How is the concept of Education for Sustainability (EfS) currently being interpreted by a small group of interested teachers?

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Attestation of authorship

"I hereby declare that this submission is my own work and that, to the best of my own knowledge and belief, it contains no material previously published or written by another person (except where explicitly defined in the acknowledgements), nor material which to a substantial extent has been submitted for the award of any other degree or diploma of a university or other institute of higher learning"

Signed: __ Megan Hobson_____

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Abstract:

We are fast approaching a climate catastrophe and yet education for sustainability (EfS) continues to be a programme addressed with a lack of urgency in many of our schools. Any chance of New Zealand schools achieving the Sustainable Development Goals educational target (SDG 4.7) by 2030 is decreasing. This target aims for all learners to gain adequate knowledge and skills for the sustainable development of current and future generations. This requires human action and with only one decade remaining it seems the EfS concept requires a greater focus. However, there are also various interpretations of this complex EfS concept. The term *sustainability* itself appears open to interpretation as the original intent of the word was to encourage forest longevity and it has been amended or recontextualised to 'fit' as environmental education. The EfS concept aims for human action to develop from a sense of global responsibility.

However, opportunities for specific professional learning opportunities to promote awareness of the EfS concept appear weak. It seems that primary schools are making efforts to promote student awareness and secondary schools are also attempting this focus, but it is now essential this concept is consistently addressed. This research aimed to explore the varying interpretations of the EfS concept through the specific lens of three primary and secondary educators by conducting semi-structured interviews. The general aim of EfS programmes is to encourage knowledge about environmental sustainability and action in the wider world. However, how this is achieved and conveyed to students reflects each educator's personal interpretation of this EfS concept. This was of interest as recent literature surrounding the EfS concept has focused predominantly on: the challenge to consistently define sustainability; historical approaches taken; and deviations of the concept from previously named environmental or ecological education. However, it seemed there was a gap in the research regarding how those already engaged in environmental education programmes are interpreting the EfS concept. To understand how it is personally valued and subsequently how it is implemented into teaching practice led me to design research questions based on how different understandings of the EfS concept have developed and if there are specific challenges experienced in this implementation process.

The participants recruited were made up of three educators who are currently responsible for EfS delivery in their respective schools. They were each recommended by their principal due to their level of involvement and/or interest in teaching with a sustainable focus. Each participant was personally interviewed face-to-face utilising the qualitative research method of semi-structured interviews. Once the interviews were transcribed and member checks completed, themes relevant to varying interpretations and development were analysed. The results of this research confirm that the EfS concept is interpreted in different ways, although the participants all shared the view that it is better to do something pro-active than nothing at all. They all indicated they had received minimal professional development specific to the EfS concept but found that sustainability came up again and again, both intentionally and incidentally. For this to be encouraged amongst all staff required clear understanding, support from school management and an openness for change.

Chapter One: Introduction

In September 2019 I attended the Sustainable Development Goals Summit in New Zealand. The Right Honourable Helen Clark introduced the summit by asserting that we are approaching climate catastrophe, and she was followed by a plethora of other speakers who reiterated this sense of urgency and frustration at the global community's lack of effort to create meaningful change to date. The fourth Sustainable Development Goal (SDG) aims to ensure inclusive and equitable quality education and the promotion of lifelong learning opportunities for all. This fourth SDG includes seven targets for implementation. SDG 4.7 specifically outlines the role primary and secondary sectors play in encouraging all learners to gain knowledge and skills to achieve sustainable development, sustainable lifestyles, a culture of peace and global citizenship by 2030 (UNESCO, 2017). Many young people are frustrated by our lack of distinct action, as evidenced by the recent street protests by thousands of school students. Education could play a role in drawing people together for climate action and building their understanding of the issues. However, despite the efforts of several generations of environmental educators, it seems education's contribution to this work is still rather weak. This project began for me as I attempted to understand why this might be, but it has ended up as an exploration of three teachers' understandings of one of the key concepts developed by environmental educators: The Education for Sustainability (or EfS) concept.

Background to the issue:

The term *sustainability* has been used to represent environmentally sound practices and the maintenance of these over time. The term was first used in German literature by Hans Carl von Carlowitz (1645–1714) specifically in reference to regenerating forest (Warde, 2011). The term used was originally *Nachhaltigkeit*, literally meaning 'lastingness' (Du Pisani, 2006). In 1950 the term *sustainability* was referred to in a publication by K.W Kapp, which analysed environmental issues (Kapp,1950). By the 1970's the term *sustainability* began to be used to represent the growing concern for the overuse of natural resources (Ward & Dubos,1972). By the 1980's this *sustainability* term began reflecting wider concerns for the well-being of our planet. This concern was emphasised in the *Brundtland Report* published by the United Nations World Commission on Environment and Development in 1987, which made specific reference to the need for sustainable development without jeopardising future generations.

It was at this point of the 20th century that the concept of *sustainability* was applied specifically in educational environments and aimed to develop sustainability programmes in schools to explore the interconnectedness of people with their environment. There was an emphasis on the environmental aspects of sustainability, but these educational programmes also aimed to consider social, cultural, and economic influences. The term *sustainability* was

adapted and recontextualised over time to ‘fit’ within an educational context, eventually becoming known as EfS.

Personal assumptions regarding EfS:

When I embarked on my career as a social science school teacher, with a longstanding interest in sustainability, 16 years ago I believed that teaching would allow many relevant and current issues to be at the forefront of content delivery and I thought there would be sufficient flexibility in curriculum planning to allow for this to occur. Recently this issue has come to greater prominence; however, this shift has not been reflected in curriculum planning.

I began to question why sustainability was being taught in geography, social science and biology. This silo approach frustrated me as it limited the number of students who were able to be educated for a sustainable future focus. There seemed to be many professional development opportunities dealing with the use of digital devices as a future focus, but little reference was made specifically to the means of teaching about sustainability. As a consequence, teachers’ understanding of this complex issue is varied. To explore the way the EfS concept is currently interpreted in New Zealand schools, a small number of participants, integral to the implementation of the EfS programme in their school setting, were interviewed. The general aim of EfS programmes is to encourage knowledge about environmental sustainability which leads to action in the wider world. However, how this is achieved and conveyed to students reflects each educator’s personal interpretations and understandings of this EfS concept.

Current Status of EfS:

Education for Sustainability (EfS) differs from previous educational programmes as they aimed for education to be about sustainability. The ‘for’ aspect of EfS is critical as it aims to go beyond how the environment is impacted or how we can act sustainably, to ensure students become acutely aware of the interconnectedness of social, economic and political factors on the environment. The programme encourages collaborative problem solving with future generations in mind.

Earlier programmes such as Environmental Education (EE) or Education for Sustainable Development (ESD) did not emphasise the interconnectedness of all subject areas. Previous programmes encouraged a sustainability focus through an environmental lens. As a consequence, various interpretations of EfS have developed which may have led to confusion about what constitutes educating for a sustainable future. Those schools that have amended their focus to position the EfS concept at the heart of their curriculum planning are indicative of a

growing level of awareness of this concept. However, there are many factors that appear to influence how EfS programmes are implemented in New Zealand schools. One significant factor is the level of understanding educators have surrounding this EfS concept.

In efforts to aid further understanding of sustainability as an educational future focus, guidelines were set out in the New Zealand Curriculum document (NZC, 2007). These provided for structured learning objectives across a variety of subject areas and specifically included guidelines for EfS implementation. However, these guidelines continue not to be mandatory in New Zealand schools and as a result there are inconsistencies in how future focused education is being addressed. The previous environmental education programmes, such as EE and Education for Sustainable Development (ESD) aimed to emphasise ecological sustainability concerns and were addressed within relevant subjects, particularly those in the science faculties. These previous sustainable development programmes may be influential in how EfS is currently being implemented in New Zealand schools.

By 2020 this crucial EfS concept should be firmly ingrained in our educational policies as we are well versed in the urgency for environmental change. Current literature on the concept of EfS focuses predominantly on: the challenge to consistently define sustainability, historical approaches taken and deviations of the concept from previously named environmental or ecological education. However, a gap in research exists regarding how those already engaged in teaching EfS programmes are interpreting the concept and how this interpretation has developed. This gap has led me to design research questions based around how an understanding of EfS has developed in specific educators and how this understanding influences their current teaching practice.

To research current EfS interpretations three teachers from primary and secondary sectors were recruited. These teachers were recommended by their principal based on their level of responsibility or interest in the EfS programmes. Each participant was interviewed face-to-face utilising the qualitative research method of semi- structured interviews. Once the interviews were transcribed and member checks completed, themes relevant to varying interpretations were further analysed.

Significance of this research:

This research aimed to gain an understanding of how the concept of EfS is currently understood by teachers. This concept is commonly referred to in educational literature and specifically addressed in the New Zealand Curriculum guidelines. However, addressing the

concept is currently not mandated or explicitly addressed in New Zealand teacher training institutions. This is of significance for educators who have responsibility for arranging professional development opportunities or curriculum planning as the findings may encourage addressing this EfS concept meaningfully, rather than in a piecemeal or tokenistic manner.

Chapter Two: Literature Review

Introduction:

It was Nelson Mandela (2003) who suggested, “Education is the most powerful weapon we can use to change the world…”. This is an apt quote considering we are already two decades into the 21st century and this EfS concept should be fully embedded within all educational forums. However, the consistency of how this EfS concept is interpreted and instilled within New Zealand students continues to be weak. The manner in which EfS programmes could be embedded within school curriculum seems to vary and has become the subject of much debate (Hargreaves, 1996). As global environmental concerns heighten, it appears EfS has become a rather contentious topic (Sterling, Irvine, Maiteny & Salter, 2005). These radically differing opinions surrounding the EfS concept reflect distinct views regarding how to effectively educate students with a focus on the future. As concern for the longevity of our planet intensifies there could be much greater urgency to effectively implement EfS programmes, but this implementation requires educators to have opportunities to develop their understanding of this complex EfS concept. How these understandings have developed requires consideration.

To consider the well-being of the environment is not unique to the 21st century and in fact has been integral to the survival of many indigenous peoples and practices for centuries (Barnhardt and Kawagley, 2005). However, the term sustainability did not appear specifically in literature until it appeared in Germany as *Nachhaltigkeit* by Hans Carl von Carlowitz in 1713. *Nachhaltigkeit* was specifically used to consider the importance of regenerating forests within forestry literature. It was not until the mid-19th century that this term was seen in English literature and was broadened to incorporate ecological sustainability of all biological systems. Throughout the latter part of the 20th century the term *sustainability* has seen a shift in focus to that of environmental concerns with an intensification in global awareness of environmental issues, subsequent educational guidelines and policies began to be established.

Over time, the definition of the term *sustainability* in literature has been transformed and this can be explained by considering the process of recontextualisation (Bernstein, 1996). Over time, a shift in focus has occurred from the original meaning of the term sustainability, which recommended replanting to sustain forests, to how the term has been included in educational policies and guidelines specifically labelled as EfS.

Development of EfS:

The concept of sustainability, when specifically applied to education, initially emerged as Environmental Education (EE) and was explicitly referred to in New Zealand school documentation during the 1960s and 70s (Fien & Gough, 1996; McKenzie, 2006; Mtaita, 2007; Palmer,1998). By the 1980s the sustainability focus included consideration for the influence of social and economic factors. The 1990s saw a shift in education regarding sustainability and was shaped by policies and recommendations addressed at international conferences concerned for the future of our planet.

Some of this information was further adapted and applied to education. Documents such as: *Learning to Care for Our Environment* (Ministry of Education, 1998); followed in 1999 by *Guidelines for Environmental Education in New Zealand Schools* (Ministry of Education, 1999) illustrate efforts made by schools to embrace environmental education. Although these documents were actively distributed throughout the country, the concept of sustainability was not fully integrated or implemented by all schools (Bolstad, Cowie & Eames, 2004). By 2001 the Enviroschools initiative was introduced, followed by *The New Zealand Curriculum* (Ministry of Education, 2007) which provided guidelines and objectives for a future focus with specific reference to the concept of EfS.

The influences of previous programmes such as Environmental Education (Fien & Gough, 1996; McKenzie, 2006; Mtaita, 2007; Palmer 1998) reflected heightened global ecological concerns emphasised in the *Belgrade Charter* of 1975, produced by the United Nations Educational, Scientific and Cultural Organisation (UNESCO). This report included an intergovernmental statement that outlined the key concepts, aims and overall objectives of EfS: to enhance awareness and concern about economic, social, political and ecological interdependence. This report aimed to encourage acquisition of sustainable knowledge to encourage change in values, attitudes, and ultimately a willingness to commit to protecting and improving the environment. New patterns of individual and group behaviour, specifically towards the environment, were key objectives with the overall aim for a shift in societal attitude regarding the environment (UNESCO, 1975 as cited in Palmer, 1998, p.7).

These earlier guidelines were further expanded by the *Tbilisi Declaration* of 1977, which emphasised the need to educate citizens to learn to care for and be motivated to protect their environment. It also introduced how interrelated social, political, economic factors are when educating for a sustainable future (Chapman & Eames, 2007). Palmer (1998) sees this as

significant in introducing EfS within New Zealand educational sectors. The *Brundtland Report* of 1987, '*Our Common Future'*, was produced by the World Commission on Environment and Development (WCED) and introduced the concept of sustainable development with guidance for implementation and policies specific to the three aspects of: society, economy and environment.

At this stage, EfS was also referred to as Education for Sustainable Development and Learning for Sustainability. It was at this point that both the Ministry of Environment and Ministry of Education developed a national environmental education strategy that specifically described EfS as a priority commitment not just for those attending school, but for all. This was soon followed in 1999 with further educational documentation, this time labelled *Guidelines for Environmental Education in New Zealand Schools*. This document provided a means to implement EfS in an educational framework and the proposal was for EfS to be woven into existing learning or subject areas. According to Treeby (2001) the decision limited the document's effect due to a lack of explicitly mandated expectations.

To further encourage an educational focus on sustainability the United Nations Conference on Environment and Development (UNCED1992) produced *Agenda 21,* which proposed a plan for achieving sustainable development using a more hands-on approach. A conference involving 178 countries (UNESCO, 1992) specifically aimed to re-orient environmental education to: sustainability in all areas of learning; prepare students to think more critically; take responsibility to act as environmental protectors. "Agenda 21 called for environmental education (EE) and development education (DE) to be cross-cutting themes in all education policies and practice" (Wade, p.221, 2007), and from this, somehow, this concept of education for sustainability (EfS) would develop. This highlighted the issue of clarity around the EfS concept and further policies were introduced.

The outcome of the 2002 United Nations Earth Summit on Sustainable Development emphasised the importance of establishing a direct link between sustainability, learning and education to increase public awareness. This was considered possible by reorienting an educational focus on sustainable development and for this to occur educators required specific training. Implementing a more interdisciplinary educational approach to sustainability would cause a shift of focus from local issues to that of a global approach (Tilbury, 1993). However, there continued to be a lack of clarity regarding what EfS represented, specific to the role of educators in this learning process (Tilbury, 1992).

Another influence on the development of EfS was from international conferences, with a new initiative introduced in New Zealand in response to the call from the Rio Earth Summit

(1992) for ‘thinking globally and acting locally’. This new initiative sparked a small number of schools in Hamilton to trial integrating EE within a primary school setting. In conjunction with the Toimata Foundation, Te Mauri Tau and other regional partners such as local councils, the Enviroschools initiative was developed (Toimata Foundation, 2015). This sustainability programme became available nation-wide by 2001 and aimed to encourage students and schools to commit to a sustainable journey by exploring of their local environment. The key objectives of the Enviroschools programme included students developing connections with their environment and acting on projects within their local areas, through collaboration with the community. The overall aim of this EfS programme is to empower students through experiential learning and to nurture respect for Maori perspectives.

Current status of EfS in New Zealand:

Currently the teaching of EfS allows for autonomy and the guidelines provided for teaching the concept are aimed at acting as resources for teaching. However, the EfS concept is still open to interpretation and the focus remains in ecological education (Taylor, Littledyke, Eames and Coll, 2009). This emphasis on ecology influenced the emergence of pro-environmental behaviours (Taylor et al, 2009). However, it seemed understanding of how EfS differs from environmental education remained unclear. The most important aspect of EfS is the human involvement, which differs to the intent of EE (McKeown and Hopkins, 2007). Consequently, literature on the EfS concept refers to varying interpretations and definitions specific to EfS, which may explain the level of confusion around what the EfS concept represents and how varying understandings have developed (Taylor et al, 2009). With such variation in understanding of the EfS concept it can be challenging for educators to confidently educate for a sustainable future. This lack of clarity may also be explained through the process of recontextualisation (Bernstein, 1996) as the original intent of the term *sustainability* has been transformed by providers for educational purposes to become embedded in programmes such as EE and EfS.

Further consideration of why the EfS concept has such a variety of interpretations may involve the process and methods of educating (Maiteny and Parker, 2002). To flip the norm and encourage a shared belief of EfS can help to form a type of cultural glue through collective experiences (Maiteny and Parker, 2002). Once a shared belief regarding sustainability is established it can help students to develop their sense of personal responsibility and social cohesion, making sustainable action more likely (Maiteny and Parker, 2002). For collaborative learning to occur it is essential that teaches create learning environments where sustainable values can develop implicitly (Hart, 2003). However, it could be argued that to effectively address the EfS concept requires it to be explicitly addressed (Tilbury,1995) but for this

explicitness to occur teaching staff must take a personal stance towards sustainability (Tilbury,1995) and to have a clear understanding of this EfS concept.

Although the EfS concept is open to interpretation, there are a growing number of schools throughout New Zealand implementing the concept (Fien & Gough, 1996; Palmer, 1998). Bolstad, Cowie, and Eames, (2004) reviewed the nature and practice of EfS in New Zealand schools and research findings suggest that the New Zealand Curriculum (NZC) guidelines for EfS were rarely utilised, with some schools unaware of the existence of guidelines (Bolstad et al, 2004). A report from the Education Review Office (2016) found the 'future focus' component of the NZC was the least implemented principle nationwide. It appeared from this research that teaching environmental education appeared to be best understood and therefore easiest to implement through practical actions such as recycling, garden clubs, pest monitoring and enviro groups. To remedy the lack of implementation professional development opportunities regarding EfS were deemed necessary to encourage a positive shift to teaching EfS across all educators (Education Review Office, 2016).

The Enviroschools programme (Toimata Foundation, 2015) is one means to implement EfS in schools and aimed to encourage students to take informed sustainable action. The number of New Zealand schools committed to the programme is currently over 1200, although this commitment is predominantly seen from the primary sector, with far less commitment from secondary schools nationwide. Although there appears to be an increased rate of progress in schools educating for a sustainable future it can still be criticised as being too slow. Sterling (2001) suggested education requires a complete paradigm shift to encourage students to think and act sustainably. "Far from being an agent of change, education often underpins individualism, unsustainable lifestyles and patterns of consumption, directly or by default" (Sterling et al, 2005, p.10).

For any progress regarding understandings and implementation of the EfS concept to be made firstly requires recognition that we are of the earth (Wilson, 2002) and the importance of learning to care for the environment. However, this appears challenging for students living in urban settings who have limited opportunities to connect with nature. Without this connection to nature there is limited opportunity for the development of empathy for and concern about the environment. Opportunities for young people to connect with nature should see improvements in the levels of engagement and motivation for sustainable action. Louv (2005) suggests that the absence of children's opportunities to explore their local environment can lead to the development of 'nature deficit disorder' due to a disconnect from the natural world. This lack of engagement could further hinder the potential for action. If education could incorporate

experiences set in nature (Duhn, Malone, and Tesar, 2017) with sensory rich environmental learning opportunities (Beery and Jorgenson, 2018) then improved levels of engagement and motivation should increase. Clarke (2009) suggests if education does not acknowledge that we are of the earth than it cannot be considered as education at all.

Further to this, imagination is also an important component in any type of learning, and this is no different when addressing EfS (Egan, 2005). Imagination, described as 'the great workhorse of learning' (Egan, 2005) when neglected, may represent staleness in the educational process itself (Egan, 2005). Similarly, Judson (2010) questioned why there is so little encouragement of imagination in education, when it is deemed generally as such a positive trait. Imagination is a means of strengthening ecological and environmental sense. The importance of imagination was considered historically by Rousseau (1712-1788) as a tool to enable empathy and equity and the fact that school classes are predominantly located indoors and positioned away from nature, can further minimise opportunities for imaginative play (Louv, 2005).

How the concept of EfS is addressed in our New Zealand schools is varied, with many interpretations surrounding the concept. It is not necessarily taught across curricular areas, but more commonly addressed as a separate discipline within specific subjects (Gough, 1997). To minimise the containment of this concept to subject areas, teachers could follow an interdisciplinary approach, but for this to occur requires adequate conceptual understanding by teachers (Tilbury,1993). Alternatively, transdisciplinary approaches (McGregor, 2004) could encourage consideration for socially relevant subject matter to be addressed (Perrault and Albert, 2018). The transdisciplinary approach enables common understandings of EfS to be established by combining differing perspectives (Mueller, 2009) and a community of learners who share common environmental understandings would develop (Clarke, 2009; Pohl, 2011). If the EfS programmes took a pro-environmental approach (Chawla and Flanders Cushing, 2007) this would instil a sense of both personal and collective responsibility for the environment. To really enhance this pro-environmental stance, it is also necessary for the public to perceive clear human benefits to acknowledge a 'go-green' mentality (Strife, 2010).

A possible inhibitor of attitudinal change towards educating for a sustainable future is that of consumerism (Selby and Kagawa, 2014). Individuals need to acknowledge their personal role as consumers and to also have a sense of hope for the future to ensure young people do not become overwhelmed by the urgency of our current global concerns. Traits deemed necessary to encourage 'educated hope' are: resilience, collaboration and critical thinking about their world (Giroux, Friere and Steinburg, 2017). This type of thinking may help lead young

people to actively take on social responsibilities. Educators are integral to this process of attitudinal change by inspiring their students to act within their communities and positively change behaviours in order to secure a sustainable future.

Schools can provide the perfect platform for societal change and can be powerful places as they are filled with young people who are actively showing their frustration at the lack of sustainable action taken by their governments (Facer, 2011). To alleviate this growing sense of frustration schools could aim to 'future build' (Facer, 2011), rather than to 'future proof'. To 'future proof' suggests that schools are able to protect their students from the inevitable. However, to 'future build' encourages students to collaborate with one another within their community through the acknowledgement of gaps that are currently inhibiting a sustainable future. This shift in focus to future building requires schools and communities to foster an understanding of the '21st century canyon' (Facer, 2011) and to provide opportunities to imagine different futures (Cunsolo and Ellis, 2018).

By realistically acknowledging the current global climate can encourage 'critical hope' (Ojala, 2016) and stimulate realistic actions to be taken. Another aspect to achieve future building is referred to as 'non-stupid optimism' where education for the future needs to openly acknowledge the current global challenges (McWilliam, 1998). Bolstad, Gilbert, McDowall, Bull, Boyd, and Hipkins (2012) suggested that for an effective future focus within education, the chosen curriculum needed to emphasise what it means to be human and to recognise technological support through this process. This resonates with Facer's (2011) view that education needs to support young people to imagine and collectively create positive sustainable futures. This will further ensure young people develop a sense of hope for the future of our planet. Without this sense of hope students may develop overwhelming concerns and fears that could inhibit their willingness to take personal action to effectively prepare for a sustainable future. This future focus aspect of the EfS concept is yet another interpretation of what it means to educate for sustainability. Ultimately if schools can effectively address the EfS concept it will encourage lifelong learning, collaboration, creativity and a critical awareness of current global and local issues.

Theoretical Framework:

These varying interpretations of the EfS concept represent the complexities of this term, and as the literature suggests these complexities can lead to confusion as to what EfS intends to represents. One means to explain how these variations in understanding the EfS concept have emerged can be that of the theoretical lens of Recontextualisation (Bernstein, 1996). Interpretations can be explained has having experienced a transformation through the

various agencies that are involved with delivering EfS programmes throughout the country. The process of recontextualisation suggests that the original intent of a term or concept can be lost as new meaning is attached to fit within a new setting. Education providers within New Zealand seem to have developed their own interpretations of the term *sustainability* and these have been represented in programmes such as Environmental Education (EE), Education for Sustainable Development (ESD), the New Zealand Curriculum Future Focus documentation and the Enviroschools programme. These varying interpretations highlight how new meanings can develop as ideas become re-packaged. The original intent of the term *sustainability* can be considered to have been refocused to fit within a school environment.

This process of recontextualisation of texts can then be further transformed by teachers and student experiences to become shared classroom knowledge (Edwards & Mercer, 1987). Bernstein (1996) referred to this phenomenon as 'two text transformations' where the initial conversion of knowledge from its original constructed knowledge can be further adapted to enable teachers to pass on or reproduce this knowledge in a classroom setting. The reproduction of personal knowledge can be one means of explaining how varied interpretations of the EfS concept have developed. This led to a desire to explore the following research questions.

Research Questions:

How is the concept of Education for Sustainability (EfS) currently being interpreted by a small group of interested teachers?

Sub-questions:

1. How have these specific understandings of the EfS concept developed in these teachers?
2. How do these teachers' understandings influence their pedagogical practices?
3. What are the positives and/or challenges experienced by these teachers when implementing EfS in their teaching?

Chapter Three: Methodology and design:

This research aimed to explore personally held views specific to the concept of EfS. As the intent was to look at how three teachers had developed their understanding of EfS, a qualitative methodology seemed most appropriate. This provided a means to gain an insight into personally held interpretations specific to the EfS concept. To achieve this the method of semi-structured, one to one, face to face interviews was implemented. This involved gathering a baseline of responses to a blend of open and closed questions. There were interview questions pre written as a basic guideline of framework for the interviews. Follow up questions were utilised throughout the interview to encourage detailed dialogue of participants personal experiences relevant to how they interpreted the EfS concept. Specific questions asked for specific examples of how each addressed EfS in their teaching practice.

This choice of a semi-structured interview method seemed appropriate as the initial guiding questions provided a framework to maintain focus, but also allowed for flexibility to encourage each participant to provide rich descriptions regarding understandings and implementation of the EfS concept. Each interview was constrained to a timeframe of one hour to avoid participant fatigue and to minimise interference in their teaching day. The interviews were conducted in each participants school environment in a location selected by the interviewee.

The three selected teachers were recruited from both primary and secondary educational sectors within the Auckland region. A small selection of school Principals were sent an invitation that asked permission for one or two of their teachers to take part in this research. Three principals replied to the invitation and each recommended one teacher who either held responsibility for running an EfS programme or showed in an interest in this concept. A further email was subsequently sent out to these recommended staff and once they confirmed their willingness to take part in the research, a suitable time and location within their schools was confirmed.

This selection of participants represented a relatively homogenous group as all three participants were of European origin and taught at schools located within the Auckland region. Two were female, and one male with two of them teaching in the primary school sector and the

other in the secondary school sector. There was a range in the number of years teaching experience each participant had and this ranged from 3 to 15 years. The three interviews were digitally recorded for accuracy and also ensured the interviewer was able to stay engaged with the participant.

Theoretical perspectives of research design:

The choice of semi-structured interviews is reflective of a phenomenological orientation, as the purpose of the interviews was to explore participants' interpretations of the 'phenomenon' of EfS. Phenomenology or "the study of the structures of conscious experience as they manifest in people's mind" (Pernecky, 2016, p. 93.) provided a suitable theoretical framework for research of subjective nature. Semi-structured interviews allowed for a degree of flexibility during the interview and opportunities for the participant to outline their personally lived experiences (Creswell, 2013; Crotty, 1998) relevant to the EfS concept. It did not appear feasible to gain the depth of insight desired via the use of an alternative method such as an observation in the classroom. The nature of this qualitative research method enabled each participant to provide both historical and cultural context (Creswell, 2013). It was also imperative that each person felt their unique stance was valued as well as a means to further develop the researcher's knowledge surrounding this EfS concept.

Process of Data Analysis:

The digitally recorded interview responses provided the data to be analysed (Clarke & Braun, 2013) and this data was initially transcribed verbatim and then member checked by each participant. After each of the three participants had reviewed the transcripts and indicated they were satisfied their views had been accurately represented, then the reading and re-reading of all the transcripts began and themes emerged. These themes were then able to be analysed at a macro level for commonalities and differences in interpretations of the EfS concept. This can be referred to as an example of thematic analysis of the gathered data.

Ethics:

Ethical approval was granted from the AUT Ethics Committee (AUTEC Reference number 19/194 approved on 1st July 2019) and written consent (see Appendix II) was gained from each of the participants and the relevant school Principal (see Appendix 1). Although each interview was conducted in a school setting for convenience, this may also have minimised privacy, due to the visibility of the chosen spaces to other staff members. To remedy this potential privacy concern, a numerical system replaced names by allocating them as Person 1, 2 or 3. This will ensure participants identities are confidential with every effort made to minimise

recognition. This process aimed to encourage personally held views to be made explicitly in the confidence that names and schools will not be referred to. To enhance credibility of these research findings member checks were carried out to ensure viewpoints were correctly interpreted. Each interviewee, and their respective school was assured that all documentation relevant to this research was to be stored in a safe space at AUT for six years and following this, shredded. The digital sound files will also be deleted at this time.

Chapter Four: Findings

During the analysis process specific themes were identified. A summary of these general themes and examples of representative responses are below:

Understandings of the EfS concept:

When specifically asked how they interpreted the concept of EfS the responses indicated awareness of the term.

> *"EfS is that we are educating so you can go onto to be sustainable. I think to be educated 'for' gives you that intent, with purpose"* (P1, 55 mins).
>
> *"Because we need to produce a clean earth for future generations"* (P1, 53 mins).
>
> *"Build awareness that what you do has an impact, and what that impact is. Practice what isn't negatively impacting on your environment"* (P3, 48 mins).

When specifically asked how long EfS has been seen in educational resources.

> *"...I'd say 10 years, that's what all my folders and documents refer to...it was definitely EE when I started, but that was a while ago"* (P1. 54 mins).

Development of EfS understandings

One common means of developing understandings of the concept of EfS was through the influences of familial experiences. It appeared these understandings have been nurtured through early opportunities to enjoy the natural environment.

> "*My parents and grandparents always grew their own vegetables and were eating things straight from the garden" (P1 5.03 mins)*. *" In primary school, my family and I spent a lot of time outdoors and cared about the outdoors... so I have always cared little bits..."* (P2, 3.11 mins).

From these initial childhood experiences each participant appeared to have developed a strong sense of caring for the environment. This was further enhanced through travel experiences and a growing concern for the level of degradation at various destinations.

> *"It wasn't until I went overseas on a bit of an OE after university that I started noticing and realised that places were not as clean as they were prior to that."* (P1,3.18 mins).

"I know there is lots of research to show that kids who spend a lot of time outdoors, care about the outdoors" (P2, 7 mins*)*.

There were also ongoing influences beyond childhood experiences such as University and previous career choices.

" I did a Science degree so you can't do that without encountering sustainability, it's just not possible" (P2, 2.50 mins). *"In my previous life I trained as an artist, and I was always curious about using materials that are recycled so I had that way of thinking already, so when I started teaching, I was really interested in teaching outside as much as possible*" (P3, 1.45 mins).

From this upbringing and education each participant expressed a desire to make a change and to live sustainably.

"...our effort and a conscious choice to cut down on meat intake to be more environmentally friendly, to be more sustainable, we also only have one car" (P1, 6 .30 mins).

" So, I deliberately make decisions about what I buy and how I buy it, what I do with my waste" (P2, 7.34 mins*)."I bike, see very sustainable"* (P3, 54 mins).

" We also try to keep our landfill down with a jar in the kitchen.....and to be more aware of what you would normally throw....we recycle everything…we collect wood,...we use newspapers that come to start the fire and try our hardest to buy things that are not overly wrapped...I don't like the idea of scraping out food, and the gases that are produced in landfill...it horrifies me to see the waste at school. I think there is too much food waste in the world" (P1, 8.05 mins).

"I just really try my hardest to do what I can as it pains me to see all the rubbish" (P1, 10 mins).

A real concern for the environment appeared highly influential in the participants daily life.

*"We have possibly become a little obsessive".... the idea of putting out rubbish on the side of the road in another plastic bag makes me feel awful" (*P1, 12 mins*).*

This concern appeared to influence feelings of guilt when they experienced any perceived obstacles to acting in a sustainable manner.

"I have a crisis every time I go to the supermarket.... it's quite a dilemma...I love buying clothes but have cut down massively.... So just less really.... Every year I set mini sustainability goals as well. Things to add on. Because if you do it all at once it is

overwhelming...we live locally so I walk or skate to school...so there are lots of things that we deliberately try to add up over time." (P2, 8 mins).

"It pains me, if I can do anything to help then I will" (P1, 13 mins).

Another influence was that of specific individuals who were deemed inspirational to leading a sustainable lifestyle.

" *So, I* h*ave always cared little bits and then I met X, I don't think she fully gets the scope of her influence, she was like next level with her passion, her enthusiasm for doings things inspired me"* (P3, 3 mins).

The EfS concept within pedagogy:

When asked about how this concern for environmental wellbeing influenced their pedagogy, each participant expressed a desire to engage their students to become aware of their personal influences on the environment. One participant echoed research of the importance of encouraging students to develop a sense of caring for their environment.

"At the very least they will have an empathy for and a connection with nature. Cause that's the thing I was thinking about sustainability -you can't even get to that way of thinking if you don't care, it just becomes an idea...and that could be extended so much more if the wider community is on board with this" (P3, 50 mins).

Seen as equally important was the desire to instil a sense of citizenship in students.

"Being a teacher and having a passion for that, you want to pass it on to the next generation so they may see it through your perspective" (P1, 7 mins).

"If I can influence a few people it is better than nothing" (P1, 11 mins). *"The most important thing is to be good people and engaged citizens"* (P3, 45 mins).

The interviewees tended to use the broader term of *sustainability* rather than referring to EfS explicitly, although the EfS concept was seen to readily influence curriculum planning. EfS was seen to be embedded within school documentation as well as external resources utilised by each person. Although EfS was not the sole focus during curriculum planning it was felt that the concept was not always explicitly considered but it appeared incidentally through teaching and learning opportunities.

"There are so many overlaps it's ridiculous.... there is not a learning area that struggles to see how the themes fit.... there are always too many crossovers, and too many ideas of how we could fit together" (P2, 15 mins).

All participants had dedicated time to consider how they, as educators, could encourage their students to adopt a sense of stewardship and to become good citizens.

> *"The courses are theme based.... based on the NZC more than any other school I have worked in. The learning design leader went through the whole curriculum and pulled it apart looking for common themes....and pulled out things like identity, diversity, culture, innovation" (P2, 16 mins).*
>
> *"I have run the Enviro Schools programme for nine years probably... and have led the school from Bronze, Silver and now, Green Gold. ...I train my class up at the beginning of each year and we monitor the bins*" (P1, 11 mins).

EfS was seen to be easily integrated into learning opportunities, even if incidental.

> "*Every single day I will mention sustainability just because it may come up incidentally, whether it be where the rubbish goes, having a nice environment. I work in the garden club, run the compost club and the garden to table at the moment"* (P1, 13 mins).
>
> *"There are sometimes when there is a unit or module, but often it just comes up"* (P1, 14 mins).
>
> *"Sustainability can be part in fact of all units. We talked about the water cycle and sustainability became a huge part of this, it wasn't the original intent, but it has come out through this programme*" (P1, 15 mins).

There was also an appreciation for the opportunities to pass on important knowledge and awareness to students.

> *" As a school we have a captive audience of 800 people and all the families"* (P3, 47 mins).

There was reference made to the concept of sustainability being the emphasis of termly unit plans following either the NZC or the Enviro Schools guidelines.

> *"The 5 Enviro School principles, we highlight which one for certain units...Enviro Schools philosophy is about respecting diversity, to make sure that we are respectful and incorporating everyone.... this gets reiterated on multiple levels"* (P1, 16 mins).

There was also awareness of the importance of encouraging time in green spaces.

> *"I know there is lots of research to show that kids who spend a lot of time outdoors, care about the outdoors"* (P2, 6 mins).
>
> *"I did everything integrated around the green space"* (P3, 37 mins).

The virtues of collaborative planning, teaching and learning was one participant's focus to achieve a sustainable future focus.

> *" We have designed it (project learning with another school) that way so students could meet up and share ideas, but we haven't managed it that often yet"* (P2, 51 mins).

Implementations of the EfS concept:

Means of embedding the EfS concept into curriculum varied by each participant.

> *" What resonates with me from university is slow pedagogy and place-based learning. That's why I think place based is so good, it's here, it's us"* (P3, 18 mins).

An example of this type of place-based learning was a simple exercise around consumerism.

> *" For example, I brought in my old toothbrushes that I felt too bad to throw away...because everyone cleans their teeth...I wanted the kids to see themselves as consumers"* (P3, 22 mins). *"Whilst I do have an awareness of the environment, I read about these things, to be honest the catalyst to get involved in sustainable education is my desire to get out of the class. It gives a solid learning context where I could guide us and get out"* (P3, 51 mins).

Another participant referred to examples of collaborative teaching.

> *"We also do the cross curricular teaching thing as well, so for example X teaches Math and I teach Bio, and we just did a cross-over investigation that looked at the fauna and flora of our local are"* (P2, 27 mins).

This theme of collaboration was evident in one participants pedagogy.

> *"I think collaboration has to be at the heart of it (EfS), and it's the only way for our views to shift around diversity, not to see it as a barrier, but that's seeing everyone's voices as equal…. We have to socialise our kids into a way of being more sustainable. So, I guess to me what sustainability comes back to again and again is the idea of collaboration, it's not something we can do by ourselves"* (P2, 54 mins).

Positive experiences implementing the EfS concept:

When asked about possible challenges or positives experienced when implementing the EfS concept into each participants pedagogy, the most overriding positive was that of flexibility in curriculum planning.

"*I mean we have overarching themes that represent certain strands of the NZC but how you get there is your own choice. I am deeply appreciative of the space I am given"* (P3, 37 mins).

There was reference to working with other equally passionate teachers in the work environment who can inspire teaching for a sustainable future. It was seen that implementation of the concept was easier if the school itself showed a genuine concern for educating for a sustainable future. If this was present then implementation was deemed easier and this subsequently could attract staff who shared this same desire.

"Here the staff have an acceptance that the world has changed and they have to change with it...You don't get hired here if you are not open to change and as a result if you are open to change you tend to accept that sustainability is a huge issue and we all have to do something about it" (P2, 33 mins).

It was suggested that initially a personal passion for EfS was needed to initiate EfS within teaching.

" I think it needs a passionate person to start things off" (P1, 44 mins).

Once programmes are in place then like-minded educators begin to work together for EfS implementation.

" There are various people who do various things, most of our Science teachers have an interest. It's not so much of a passion, more of an acceptance that the world has changed, and they have to change with it" (P2, 47 mins).

For a whole school to embrace EfS it was important to have the backing of others, staff, management and members of the board of trustees.

"I have others on board with 5 or so staff who are really passionate across the year groups, so it's not just me...our junior classes are fabulous and work hard to get this message across...there are quite a few staff who are now equally as passionate about the cause and these would say something if the school regressed" (P1, 48 mins).

"Been on the board (of trustees) for a while has helped to get the message across" (P1, 49 mins).

" Having support from the Principal means she/he is not standing in the way of what we are trying to achieve. The kids are coming up with the ideas and we are there to make it happen" (P1, 50 mins).

This type of school wide awareness was seen to influence the likelihood of flexibility within curriculum planning.

"...because our curriculum is not designed years out, its constantly evolving and responding to current events, and it's designed so we can be responsive and it comes up a lot more" (P2, 52 mins).

If the school makes every effort to live and breathe EfS then a consistent message can be provided.

" Our principals' approach here is; you ask him whether you can do a thing, and he will say okay tell me more about it, and then he says yes, like 99% he says yes" (P2, 49 mins).

"If a student comes up with an idea about sustainability, there are no rules to say they can't do something" (P2, 49.50 mins).

The importance of a supportive principal was considered critical.

*"When Principal X came on board, she really took it (sustainability) on board, and all the Enviro guiding principles are now in our charter, strategic plans, all of our guiding documents" (*P1, 33 mins).

Another participant felt this message of living sustainably was made clear through the expectations of family and the wider community.

"*When we have school trips and overnight camps, no packaging is promoted. Athletics day at a local track, we always tell them to not put the bins out, we don't have bins here…We run rubbish free events, the PTA has changed the food for fundraisers and discos, all through the PTA, not me. The fact that we are a Green Gold School it is felt that we should fundraise using these types of products"* (P1, 36 mins).

If the school can be open to change and lead the way for the community this was seen to positively assist in meaningfully educating for a sustainable future.

"So, the system wide structures are significantly more in place for a curriculum for today, not one that is from twenty years ago...the design of the buildings is new and built around sustainable means" (P2, 48 mins).

Opportunities to develop student's empathy and encourage a willingness to act favourably for the environment was considered strong in the early years of learning.

"The kids just know. They have come from kindergartens that do it, because I have done some work with kindy's as well. So, as they move their way up through the school it strengthens their knowledge and it is about spreading it across all facets really. It's a natural steppingstone for the kids" (P1, 48 mins).

“Our kids are the hardest in themselves when self-reflecting. They are the ones hardest on us and driving this. The little ones are just as driven as the older ones because of the learning that comes from the kindy’s and junior teachers are really working hard" (P1, 50 mins).

Challenges to implementation of the EfS concept:

Challenges experienced to effectively and meaningfully implement included having enough depth in your subject specific knowledge to allow for meaningful EfS implementation.

"Our teachers know content, but I don’t know how well they actually understand the discipline, like what the glue that holds it all together. And I suspect more often that our teachers are not at that (solo taxonomy) higher level, therefore they can’t weave it through because they don't have enough background knowledge themselves to understand how it weaves through" (P2, 23 mins).

Another challenge recognised was the lack of support from all staff and as a consequence a reliance developed on those dedicated staff who were personally invested in EfS.

"That’s the problem, they (the school) gets stuck at a stage (Enviroschools) and then the teacher leaves and they don’t progress any further" (P3, 19 mins).

Another challenge to meaningful EfS was viewed as schools taking what was referred to as a tokenistic approach to EfS programmes.

" Funnily, we had a sustainability unit last term, I think it was a compelling indication of where the school is at in regard to its idea of sustainability...The schools focus was very science energy based, I think it is all externalising stuff. It’s like melting ice caps. Sometimes I think it is a bit too big for the kids to get their head around.... It just felt like our enquiry unit was a missed opportunity for the school to reflect on itself, to be honest"… I don't think the overall philosophy of this school really aligns with that…. Here we exhibit the classic hierarchy- academics, sports, arts are definitely under that and this kind of stuff is really below that" (P3, 16 mins).

There was reference to the inevitable challenge of time and energy that can challenge meaningful EfS implementation.

"There are a few comrades. I don’t think people are really opposed, but we are so busy, so I guess it’s more about where I put my energy...I just don’t have the capacity to get anyone else involved” (P3, 41 mins*).*

"We just don't talk to each other in secondary schools, so we have no idea otherwise" (P2, 50 mins).

Still on the challenge of time, the speed of getting this EfS message across was also seen as a problematic

." This year I have been a lot slower and tossed aside perfect methodology and thought more about what is best for my kids. I did a lot of curriculum integration... I didn't want the kids in my class to just start trapping, they needed to learn about it first" (P3, 37 mins).

Another challenge was the concern that students are becoming 'issued out' regarding issues such as significant environmental degradation.

"But the kids don't like how it is issue focused...They feel issued out was their words...They lose hope and without hope, how are they going to approach their education. I found this quite enlightening as to how to approach sustainability without the students losing hope" (P2, 27 mins). *"It is also if we arm in them in one way and then there is some technological change where sustainability is not a problem anymore, then they are not prepared for what is in the future"* (P2, 29 mins*).*

" ...I did two workshops of 15 minutes. One about using green spaces and the other about pest monitoring. And those two things were like, that's me. So, I took those, and I actually immediately implemented both into my class....it gave me the structure....it sort of gave me certain tools" (P3, 16 mins).

Chapter Five: Analysis of findings:

There were commonalities and differences seen in all three participants responses regarding their interpretations of the EfS concept. The initial line of questioning aimed to examine what sustainability meant to each participant, how this meaning had developed and further implemented in their teaching practice. Common to all was an enjoyment of the natural environment, a sense of citizenship and concern for the impact their personal actions could have on the environment. They indicated this influenced both their personal lifestyles and pedagogical choices. The examples that were offered of how they implemented the EfS concept into their teaching varied and these examples highlighted personal interpretation. Where differences were evident was the types of challenges each had experienced when implementing the EfS concept into their pedagogy. The semi-structured interviews allowed for an exploration of personal experiences, views held and implementation of the EfS concept from a small group of educators. The interview transcripts were able to be analysed for the emergence of themes and patterns relevant to the research aim.

This small collection of views regarding the EfS concept highlighted how open the EfS concept is to interpretation. A sense of caring for the environment was evident as each interviewee provided many examples of their personal commitment to living as sustainably as possible. This was enhanced through travel experiences and post-graduate learning, particularly evident if they had pursued a science oriented subject focus at a tertiary level of learning. This focus enabled the concept of sustainability to appear in curriculum again and again. One reason sustainability was easily referenced in science related subjects was that both areas of knowledge followed a similar approach to investigation. Elements of the *science method* were seen as relevant to approaching sustainability namely by: making predictions about the future, hypothesising for possible solutions and using methods such as experimentation or observation to support or refute claims.

All of the participants expressed confidence in their level of subject knowledge and one indicated this had positively influenced the ease in which were able to implement this EfS concept into their teaching. It was considered that a solid base of understanding of subject specific knowledge helped them to make meaningful connections to sustainability. Although each indicated familiarity with the EfS concept itself, how they each represented this in in their teaching differed. When specifically asked about their understandings of the EfS concept each participant tended to use the broader term *sustainability*, rather than specifically referring to EfS.

To further explore this, each participant was asked how they defined the term *sustainability*. There was no specific definition provided by the researcher to avoid any potential bias. One participant referred to sustainability as balance in all actions taken and awareness for how these actions impacted on the environment. Another emphasised the importance of taking some action to ensure a healthy clean earth for future generations. The other participant considered it key to effectively collaborate within school communities to ensure group-oriented sustainable actions could take place, as it was felt that sustainability could not be tackled alone.

Although there was variance in each person's interpretation of sustainability, they all shared the underlying belief that as teachers they wanted to encourage a change in student attitude and behaviour. They all felt their commitment to leading sustainable lifestyles had strengthened over time and this had encouraged them all to want to nurture a sense of stewardship in young people. The overarching attitude from all participants was to encourage students to connect with their environment and hoped this would further their willingness for sustainable action.

For this change to occur two of the three participants felt their school environment was making concerted efforts to live and breathe the concept of EfS, with strong programmes operational. However, they were aware that this stance was not necessarily shared by all staff members or school management. Some indicated if the school's level of commitment to EfS was weak, then it became difficult to incorporate the wider community in EfS programmes. If the school wide systems were not seen as supportive of implementing EfS programmes, then participants felt the responsibility fell on a few invested teachers.

This was a concern as each teacher referred to a high level of energy required for teaching with a sustainable focus. It was felt that if the school's overarching attitude towards sustainability was tokenistic, then those teachers who desire positive environmental change may struggle and lose their motivation. If there was minimal commitment to a sustainable focus at a management or board level, then it was viewed that to achieve a holistic approach was impossible. The participants felt the more their school management played lip service to EfS programmes, the more isolated the passionate teacher felt. A supportive Principal was seen to encourage ideas to be generated and this willingness to be flexible showed a much-needed openness to change.

Each participant was asked to reflect on how their school encouraged an EfS focus. One interviewee felt their school placed a genuine emphasis on EfS programmes and felt this was reflected in the school's overall ethos. The school was able to promote this focus in their

charter and that much of the school's curricular documentation regularly referenced this EfS concept. The interviewees whose schools had committed to the Enviroschools programme felt the more their school was invested in the programme, the more there was adherence to a future focus in the curriculum. The NZC document was also deemed as a useful means of implementing a sustainability focus when designing curriculum. Also mentioned was the resources available from both the Department of Conservation and the Council. There was no reference made to the NCEA EfS resources available for senior students. Irrespective of the age of the students, adopting a theme-based curriculum design was seen as a means to weave sustainability into the curriculum. These themes were thought to emerge when planning, either through the strands proposed by the NZC document, or through the guidelines provided by the Enviroschools programme.

Each participant indicated their students had generally grasped what the sustainability concept involved and some students were incorporating it through their chosen actions such as their project choices. When questioned about opportunities to reflect on the success of these projects, all of the participants thought the students were rather harsh on themselves and the school. This reflective process was seen as important as it encouraged innovative thinking and collaborative problem solving. One participant saw it as critical to promote socialisation within students so they can learn the importance of valuing the opinions of others. This also provided opportunities to break down barriers regarding subject importance and to replace the common silo approach to subject learning, with a broader community-oriented approach. Each participant indicated that their position as teachers provided them with opportunities to highlight how interconnected sustainability was across all subject areas.

When asked how this was achieved in a classroom setting, it was considered relatively easy to make connections to sustainability if the specific curriculum had been designed to allow for these relevant curricular themes to appear. Examples of how each participant addressed sustainability in the classroom included; class projects topic choice, facilitation of pro environmental clubs, community involvement in collaborative projects, pest monitoring and trapping, utilising local green spaces, and the encouragement of critical thinking. To assist with teaching the EfS concept it was felt not only were the NZC and Enviroschools guidelines useful, also helpful was the array of resources available through both the Department of Conservation and Council. The curriculum designer(s) within the schools will each hold a slightly different interpretation of what the EfS concept involves, and this will again be interpreted by individual teachers as well as their students.

The age group of students was seen by one participant as important to the success of EfS programmes. Students entering their primary years were seen to have already developed a keen sense of what is right and what is wrong specific to their environmental actions. This was seen to have developed in the kindergarten years and strengthened throughout the primary years of schooling. However, on leaving the primary sector, it was viewed that a shift in attitude occurred and this may be reflective of the emphasis on academic achievement, leaving minimal time allocation to addressing the EfS concept.

The research findings confirm there are variations in how the EfS concept is currently being interpreted by a small group of invested teachers. How these interpretations had developed shared a common theme; that of the opportunities they had with their families to experience nature, as these had nurtured their respect for the environment. They all shared a common desire for positive change and consequently they all tried to lead as sustainable lifestyles as possible. Their level of commitment in their personal lives influenced their pro-active approach to teaching for sustainability.

How each participant chose to implement the EfS concept is where differences were seen and this reflects the autonomous nature of teaching. Understandings are always going to vary but the degree of flexibility when designing curriculum was seen as an important component to weave sustainability into lesson plans and units. To have malleability at the planning stage was seen as integral to effective EfS implementation as it allowed for relevant and topical issues to be addressed. The opportunities the school's physical green spaces offered was another means to implement sustainability into teaching. Although the guidelines provided through specific EfS programmes were generally seen as useful tools, these had to be age appropriate and relevant. Socialisation of students and teachers was believed to be highly influential in the EfS journey, as opinions of others begin to be valued. Another critical aspect to ease EfS implementation was the need to secure a thorough understanding of your subject knowledge. The participants felt it then became easier to work collaboratively with other like-minded staff to engage in meaningful environmental education.

In summary these findings highlight that there is a strong awareness of the importance of the EfS concept and an appreciation of the urgency for young people to become engaged global citizens. The significant challenges to achieving this awareness are the complexities of the EfS concept and subsequent understandings. Equally challenging was achieving consistency in how committed the school and wider community were to taking a holistic approach to educating for sustainability. The participants all felt a desire to instil in their students a sense of citizenship as

they all saw the message of sustainability to be essential for any positive change to be considered.

To hold varying interpretations of the EfS concept is expected as personal experiences and learning opportunities are always going to lead to differing understandings. However, due to the urgency of the current climate catastrophe it appears education should be addressing this topic of sustainability in a more explicit manner. If the message coming from schools is not clearly positioned to encourage education for sustainability, then there remains a heavy reliance on dedicated teachers to educate in isolation, and this in itself is not a sustainable approach to educating for the future.

Chapter Six: Discussion:

Findings from this research describe how a small group of teachers were currently interpreting the EfS concept. However, their views could be considered representative of a similar attitudes held by other primary and secondary educators in New Zealand. There was a shared view that schools provide a perfect platform for promoting positive change regarding the wellbeing of our planet. The reality is that there are constant demands in teaching to deliver content within a specific timeframe, and this limits how meaningfully the EfS concept can in fact be implemented in the classroom.

There are guidelines available to aid the delivery of the EfS concept such as programmes provided in the NZC documentation and the Enviroschools programme. These are examples of frameworks for teachers to follow but a significant failing of these EfS guidelines is the absence of any mandatory requirements for New Zealand schools to implement these into school curriculum. This view was reiterated by Treeby (2001) who proposed that the lack of mandated expectations was a fatal flaw. This can also be perceived as a clear indicator of the value associated with the EfS programmes if currently the Ministry has no compulsory requirements to educate for sustainability.

The value attached to this concept can also be questioned at a tertiary level specific to teacher training. Currently only a small number of teacher training institutions offer sustainability programmes, and these are optional courses except for Waikato University who are catering for primary trained educators. This means there are limited opportunities for this EfS concept to be introduced and leaves teachers starting their careers with varied levels of understanding of the EfS concept. If a new teacher's understanding is weak, it could make it challenging to competently weave this environmental focus on sustainability into their lessons.

The complexities of the EfS concept can be analysed as leading to differing interpretations and explain the subsequent values associated with it. According to Taylor et al (2009), there is confusion around what the term EfS actually represents and many have continued to focus on ecology, which has influenced the emergence of pro-environmental behaviours such as recycling, replanting and monitoring for pests. However, McKeown and

Hopkins (2007) suggested that of critical importance was an awareness of how EfS differed to prior environmental education programmes. The key variance being the human involvement of EfS and the desired outcome for people to think differently about their environment. Tilbury (1993) considered this possible lack of clarity for what EfS represented in the classroom setting was the root of confusion over the role educators can play in promoting EfS.

If there was greater emphasis on increasing awareness of how the EfS concept could be implemented by teachers throughout the country, then perhaps understandings could be nurtured and then imparted to young people. By achieving this may reduce what appears to be a heavy reliance on teachers who have developed their own personal commitment to leading sustainable lifestyles and want to pass on this sustainability message to their students. There must be a significant number of teachers in this country who do share this personal investment to leading sustainable lives and consequently the EfS concept could easily be avoided in teaching.

However, there has been some progress as the number of schools committed nationally to the Enviroschools programme reached 1200 schools in 2019 but, the number of primary schools far outweighs secondary schools. Our kindergarten and primary schools seem to be better placed to position this EfS concept at the heart of their planning. The academic emphasis currently in the secondary sector influences how readily the EfS concept is able to be meaningfully approached. If this complex concept becomes nothing more than an ‘add on’ than the likelihood of any positive sustainable change is challenging to imagine. Sterling (2001) argues that essentially there needs to be a complete paradigm shift in education.

The EfS concept aims to encourage students and the wider community to: think critically; to come together to initiate problem solving; to collaboratively take action; and to ultimately become responsible global citizens. How well this is currently been achieved is an area of concern as there is now a greater sense of urgency for positive environmental change. If collaborative action could be encouraged, then social cohesion can emerge, something Maiteny and Parker (2002) referred to as a type of cultural glue and from this young people may develop their sense of personal responsibility and their desire to achieve sustainable action.

The classroom setting offers the perfect platform for the EfS concept to be implemented. Facer (2011) argues that schools are perfectly positioned to provide a baseline of knowledge about current environmental concerns. This knowledge needs to be delivered with realism but also with an element of hope to avoid students becoming 'issued out' (Facer,2011). When implementing the EfS concept the educator needs to be careful not to leave the students feeling that their future lacks hope (Facer, 2011). This type of mindset can have negative

ramifications on students' mental wellbeing such as causing undue tension for young people. This stress is seen to originate from the belief that climate change is irrevocable, which heightens students concern for their future and generations to follow. Some psychologists have labelled this as 'eco-anxiety' (Clayton, Manning, Krygsman and Speiser, 2017).

One means to relieve this type of anxiety is through education, specifically providing accurate information about the environment through EfS programmes. The Ministry of Education has introduced a new resource that aims to educate students in Year 7-10 specifically about climate change and after completing a trial in a Christchurch school last year, it has now become available nationally. This is still aimed at younger students, which may reflect the existence of current resources available through the NCEA level 2 and 3 EfS achievement standards. Perhaps the decision to cater for Year 7-10 with this new climate change resource was in response to a perceived gap in environmental education. It will be of interest to review how this set of resources is interpreted and utilised by New Zealand teachers. Ideally educators are encouraging students to think critically about the world (Giroux et al, 2017) but this sense of realism must also include consideration for achievable change.

Reflecting on this research the significant message for me has been seeing a real passion for promoting sustainable change by the participants. The energy and enthusiasm expressed by each participant in this research project was encouraging. They were determined to try and highlight to their students how interconnected social, economic, political and environmental factors are in these global issues. This was seen to naturally be strengthened by a supportive school and community and this was achieved by an invested school management team and board of trustees. With all of these components in place then it should aid the process of educating for a sustainable future.

Chapter Seven: Conclusion.

In summary, for meaningful environmental education to be embedded within our schools the concept of EfS needs emphasis and this will lead to greater awareness and strengthened understanding. The NZC document (2007) stated that education for sustainability required the contribution of all learning areas and that sustainability needed to be a significant theme, both now and into the future. However, the continued absence of mandatory requirements to teach this EfS concept will result in varying interpretations and understandings associated with sustainability. A report by UNESCO in 1992 stated that teacher training towards sustainable education should be “the priority of priorities”. Now almost three decades on and the EfS concept appears far from been addressed as an educational priority.

Although the primary education sector appears to be making concerted efforts to implement EfS, the secondary sector is less focused. This inhibits satisfying the sustainability goal (SDG 4.7) by 2030, leaving one decade to meet the target for all learners to acquire adequate knowledge and skills to enable sustainable development. This requires educators to firstly have suitable knowledge regarding sustainability themselves. If there is limited professional development opportunities for teachers to learn about the complexities of the EfS concept, then reaching the SDG 2030 target will be unachievable. Bolstad et al (2004) pointed out that inflexible time-tabling makes it challenging for EfS implementation at a whole school level and consequently the EfS concept continues to be addressed as an ‘add on’ to existing subject areas. The urgency of our current climate catastrophe makes it crucial for an increased focus on ecological awareness. If there could be a shift in education that places sustainability at the heart of planning, then personal interpretations of the EfS concept will be communicated and from this greater clarity and ease of implementation will emerge. This will reduce the reliance for EfS programmes to be delivered by passionate staff who personally committed to instilling a sense of citizenship in their students. After all, the future of the planet belongs not to us, but to our students.

Ultimately, this research found that although the concept of EfS has been around for a long time and has been well researched and developed, the speed of uptake of this concept in New Zealand schools continues to be too slow, particularly considering the urgency of the

current global situation. The concept has been picked up by a number of enthusiastic teachers who really want to make a difference. However, they cannot achieve very much because the concept appears to be treated as an 'add on' to the main curriculum focus, consequently the EfS concept appears to have been side-lined and assimilated as it does not fit within the prevailing discourse of education.

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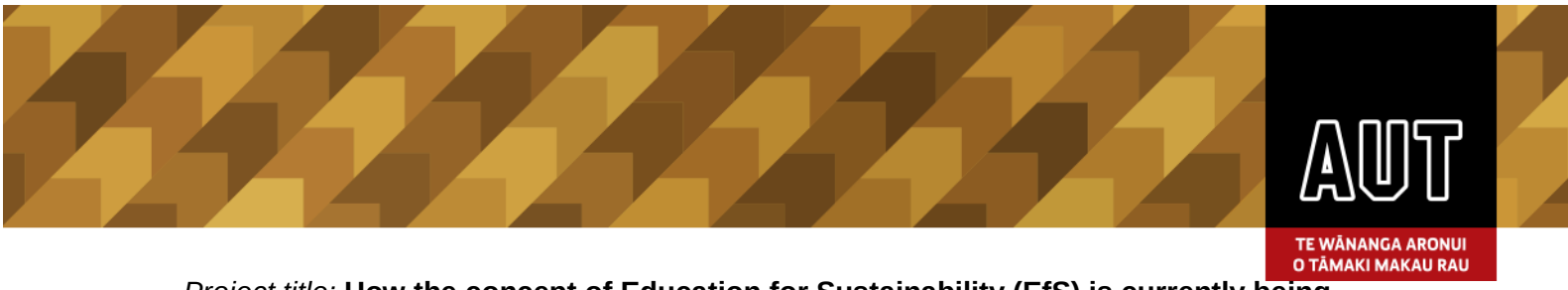
Appendices

Appendix I: Consent form



Project title: **How the concept of Education for Sustainability (EfS) is currently being interpreted by a small group of interested teachers.**

Project Supervisor: ***Dr Jane Gilbert***

Researcher: ***Megan Hobson***

- ○ I have read and understood the information provided about this research project in the Information Sheet dated ____ August 2019.
- ○ I have had an opportunity to ask questions and to have them answered.
- ○ I understand that notes will be taken during the interviews and that they will also be audio-taped and transcribed.
- ○ I understand that taking part in this study is voluntary (my choice) and that I may withdraw from the study at any time without being disadvantaged in any way.
- ○ I understand that if I withdraw from the study then I will be offered the choice between having any data that is identifiable as belonging to me removed or allowing it to continue to be used. However, once the findings have been produced, removal of my data may not be possible.
- ○ I agree to take part in this research.
- ○ I wish to receive a summary of the research findings (please tick one): Yes○ No○

Participant's signature:

.....

Participant's name:

.....

Participant's Contact Details (if appropriate):

……..

Date:

Approved by the Auckland University of Technology Ethics Committee on 1st July 2019 AUTEC Reference number 19/194

Appendix II: Principal invitation

Research title: How is the concept of Education for Sustainability (EfS) currently being interpreted by a small group of interested teachers?

Kia ora _____

My name is Megan Hobson. I am carrying out research for a Master in Education dissertation at AUT University. I would like to invite *(insert name*) to participate in my research. The aim of this work is to explore differing interpretations of the concept of Education for Sustainability (EfS). I would like to invite 1-2 of your staff who are currently involved or responsible for EfS in your school to participate in a one-hour interview, if you are willing for this. The interviews will be at a time convenient for your staff and, if you agree, in a space in your school setting. Below are some details about this project.

What is the purpose of this research?

I want to understand the variety of views of the Education for Sustainability (EfS) concept and to look at how these views have developed. Education for Sustainability is a key component of the 'future focus' principle of the New Zealand Curriculum. However, there are various interpretations of this concept. I am interested in exploring whether this is an issue. Therefore, this research aims to investigate differing interpretations of EfS and any underlying understandings and philosophies held towards this concept.

How do I agree to participate in this research?

The participation by your school in this research is obviously entirely voluntary and you can withdraw from the study at any time. If you choose to withdraw from the study, then you will be offered the choice between having any data that is identifiable with your school removed or allowing it to continue to be used. However, once the findings have been produced, removal of your data may not be possible. There will be a period of one week to consider taking part in this research. Please email me if you or another staff member are willing to participate by attaching the signed consent form.

What will happen in this research?

During the interview participants will be asked questions regarding their understanding of EfS;- how they think EfS ideas came into your school, and how they think these ideas are expressed within the school philosophy and pedagogies. They will also be asked for their views on the extent to which these

are linked with the 'future focus' principle. The interview will be conducted at your school premises, if you agree. Audio recording will be made with permission and transcripts will be available to review to ensure accuracy and transparency.

What are the discomforts and risks?

It is unlikely your staff will experience any discomfort and they do not have to answer any questions that make them feel uncomfortable.

How will these discomforts and risks be alleviated?

You (or selected staff) will be free not to answer any questions that make them feel uncomfortable. The interview transcripts will be made available to participants to review in case they have any concerns about being misinterpreted. A summary of the research findings will be made available on completion of this research. All the information gathered will be presented using pseudonyms to ensure confidentiality.

What are the benefits?

Your school may benefit from involvement as the research findings may provide an opportunity for you and your school to clarify your current approach to addressing this EfS concept.

How will my privacy be protected?

Your school's privacy will be protected with pseudonyms. All transcribed interview scripts will be destroyed after analysis is complete.

What are the costs of participating in this research?

One-hour time will be required for the interview, which will take place at a time convenient to you or the nominated staff member, when not teaching. If you agree, I would like to be able to carry out the interview in a private space in your school.

What opportunity do I have to consider this invitation?

If you agree to participating in this research, could you please email me within one week, attaching the signed consent form.

Will I receive feedback on the results of this research?

A one-page summary of the research findings will be made available to you and your school on completion of this research.

What do I do if I have concerns about this research?

Any concerns regarding the nature of this project should be notified in the first instance to the Project Supervisor, Dr Jane Gilbert, jane.gilbert@aut.ac.nz (09) 921-9999 ext. 8159. Concerns regarding the conduct of the research should be notified to the Executive Secretary of AUTEC, Kate O'Connor, *ethics@aut.ac.nz*, 921 9999 ext. 6038.

Whom do I contact for further information about this research?

Please keep this Information Sheet and a copy of the Consent Form for your future reference

Researcher Contact Details:

Megan Hobson megshobson@gmail.com

Project Supervisor Contact Details:

Dr Jane Gilbert jane.gilbert@aut.ac.nz

Approved by the Auckland University of Technology Ethics Committee on 1st July 2019.

Appendix III: Interview guidelines

Broad RQ: How is the concept of Education for Sustainability interpreted?

1. **Explore specific understandings of the concept of EfS.**
2. **How have these understandings developed?**
3. **What are the challenges experienced when implementing EfS in to your pedagogy?**
4. **Explore differing approaches in education to developing collective abilities to live sustainably.**

1. **OWN VIEW- What's your interest in/background in relation to education and sustainability?**
   How interest developed? (sources, people, experiences)
   What are specific thoughts/actions regarding sustainability in general.
   Definition.
   How do you see this connected to education?
   Level of commitment to this field?
   Severity of the issue of sustainability? Why/bigger concerns?

2. **Understandings- Are you familiar with the Education for sustainability movement in schools?**
   When did you become familiar/how?
   What do you think about the movement/concept?
   Positive thoughts/actions
   Challenges experienced or imagined
   Familiarity with environmental education or ecological education?
   Do you see these as different from EfS? How/why.
   Are you familiar with the term nature deficit disorder (Louv)? What are your thoughts around this and how responsible schools should be to minimize this disorder?
   School commitment level?
   How valued? How measured? Whole school/staff/wider community? Link to school philosophy/mission statement etc.???
   Any examples
   How is ecological stewardship encouraged?
   Any personal challenges with how your school approaches EfS?
   Is there any guidance from the NZC future focus principle? If yes, in what capacity?

Wrap up question- What do you think educations role should be in developing our COLLECTIVE ability to live sustainably??? Could you imagine a curriculum that is centered around sustainability?
Anything else you would like to add/say on the topic?
Thanks for your time.