please feel free to contact Lauren Bauer.

Researcher's contact details:
Email: laurenbauer06@yahoo.co.uk
Phone: (073) 297 7421

Supervisors's contact details:
Cecile Feront:
Email: cecile@gaishan.net
Phone: (082) 776 8015

Jess Schulschenk:
Email: jess@sustainabilityinstitute.net

This research has been approved by the University of Stellenbosch Humanities Research Ethics Committee.

3. What is expected from interviewees/ participants in this research?

Interviewees are asked to engage in a semi-structured interview online or telephonically, discussing themes highlighted by the researcher's topic and to freely answer explanatory or clarifying questions. Additionally to this, the researcher may ask to observe participant's online activities or meetings relating to sustainability or activism to which the participant may agree / disagree at any time.

There are no known risks associated with this study. Participation in this research is voluntary (there will be no compensation for taking part in the study) and you can choose to withdraw from the research at any time without penalty. You are not waiving any legal claims, rights or remedies because of your participation in this research study. If you have questions regarding your rights as a research participant, contact Ms Maléne Fouché [mfouche@sun.ac.za; 021 808 4622] at the Division for Research Development.

4. Recording the interview

Recording the interview supports the accuracy of the data analysis process. Unless expressly indicated, the interview will be recorded. You may change your mind about your decision during or after the interview. You may also ask that certain sections of the discussion not be recorded.

☐ Permission to record NOT granted

Other requests: _____

5. Confidentiality

Unless expressly consented to, the researcher will not attempt to identify you with your responses or comments in this interview, or to name you as a participant/interviewee in the study, nor will facilitate anyone else doing so. Should you wish to, please indicate your desired level of anonymity below. If you change your desired level of anonymity during or after the interview, the researcher will adhere to your revised preference.

☐ Anonymity NOT required

☐ Anonymity of participant's organisation / place of employment required

Other requests: _____

Data obtained during interviews will be kept with the same level of care that the researcher keeps personal information and access will be restricted by a password. No one besides the researcher and her supervisors will have access to it.

DECLARATION OF CONSENT BY THE PARTICIPANT

As the participant I confirm that:

- I have read the above information and it is written in a language that I am comfortable with.
- I have had a chance to ask questions and all my questions have been answered.
- All issues related to privacy, and the confidentiality and use of the information I provide, have been explained.

By signing below, I _____ agree to take part in this research study, as conducted by Lauren Bauer.

I acknowledge that I am participating in this study of my own free will. I understand that I may refuse to participate or stop participating at any time without penalty. If I wish, I will be given a copy of this form.

Participant's Signature

_____ Date: _____

Print name and surname: _____

DECLARATION BY THE PRINCIPAL INVESTIGATOR

As the **principal investigator,** I hereby declare that the information contained in this document has been thoroughly explained to the participant. I also declare that the participant has been encouraged (and has been given ample time) to ask any questions.

_____ _____

Signature of Principal Investigator Date

PARENT/LEGAL GUARDIAN CONSENT FORM FOR CHILD TO PARTICIPATE IN RESEARCH

I would like to invite your child to take part in a study conducted by Lauren Bauer, from the School of Public Leadership at Stellenbosch University. Your child will be invited as possible participant because of their role in the environmental education and/or sustainability spheres in South Africa.

---

1. Purpose of the study

The research investigates how grassroots processes and activities embed sustainability / sustainable behaviour in the South African education system.

- The research aims to identify the ground-up developments that enable climate, sustainability or eco-literacy at school-level.
- The research aims to understand whether and how these developments contribute to wider change or curriculum change.

The findings of the study are expected to be presented in an academic thesis and accompanying journal articles.

2. Who is doing the research?

The research falls part of Lauren Bauer's Masters study at the School of Public Leadership at the University of Stellenbosch. If you have any questions or concerns about this study, please feel free to contact Lauren Bauer.

Researcher's contact details:

Email: laurenbauer06@yahoo.co.uk

Phone: (073) 297 7421

Supervisors's contact details:

Cecile Feront:

Email: cecile@gaishan.net

Phone: (082) 776 8015

Jess Schulschenk:

Email: jess@sustainabilityinstitute.net

This research has been approved by the University of Stellenbosch Humanities Research Ethics Committee.

3. What will be asked of your child?

If you consent to your child taking part in this study, the researcher will then approach the child for their assent to take part in the study. If the child agrees to take part in the study, he/she will be asked to engage in a online or telephonic semi-structured interview discussing themes highlighted by the researcher's topic and to freely answer explanatory or clarifying questions. Additionally to this, the researcher may ask to observe the participant's online meetings or activities relating to sustainability or activism to which the participant may agree / disagree at any time. The researcher will not ask your child to participate in research during schooling hours. All research will be prearranged so as to suit your child's time availability.

There are no known risks associated with this study. There will be no compensation for taking part in the study. You and your child can choose whether to be part of this study or not. If you consent to your child taking part in the study, please note that your child may choose to withdraw or decline participation at any time without any consequence. Your child may also refuse to answer any questions they don't want to answer and still remain in the study. Your child may withdraw their consent at any time and discontinue participation without penalty. Neither you nor your child are waiving any legal claims, rights or remedies because of your participation in this research study. If you have questions regarding your or your child's rights as a research participant, contact Ms Maléne Fouché [mfouche@sun.ac.za; 021 808 4622] at the Division for Research Development.

4. Recording the interview

Recording the interview supports the accuracy of the data analysis process. Unless expressly indicated, the interview will be recorded. Your child may change his/her mind about this decision during or after the interview. Your child may also ask that certain sections of the discussion not be recorded.

☐ Permission to record NOT granted

Other requests: _____

5. Confidentiality

Unless expressly consented to, the researcher will not attempt to identify your child with his/her responses or comments in this interview, or to name your child as a participant/interviewee in the study, nor will facilitate anyone else doing so. Should you wish to, please indicate your desired level of anonymity for your child below. If you change the desired level of anonymity during or after the interview, the researcher will adhere to your revised preference.

☐ Anonymity NOT required

☐ Anonymity of your child's school / organisations they are involved in

Other requests: _____

Any information you or your child will share with me during this study and that could possibly identify you or your child will be protected. Data obtained during interviews will be kept with the same level of care that the researcher keeps personal information and access will be restricted by a password. No one besides the researcher and her supervisors will have access to it.

DECLARATION OF CONSENT BY THE PARENT/LEGAL GUARDIAN OF THE CHILD-PARTICIPANT

As the parent/legal guardian of the child I confirm that:

- I have read the above information and it is written in a language that I am comfortable with.
- I have had a chance to ask questions and all my questions have been answered.
- All issues related to privacy, and the confidentiality and use of the information I provide, have been explained.

By signing below, I _____ agree that the researcher may approach my child to take part in this research study, as conducted by Lauren Bauer.

Signature of Parent/Legal Guardian

_____ Date: _____

Print name and surname: _____

DECLARATION BY THE PRINCIPAL INVESTIGATOR

As the **principal investigator,** I hereby declare that the information contained in this document has been thoroughly explained to the participant. I also declare that the participant has been encouraged (and has been given ample time) to ask any questions.

_____ _____

Signature of Principal Investigator Date

CONSENT FORM FOR MINORS

You are invited to take part in a study conducted by Lauren Bauer, from the School of Public Leadership at Stellenbosch University. You were approached as a possible participant because of your role in the environmental education and/or sustainability spheres in South Africa.

What is RESEARCH?

Research is something we do to find **NEW KNOWLEDGE** about the way things (and people) work. We use research projects or studies such as this one to help us find out more about the things that affect our lives, and our schools. We do this to try and make the world a better place!

1. What is this research project all about?

The research investigates how grassroots processes and activities embed sustainability / sustainable behaviour in the South African education system.

- The research aims to identify the ground-up developments that enable climate, sustainability or eco-literacy at school-level.
- The research aims to understand whether and how these developments contribute to wider change or curriculum change.

The findings of the study are expected to be presented in an academic thesis and accompanying journal articles.

2. Who is doing the research?

The research falls part of Lauren Bauer's Masters study at the School of Public Leadership at the University of Stellenbosch. If you have any questions or concerns about this study, please feel free to contact Lauren Bauer.

Researcher's contact details:

Email: laurenbauer06@yahoo.co.uk

Phone: (073) 297 7421

Supervisors's contact details:

Cecile Feront:

Email: cecile@gaishan.net

Phone: (082) 776 8015

Jess Schulschenk:

Email: jess@sustainabilityinstitute.net

This research has been approved by the University of Stellenbosch Humanities Research Ethics Committee.

3. What is expected from you in this research?

Interviewees are asked to engage in a online semi-structured interview discussing themes highlighted by the researcher's topic and to freely answer explanatory or clarifying questions. Additionally to this, the researcher may ask to observe the participant's online meetings or activities relating to sustainability or activism to which the participant may agree / disagree at any time.

There are no known risks associated with this study. Participation in this research is voluntary (there will be no compensation for taking part in the study) and you can choose to withdraw from the research at any time without penalty. You are not waiving any legal claims, rights or remedies because of your participation in this research study. If you have questions regarding your rights as a research participant, contact Ms Maléne Fouché [mfouche@sun.ac.za; 021 808 4622] at the Division for Research Development.

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Recording the interview supports the accuracy of the data analysis process. Unless expressly indicated, the interview will be recorded. You may change your mind about your decision during or after the interview. You may also ask that certain sections of the discussion not be recorded.

☐ Permission to record NOT granted

Other requests: _____

5. Confidentiality

Unless expressly consented to, the researcher will not attempt to identify you with your responses or comments in this interview, or to name you as a participant/interviewee in the study, nor will facilitate anyone else doing so. Should you wish to, please indicate your desired level of anonymity below. If you change your desired level of anonymity during or after the interview, the researcher will adhere to your revised preference.

☐ Anonymity NOT required

☐ Anonymity of participant's school / organisation they may be involved in

Other requests: _____

Data obtained during interviews will be kept with the same level of care that the researcher keeps personal information and access will be restricted by a password. No one besides the researcher and her supervisors will have access to it.

DECLARATION OF CONSENT BY THE PARTICIPANT

As the participant I confirm that:

- I have read the above information and it is written in a language that I am comfortable with.
- I have had a chance to ask questions and all my questions have been answered.
- All issues related to privacy, and the confidentiality and use of the information I provide, have been explained.

By signing below, I _____ agree to take part in this research study, as conducted by Lauren Bauer.

I acknowledge that I am participating in this study of my own free will. I understand that I may refuse to participate or stop participating at any time without penalty. If I wish, I will be given a copy of this form.

Participant's signature

_____ Date: _____

Print name and surname: _____

DECLARATION BY THE PRINCIPAL INVESTIGATOR

As the **principal investigator,** I hereby declare that the information contained in this document has been thoroughly explained to the participant. I also declare that the participant has been encouraged (and has been given ample time) to ask any questions.

_____ _____

Signature of Principal Investigator Date

PARENT/LEGAL GUARDIAN CONSENT FORM FOR CHILD TO PARTICIPATE IN RESEARCH: PHOTOGRAPH SUBMISSIONS

I would like to invite your child to take part in a study conducted by Lauren Bauer, from the School of Public Leadership at Stellenbosch University. Your child will be invited as possible participant because of their role in the environmental education and/or sustainability spheres in South Africa.

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1. Purpose of the study

The research investigates how grassroots processes and activities embed sustainability / sustainable behaviour in the South African education system.

- The research aims to identify the ground-up developments that enable climate, sustainability or eco-literacy at school-level.
- The research aims to understand whether and how these developments contribute to wider change or curriculum change.

The findings of the study are expected to be presented in an academic thesis and accompanying journal articles.

2. Who is doing the research?

The research falls part of Lauren Bauer's Masters study at the School of Public Leadership at the University of Stellenbosch. If you have any questions or concerns about this study, please feel free to contact Lauren Bauer.

Researcher's contact details:

Email: laurenbauer06@yahoo.co.uk

Phone: (073) 297 7421

Supervisors's contact details:

Cecile Feront:

Email: cecile@gaishan.net

Phone: (082) 776 8015

Jess Schulschenk:

Email: jess@sustainabilityinstitute.net

This research has been approved by the University of Stellenbosch Humanities Research Ethics Committee.

3. What will be asked of your child?

If you consent to your child taking part in this study, the researcher will then approach the child for their assent to take part in the study. If the child agrees to take part in the study, he/she will be asked to submit a photograph capturing subject matter of your choice that depicts how youth or their enabling organisations and support networks are engaging with the climate crisis either through activism or sustainability activities and how this may affect greater change within the South African education scape. Participants are not required to submit a photograph of subject matter that reveals their identity. The researcher will not ask your child to participate in research during schooling hours.

There are no known risks associated with this study. There will be no compensation for taking part in the study. You and your child can choose whether to be part of this study or not. If you consent to your child taking part in the study, please note that your child may choose to withdraw or decline participation at any time without any consequence. Your child may also refuse to answer any questions they don't want to answer and still remain in the study. Your child may withdraw their consent at any time and discontinue participation without penalty. Neither you nor your child are waiving any legal claims, rights or remedies because of your participation in this research study. If you have questions regarding your or your child's rights as a research participant, contact Ms Maléne Fouché [mfouche@sun.ac.za; 021 808 4622] at the Division for Research Development.

4. Confidentiality

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☐ Anonymity NOT required

☐ Anonymity of your child's school / organisations they are involved in

Other requests: _____

Photographs submitted will be stored with the same level of care that the researcher keeps personal information and access will be restricted by a password. No one besides the researcher and her supervisors will have access to it.

DECLARATION OF CONSENT BY THE PARENT/LEGAL GUARDIAN OF THE CHILD-PARTICIPANT

As the parent/legal guardian of the child I confirm that:

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- I have had a chance to ask questions and all my questions have been answered.
- All issues related to privacy, and the confidentiality and use of the information I provide, have been explained.

By signing below, I _____ agree that the researcher may approach my child to take part in this research study, as conducted by Lauren Bauer.

Signature of Parent/Legal Guardian

_____ Date: _____

Print name and surname: _____

DECLARATION BY THE PRINCIPAL INVESTIGATOR

As the **principal investigator,** I hereby declare that the information contained in this document has been thoroughly explained to the participant. I also declare that the participant has been encouraged (and has been given ample time) to ask any questions.

_____ _____

Signature of Principal Investigator Date

CONSENT FORM FOR MINORS: PHOTOGRAPHY SUBMISSION

You are invited to take part in a study conducted by Lauren Bauer, from the School of Public Leadership at Stellenbosch University. You were approached as a possible participant because of your role in the environmental education and/or sustainability spheres in South Africa.

What is RESEARCH?

Research is something we do to find **NEW KNOWLEDGE** about the way things (and people) work. We use research projects or studies such as this one to help us find out more about the things that affect our lives, and our schools. We do this to try and make the world a better place!

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Researcher's contact details:

Email: laurenbauer06@yahoo.co.uk

Phone: (073) 297 7421

Supervisors's contact details:

Cecile Feront:

Email: cecile@gaishan.net

Phone: (082) 776 8015

Jess Schulschenk:

Email: jess@sustainabilityinstitute.net

This research has been approved by the University of Stellenbosch Humanities Research Ethics Committee.

3. What is expected from you in this research?

Participants are asked to submit a photograph capturing subject matter of your choice that depicts how youth or their enabling organisations and support networks are engaging with the climate crisis either through activism or sustainability activities and how this may affect greater change within the South African education scape. Participants are not required to submit a photograph of subject matter that reveals their identity. The participant may agree / disagree to do so at any time.

There are no known risks associated with this study. Participation in this research is voluntary (there will be no compensation for taking part in the study) and you can choose to withdraw from the research at any time without penalty. You are not waiving any legal claims, rights or remedies because of your participation in this research study. If you have questions regarding your rights as a research participant, contact Ms Maléne Fouché [mfouche@sun.ac.za; 021 808 4622] at the Division for Research Development.

4. Confidentiality

Unless expressly consented to, the researcher will not attempt to identify you with your photograph or the analysis thereof, or to name you as a participant in the study, nor will facilitate anyone else doing so. Should you wish to, please indicate your desired level of anonymity below. If you change your desired level of anonymity after submission of photography, the researcher will adhere to your revised preference.

☐ Anonymity NOT required

☐ Anonymity of participant's school / organisation they may be involved in

Other requests: _____

Photographs submitted will be stored with the same level of care that the researcher keeps personal information and access will be restricted by a password. No one besides the researcher and her supervisors will have access to it.

DECLARATION OF CONSENT BY THE PARTICIPANT

As the participant I confirm that:

- I have read the above information and it is written in a language that I am comfortable with.
- I have had a chance to ask questions and all my questions have been answered.
- All issues related to privacy, and the confidentiality and use of the information I provide, have been explained.

By signing below, I _____ agree to take part in this research study, as conducted by Lauren Bauer.

I acknowledge that I am participating in this study of my own free will. I understand that I may refuse to participate or stop participating at any time without penalty. If I wish, I will be given a copy of this form.

Participant's signature

_____ Date: _____

Print name and surname: _____

DECLARATION BY THE PRINCIPAL INVESTIGATOR

As the **principal investigator,** I hereby declare that the information contained in this document has been thoroughly explained to the participant. I also declare that the participant has been encouraged (and has been given ample time) to ask any questions.

_____ _____

Signature of Principal Investigator Date