Teacher Professional Development as a Mechanism to Advance Education for Sustainable Development (ESD) Integration in Namibia: A Senior Primary English Language Case Study

A thesis submitted in fulfilment of the requirements for the degree

of

MASTER OF EDUCATION

(Environmental Education)

in the

Education Department

Rhodes University

By

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23 February 2024

DECLARATION OF ORIGINALITY

I, **Miryam Keshityeni Shangheta**, hereby declare that this thesis is my own original work and has not been previously submitted in any form for assessment or for a degree in any other higher education institution. Where I have used work from other scholars, such ideas have been acknowledged by means of quotations and referenced according to Rhodes University Education Department Guidelines.

Miryam Keshityeni Shangheta
23 February 2024

DEDICATION

To the billions of people now alive, whose actions will determine
the future of human existence.

ACKNOWLEDGEMENTS

I would like to thank some of the numerous contributors who offered their time to this research project.

I would like to express my sincere gratitude to my supervisors, Associate Professor Lausanne Olvitt and Dr Zintle Songqwaru-Kangumu for providing invaluable guidance and motivation. Your unwavering support has kept me going.

I would like to extend my thanks to NaDEET staff for trusting and allowing me to employ their *Teach for ESD* programme as a case for my research project and for their support throughout the research. It was a privilege and great honour to work with you and I hope that this project's findings and recommendations will be useful in some way.

I would like to extend my gratitude to the English Language teachers from Otjozondjupa region who participated in this research project. Without you, this research project would have been in vain.

Finally, I would like to thank my three children (Michael, Martha and James) for being patient with me during this demanding time. Mommy is finally done!

ABSTRACT

Namibia is a signatory to the Sustainable Development Goals of Agenda 2030 and responds to the United Nations Decade of Education for Sustainable Development by incorporating Education for Sustainable Development (ESD) into its education curriculum and policies. In 2020, Namibia launched its National Environmental Education and Education for Sustainable Development Policy. Despite these policy commitments, research indicates that most teachers continue to struggle with integrating ESD into their teaching practices. The integration of ESD in English language teaching classrooms is no exception. This qualitative case study is an attempt to understand how a Teacher Professional Development programme named *Teach for ESD* offered by NaDEET, a non-governmental organisation in Namibia, aided three Senior Primary Phase English Language teachers to integrate ESD into their teaching practice. The study also aims to unveil the teaching practice of the selected English Language teachers in the Otjozondjupa region who participated in the *Teach for ESD* programme. Data was gathered using semi-structured interviews (three interviews per teacher), document review, and lesson observation (one per teacher). Theoretically, the study is framed by socio-cultural learning theory after the work of Lev Vygotsky, supplemented by Mavhunga and Rollnick's (2013) account of Topic Specific Pedagogical Content Knowledge (TSPCK). The qualitative data was analysed inductively to identify themes and sub-themes relevant to the research questions. The study findings might be of value to NaDEET as they implement future TPD courses in ESD, and they may also be of interest to English Language Teaching stakeholders as Namibia implements the EE and ESD Policy in the national school curriculum. The findings showed that the English Language teachers need ESD training; ESD-oriented teaching and learning materials; continuing support for monitoring and evaluation of their ESD practices; and more time allocated to English Language teaching in the timetable so that the environmental / sustainability content can be explored in more depth alongside the development of English Language skills. The study recommends that further research be conducted into effective ways of teaching English Language skills through environmental themes (developing Pedagogical Content Knowledge); and exploring up-scalable models of teacher professional development so that more English Language teachers can receive ESD training.

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LIST OF ABBREVIATIONS AND/OR ACRONYMS

CPD	Continuing Professional Development
EE	Environmental Education
EFA	Education for All
EL	Environmental Learning
ESD	Education for Sustainable Development
ETSIP	Education and Training Sector Improvement Programme
HPP	Harambee Prosperity Plan
LCA	Leadership for Conservation in Africa
MBESC	Ministry of Basic Education Sports and Culture
MoEAC	Ministry of Education Arts and Culture
MKO	More Knowledgeable Other
NaDEET	Namib Desert Environmental Education Trust
NDP5	National Development Plan 5
NEEN	Namibia Environmental Education Network
NIED	Namibia Institute of Education Development
NGOs	Non-Governmental Organisations
PCK	Pedagogical Content Knowledge
SCT	Socio-Cultural Theory
SDGs	Sustainable Development Goals
SEEN	Support Environmental Education in Namibia
SFH	Society for Family Health
SMK	Subject Matter Knowledge
SPAC	Sabine Plattner Africa Charities

SST	Sustainability Starts with Teachers
TPD	Teacher Professional Development
TSPCK	Topic Specific Pedagogical Content Knowledge
TVET	Technical Vocational Education and Training
UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Organisation
WASH	Water, Sanitation and Hygiene
ZPD	Zone of Proximal Development

DEFINITIONS OF MAIN CONCEPTS

Environmental Education (EE)	EE promotes transformative learning that encourages a sense of personal and social care and responsibility for the environment, fosters a commitment to sustainable living, and promotes an enduring dedication to environmental stewardship, planetary well-being and sustainable futures (SADC ESD framework, 2022, p. 7)
Education for Sustainable Development (ESD)	Refers to education that helps people develop the attitudes, skills and knowledge to make well-informed decisions for the benefit of the present and future generations (UNESC0, 2014)
Socio-Cultural Theory	Sociocultural theory is a social learning theory that postulates that teaching and learning occurs as a result of social interaction and language (Vygotsky, 1978).
Sustainable Development	Sustainable development is defined as the development that meets the needs of current generations without compromising the ability of future generations to meet their needs (Brundtland, 1987).
Teacher Professional Development (TPD)	Refers to formal and informal activities that teachers engage in to improve their professionalism (Kennedy & McKay, 2011, p. 41).
Zone of Proximal Development (ZPD)	It is the "distance between the actual development level as determined by independent problem-solving and the level of potential development determined through problem-solving under adult guidance in collaboration with more capable peers" (Vygotsky, 1978, p. 86).
Pedagogical Content Knowledge (PCK)	Specialised knowledge possessed by teachers for making content comprehensive to their learners (Mavhunga and Rollnick, 2013)

CHAPTER 1: BACKGROUND AND INTRODUCTION TO THE STUDY

1.1 Introduction

This study is driven by three interrelated focal interests: Education for Sustainable Development (ESD), Teacher Professional Development (TPD), and Environmental Education programmes in Namibia. According to previous scholars and researchers mentioned later in this study, ESD and its integration by teachers in Namibia, especially English Language teachers, is a matter of concern because most institutions that offer teacher education in Namibia do not offer ESD/EE as a course/module for the teachers to gain an in-depth understanding of it. TPD is considered an effective practical response to meet most teachers' professional development needs including their needs to integrate EE/ESD in their classroom practice. UNESCO (2018) supports this, arguing that ESD is a lifelong process and teachers' professional development must be continuous. Environmental Education programmes, which can be regarded as TPD depending on their objectives, can advance ESD integration in English teaching practices. In response to these challenges and possibilities, this research report presents a case study of sampled professional development journeys of three Senior Primary English Language teachers from the Otjozondjupa region who participated in the Namib Desert Environmental Education Trust (NaDEET)'s *Teach for ESD* programme, during April 2021 to February 2023.

This chapter begins by introducing the problem statement and rationale for the study as elaborated in the discussion of Namibia's Basic Education Curriculum and the development of EE and ESD in the country. I then outline my personal experience as an English Language teacher in the Senior Primary Phase, and as a TPD representative at school and cluster levels. Thereafter, the chapter discusses the study's aims and the research questions. Finally, the chapter presents an outline of the thesis chapters that follow.

1.2. Problem Statement and Rationale for the Study

The previous and current National Curriculum for Basic Education (MoEAC, 2016) and English Language syllabi (MoEAC, 2016) both stipulate that Environmental Education should be integrated in all lessons including English lessons, but do not state how it should be done. The curriculum assumes that all teachers are capacitated with Environmental Education

knowledge and that they are able to integrate it into their teaching practices. These assumptions have led to little or no integration of ESD in most Namibian classrooms. Kanyimba (2002) noted that teachers in Namibia as well as school managers have only a partial understanding of ESD. This corresponds with Tshiningayamwe's (2011) research that revealed that most teacher educators in Namibia are still not trained to support teachers to incorporate environmental knowledge into their teaching practice. Consequently, there is a gap in the integration of ESD in schools.

This study seeks to contribute to a growing body of research on EE and ESD in the Namibian schooling system. Examples include: Kanyimba (2002) who looked at the incorporation of EE in the secondary school curriculum; Tshiningayamwe (2011) who researched the implementation of environmental learning in the Biology curriculum; Joseph (2014) who focused on the inclusion of environmental learning in the Life Science curriculum; Loubser and Simalumba (2016) who focused on implementation of EE in Geography; Anyolo, Karkkainen and Keinonen (2018) who researched school teachers' perceptions and teaching practices of implementing ESD, and Malua (2019) who gave a morphogenetic account of the emergence of ESD in the Senior Primary English curriculum.

Even within this existing body of research, I was unable to find studies on the links between Environmental Education programmes and teacher professional development, most especially in relation to English Language teaching in schools. Hence, this study can make a useful contribution to fill that knowledge gap. The study is also well-timed as the Namibian EE and ESD Policy (MEFT, 2019) is gaining momentum nationally, and the Draft EE and ESD Strategy and Action Plan for 2022 – 2026 came into circulation in mid-2022 (UNESCO & MEFT, 2022).

1.3 Research Aims, Objectives and Questions

The primary aim of this study was to understand the professional development needs, wishes and experiences of Senior Primary English language teachers who seek to integrate ESD into their teaching practice. This aim was achieved through a case study of NaDEET's *Teach for ESD* programme, focusing on the support they provided to Senior Primary English Language teachers. The *Teach for ESD* programme was in its pilot phase when this case study research was conducted.

NaDEET is a non-governmental organisation that provides Environmental Education to Namibians regardless of their socio-economic status and education background. In 2020, NaDEET established a *Teach for ESD* programme, which is a professional development initiative for teachers to build their knowledge, skills and leadership in implementing ESD in schools. According to NaDEET's Baseline survey that was conducted before the implementation of their *Teach for ESD* programme, there is a disconnection between policies and what is happening at a classroom level (D1, 2019). They also found that most ESD service providers offer ESD activities of less than a week in duration, which is not enough to cover the relevant knowledge that teachers need to effectively integrate ESD into their teaching.

Against this backdrop, it seemed relevant and potentially useful to gain a better understanding of English Language teachers' needs in the Senior Primary Phase, and the types of support that they find beneficial.

The research objectives were therefore to:

- find out what support Senior Primary English Language teachers say they need to integrate ESD in their English Language teaching practice;
- identify the features of the *Teach for ESD* programme, especially regarding ESD support for Senior Primary English Language teaching;
- observe participating teachers' reported experiences of the *Teach for ESD* programme;
- determine if there is evidence, following the *Teach for ESD* programme, that participating English Language teachers have changed their teaching practice to integrate sustainability concerns;
- find out what features of the *Teach for ESD* programme seem to have enabled the changed English Language teaching practices.

These research objectives gave rise to the following research question and its related sub-questions:

How does NaDEET's *Teach for ESD* programme support Senior Primary English Language teachers to integrate sustainability concerns into their English Language teaching practice?

Sub-questions:

- What support do Senior Primary English Language teachers say they need in order to integrate ESD in their English Language teaching practice?
- What are the features of the *Teach for ESD* programme, especially those that support Senior Primary English Language teaching?
- What are the participating teachers' reported experiences of the *Teach for ESD* programme?
- Is there any evidence at the end of the *Teach for ESD* programme that the participating English Language teachers have changed their teaching practices to integrate sustainability concerns?
- What features of the *Teach for ESD* programme seem to have enabled the changed English Language teaching practices?

The study's intended contribution is to inform future teacher professional development programmes that support English Language teachers to integrate ESD into their teaching practice. The findings and recommendations would be of direct relevance to NaDEET but could also be of relevance to stakeholders in the Senior Primary phase in Namibia, or to English Language teaching specialists in other curriculum phases and countries. The study might be of interest to other education stakeholders such as curriculum developers, textbook writers, subject advisors, and leaders of NGO-based sustainability programmes that support teachers, especially Language teachers, to integrate ESD effectively.

1.4 Personal Experience and Motivation for the Study

My personal interest in this study is shaped by experience of being an English Language teacher in the Senior Primary Phase and a CPD facilitator at a school level. When I started teaching in 2012, I struggled greatly to integrate Environmental Education as a cross-curricula issue in my lessons. For the first five years of my teaching, I was the only English Language teacher in the Senior Primary Phase as the school was still growing. The school comprised of one class per group, so this made it hard for me to collaborate with other teachers in order to integrate ESD. As an alternative, I sought assistance from my colleagues who taught other subjects. We all had very little knowledge of ESD. I also approached colleagues from other schools in the region and from other regions, who at that stage also had limited understanding of ESD. As a trained CPD facilitator at school level, I attended and ran workshops at school, cluster, and regional levels but all these workshops focused on subject matter knowledge in English language

teaching. We never conducted or encountered workshops, conferences, or professional development programmes on cross-curricular issues such as sustainable development. Being a CPD facilitator exposed me to the importance of teacher professional development opportunities and the crucial role it plays for in-service teachers.

In 2019, as a registered Bachelor of Education Honours Degree post-graduate student at Rhodes university, I chose English Language teaching and Environmental Education as my two electives. The EE classes placed a lot of emphasis on relating EE and ESD to our subjects that we teach back at our schools. This was my first exposure to integrating ESD into my lessons. As a result, I realised that many more professional development opportunities about ESD were needed to expose every teacher to the kind of knowledge I had gained. This motivated me to undertake Masters-level studies to investigate how local Environmental Education programmes were supporting Senior Primary Phase English Language teachers to integrate ESD into their lessons through Environmental Learning as a cross-curricular issue.

1.5 Thesis Outline

This thesis is made up of six chapters that have different purposes that contribute to the thesis as a whole. They are outlined below:

Chapter 1: Introduction and Background of the Study

In this chapter, I give the introduction, the context, the rationale and potential contribution of the study. I shared my experience and motivation for the study. The questions the study is attempting to answer are outlined in this chapter.

Chapter 2: Literature Review

This chapter focuses on the key concepts chosen and the literature relevant for this study. These are concepts on ESD, TPD, English Language teaching and EE programmes. Thereafter, it reviews the theoretical framework suitable for guiding this study, that is, Vygotsky's Socio-cultural theory and Mavhunga and Rollnick's Topic Specific Pedagogical Content Knowledge (TSPCK) derived from Shulman's Pedagogic Content Knowledge (PCK).

Chapter 3: Research Methodology

This chapter details the research process and the qualitative, interpretivist case study research paradigm adopted in this study. The chapter describes how the qualitative data were generated using the research methods of semi-structured interviews, document review and lesson observation and how the theoretical framework guided the data analysis. Validity, trustworthiness and ethical considerations are also discussed in this chapter.

Chapter 4: Data Presentation

This chapter presents data gathered for this study, that is, the data that emerged from interviews with Senior Primary English Language teachers, interview with NaDEET staff, lesson observations and document reviews.

Chapter 5: Research Findings

This chapter analyses and discusses data collected in the preceding chapter. This is the data from interviews, lesson observations and document reviews. The empirical results are interpreted and analysed using Socio-cultural theory and the TSPCK translation device.

Chapter 6: Recommendations and Conclusion

This concluding chapter provides the recommendations, limitations of the study and my personal reflections.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

According to Bloomberg and Volpe, (2012) reviewing literature enables a researcher to identify what research has already been done and identify what is unknown within the topic through engaging in critical evaluation and discussion of its content highlighting any research gaps that may exist to potentially research. The purpose of literature review in this study is to establish familiarity with the current research to offer a foundation on which the study is built. Therefore, in this chapter I will review literatures relevant to this study, the concepts I have chosen as suitable for this study, and I will unpack the theories explaining the phenomenon and the data chosen for my study.

2.2 Teacher Professional Development

International literature refers to the concept of Teacher Professional Development (TPD) as opportunities for professional learning that include formal and informal activities that teachers participate in, in order to improve their professionalism and eventually lead to improvements in education (Kennedy & McKay, 2011; Fullan, 1990; Guskey, 1994; Hurberman, 1992; Mizell, 2010). It is also defined as teachers' learning: how they learn to learn and how they apply their knowledge in practice to support pupils' learning (Avalos, 2004 cited in Postholm, 2012). In the Namibian context, it refers to both the organisation system of support for professional learning that goes beyond and continues after initial pre-service programme as well as individual activities that support improvements in knowledge and practice (UNAM, 2012). According to Ngcoza and Southwood (2019), some policy makers and researchers prefer calling it continuing professional development (CPD) as professional growth is infinite. The CPD term is also commonly used in the Namibian context. Some communities refer to it as educator professional development.

The key concern in the education sector is how to improve the quality of teaching and learning in our schools and one way of seeking to address this concern is through CPD of educators (UNAM, 2014). Teacher professional development is the most trusted driving force for achieving quality education and it is nothing short of transformative (Nakambale, 2018). Thus, most countries around the globe have adapted the professional development models and/or activities suitable for their education system context (Nakambale, 2018). TPD is designed to

help people change, and that change can be thought of in terms of awareness, knowledge, attitudes and skills (Craft, 1996).

According to Kennedy and Mckay (2011), Stoll et al., (2006), Darling-Hammond (2017), and Mizell, (2010) cited in Songqwaru (2022), some of the TPD/CPD activities that teachers can engage in for them to attain, and to learn and unlearn certain knowledge regarding their profession include but are not limited to:

a) *workshops*
b) *short courses*
c) *programmes*
d) *interventions*
e) *training*
f) *lesson studies*
g) *seminars*
h) *conferences*
i) *formal courses*
j) *collaborative models and*
k) *informal contexts* such as conversations with colleagues, independent reading with colleagues and research.

UNESCO (2012) has for several years advised that professional development opportunities should be provided for teachers and create awareness of ESD among the educational community. It is important for teachers to participate in ongoing professional development activities to enhance their knowledge and their quality of teaching (Tshiningayamwe, 2016; Day, 1999 cited in Songqwaru, 2012) that will eventually see a development and improvement in their teaching practice. Regular professional development activities are likely to sustain teachers' interest and have the potential to transform their teaching practices and ultimately improve their learners' performances (Tshiningayamwe, 2016). Denuga (2019) highlights that CPD creates opportunities for teachers to acquire knowledge from each other and this might increase their classroom efficacy and prevent the low quality of learning outcome in schooling that is attributed to the absence and/or inadequacy of CPD and support for teachers (Songqwaru, 2022). Teachers tend to teach well that which they know, and are not confident when it comes to teaching content with which they are not familiar with (Chitsiga & Schudel, 2012). In addition, Songqwaru (2012) posits that all learners deserve to be taught by good teachers who

are qualified to teach the subject they teach and are up to date with curriculum changes. Teachers can and should participate meaningfully in the planning and implementation of their own professional development (UNAM, 2012).

The rationale for engaging in professional development of teachers is that the pre-service training does not afford them knowledge to prepare for the numerous challenges and changes that they will encounter during their professional teaching careers. These challenges and/or changes are for example the revising of a curriculum, changes in the syllabi content and assessment caused by unanticipated challenges e.g. COVID-19, flood etc. Continuous in-service programmes are especially important in a country like Namibia more specifically relating to the integration of ESD in the school curriculum, as there is less content knowledge imparted on them during the pre-service training. Malua (2019) and Tshiningayamwe (2011) denote that there is a need for more CPD in the Namibian education system such as workshops and in-service training to strengthen teachers' agency for integrating environmental learning in their practice. This is after more than twenty years when Kanyimba (2002) alerted that teachers in Namibia as well as school managers have only a partial understanding of ESD and that there is a significant lack of teacher professional development in practical teaching and learning. Similarly, Haindongo (2013) in their study found that teachers struggle to implement EE because of inadequate understanding of EE and its underlying philosophy. Additionally, Anyolo et al. (2018) identified several barriers including lack of full understanding of ESD by teachers, time constraints and lack of relevant teaching and learning materials. ESD is concerned with more than just awareness and factual knowledge, but also developing attitudes and action-taking for sustainability. According to Kanyimba (2002), teachers lack the professional development to teach EE/ESD that goes beyond environmental knowledge. It is with all the numerous reasons stated above and evident that most teachers in Namibia still need professional development in order to integrate ESD effectively.

To create a generation of educators who understand ESD, institutions of teacher education should explicitly teach it to pre-service and in-service teachers (UNESCO, 2012), including English Language teachers. Correspondingly, Malua (2019) strongly recommends more CPD to strengthen English language teachers' agency for implementing environmental learning in their practice. Further, their study recommended that professional development opportunities that orientate teachers to ESD should be increased as most English Language teachers lack conceptual understanding and effective ESD implementation strategies (ibid).

As alluded to earlier, the Ministry of Education is at the forefront of mainstreaming ESD to create awareness among across the nation. It is with this notion that teachers have the responsibility to develop and address the knowledge and skills needed to enable them to understand ESD (Anyolo et al., 2018). This, though, can only happen when teachers themselves are well-informed and received training on ESD as most of them did not receive an adequate training on ESD during pre-service training.

Teachers need to understand the meaning of ESD to effectively mainstream its principles into the curriculum and in teaching and learning (UNESCO, 2018). Teachers are key agents aiding societies to learn their way to sustainable lifestyles and practices (UNESCO, 2018). There is a need to make fundamental changes to all aspects of their professional education, development and practices (UNESCO, 2018). ESD is a lifelong process and thus for educators and teachers, professional learning must be continuous (UNESCO, 2018). The goal of in-service teacher development is to improve knowledge, skills and commitments of teachers to ESD so that they are more effective in planning lessons, teaching, assessing students' learning, and undertaking responsibilities in the school community (UNESCO 2018).

Institutions that mainstream CPD in Namibia; NIED, Program Quality Assurance (PQA) and the University of Namibia through its Faculty of Education. The government initiative for CPD Education and Training Sector Improvement Programme (ETSIP) National Professional Standards for Teachers (NPST). National policy frameworks that speaks to TPD in Namibia; Vision 2030, Towards Education for All and ETSIP.

Stevenson (2007) argues that collaborative teacher professional development models are recommended. He observes that teachers have their own ideas that emerge from experiences, circumstances and understanding of teaching and learning (Songqwaru & Tshiningayamwe, 2021).

2.3 Sustainable Development

Sustainable development is defined as the development that meets the needs of current generations without compromising the ability of future generations to meet their needs (Brundtland, 1987). While "sustainability is understood as the responsible action of individuals and societies towards a better future for all, locally and globally - one in which social justice and environmental stewardship guide socio-economic development." (UNESCO, 2015).

Sustainability is a paradigm for thinking about a future in which environment, social and economic considerations are balanced in the pursuit of development and an improved quality of life (UNESCO, 2012). Sustainability adds purpose to education, gives a common vision, gives relevance to the curriculum, can save pupils' lives, raises economic potential in the curriculum and gives concrete examples of abstract concepts (ibid). According to UNESCO (2018) there are three pillars of SD, namely, social, economic and environmental. Further UNESCO (ibid) identified four dimensions to sustainable development, society, environment, culture, and economy which are intertwined. Sustainable livelihoods are only possible in societies where human rights and equality are observed, where poverty and other cross-cutting issues are tackled, and where people in all their institutions practice fairness, respect and caring lifestyles.

Namibia as one of the world's extremely dry regions, is naturally constrained by its arid climate and lack of water resources. Sustainable development challenges to be addressed through education in Namibia are complex and interlinked. The issues are classified as social (i.e. health, corruption, violence, alcohol and drug abuse,), economic (i.e. poverty, unemployment, rural/urban migration, limited resources, population growth, land issues, challenges of sustaining productivity) and environmental (i.e. limited water resources, unsustainable natural resource management practices, loss of wildlife and biodiversity, drought, climate change etc.) (MoE, 2014). Many of the social-ecological challenges that Namibia faces are influenced by its history, current policies and the tough environmental conditions in the geographical area. Common problems include deforestation, land degradation, human-wildlife conflict, poor waste management and climate change (MEFT, 2019). Thus, there is an urgent and obvious need for Namibia to act wisely to mitigate the sustainability issues it faces. This can be done by educating the nation, formally and informally, and at all levels. It has therefore become paramount to include the provision of ESD in all sectors of Namibian society (MoE, 2014).

2.3.1 Education for Sustainable Development

In 2005, the United Nation Decade of ESD was launched to advance the role of education in promoting sustainable development. ESD is derived from the two terms 'education and sustainable development' (UNESCO, 2018). UNESCO (2014) defines ESD as education that helps people develop the attitudes, skills and knowledge to make well-informed decisions for

the benefit of the present and generations to come while respecting cultural diversity. It is usually directed at creating the awareness that will enable learning and change that resolves problems and their associated risks (UNESCO, 2014). The main focus of education is how education can contribute towards sustainable development and sustainable futures (Lotz-Sistka & Lupele, 2017). Quality education and the degree of democratic participation in decision-making in society's institutions makes sustainable development possible (UNESCO, 2018). ESD learning is concerned with empowering teachers and learners to become not only knowledgeable but competent and to participate in changing unsustainable ways of living, pre and in-service teachers therefore require new competencies to support learners in acquiring life skills and values (UNESCO, 2018). Education is central to learning and to a more sustainable future. Sustainability improves education and has the potential to transform education (UNESCO, 2012). Learning is understood here to be a process of acquiring such education, common vision, curriculum, raising potential in the curriculum and concrete examples of abstract concepts (UNESCO, 2012; UNESCO, 2015). Learning "is both a process and the result of that process; a means as well an end; an individual practice as well as a collective endeavour" (UNESCO, 2015). Education is understood here to mean learning that is deliberate, intentional, purposeful and organised (UNESCO, 2015). ESD calls for education that is inclusive and does not simply reproduce inequalities (UNESCO, 2015). There is no more powerful force than education (UNESCO, 2015), education is the greatest equaliser. ESD empowers citizens to take informed decisions and responsible actions for environmental integrity, economic validity and a just society for both present and future generations (UNESCO, 2018). The purpose of ESD is to inform people about international agreements and build a global lobby of collective action for sustainable development and raise awareness about the crucial and urgent need to limit damage to the atmosphere, mitigate and adapt to climate change (MEFT, 2019). It promotes learning to know, to do, learning to live together, and transform oneself, others and society (MEFT, 2019). ESD empowers learners to take informed decisions and responsible actions for environmental integrity, economic viability and a just society, for present and future generations, while respecting cultural diversity (UNESCO, 2014; Lotz-Sistka & Lupele,, 2017). ESD is about lifelong learning and is an integral part of quality education. It is holistic and transformational education which addresses learning content and outcomes, pedagogy and the learning environment and achieves its purpose by transforming society (UNESCO, 2014).

UNESCO sees four dimensions to ESD (2014, p.12):

Dimension 1: *Learning content*

Integrating critical issues such as climate change, biodiversity, disaster risk reduction, and sustainable consumption and production into the curriculum.

Dimension 2: *Pedagogy and learning environments*

Designing teaching and learning in an interactive, learner-centred way that enables exploratory, action-oriented and transformative learning. Rethinking learning environments – physical as well as virtual and online – to inspire learners to act for sustainability.

Dimension 3: *Learning outcomes*

Stimulating learning and promoting core competencies such as critical and systematic thinking, collaborative decision-making and taking responsibilities for present and future generations.

Dimension 4: *Societal transformation*

Empowering learners of any age, in any education setting, to transform themselves and the society they live in.

2.4 ESD as a Global Agenda

The global community is facing environmental and economic problems, thus the increasing awareness of the need to protect the environment has placed the concept of education for sustainable development on the core of the global agenda (Petkute, 2012). Resultantly, UNESCO has for decades produced frameworks and relevant materials to educate nations on ESD. There has been global policy statements, principles, conferences and events that have emphasised sustainable approaches to support the transformations needed for sustainable living and sustainable futures (SADC, 2022). ESD is widely recognised as an integral element of Agenda 2030, in particular Sustainable Development Goal 4 (SDG 4), and a key enabler of all the other SDGs (UNESCO, 2010). ESD is included as a Target in Goal 4 of the SDGs, which focuses on ensuring inclusive and equitable quality education and promote life-long learning opportunities for all. "Target 4.7: By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development." (SADC, 2022, p.16). Table 2.1 below presents a number of international conferences and initiatives specifying the role of education in contributing to sustainable development.

Table 2.1 History of ESD

1972	United Nations Conference on Human Environment, Stockholm
1977	First Intergovernmental Conference on Environmental Education in Tbilis, Georgia
1987	'Our Common Future' (Brundtland Report)
1992	The United Nations Conference on Environment and Development (Rio Summit, Earth Summit)
2002	World Summit on Sustainable Development (Johannesburg Summit)
2005	UN Decade of Education for Sustainable Development (2005-2014, DESD)
2009	UNESCO World Conference on ESD in Bonn, Germany
2012	The United Nations Conference on Sustainable Development (Rio +20)
2014	UNESCO World Conference on ESD in Aichi-Nagoya (Japan)
2015	Sustainable Development Goals (SDGs) and the 2030 Agenda for Global Transformation
2016	Sustainable Cities and Communities
2017	UN General Assembly Resolution 72/222 Oceans: UN Ocean Conference Call for Action and UN Decade of Ocean Science for Sustainable Development (2021-2030)
2019	40th Session of the UNESCO General Conference

Note: Adapted from UNESCO, 2020 pp.65-66

Today's interconnected global challenges demand responses that are rooted in the spirit of our collective humanity (UNESCO, 2014 p. 3). There is now a growing international recognition of ESD as an integral element of quality education and a key enabler for sustainable development (ibid). ESD is closely tied to the international discussions on sustainable development, which have grown in scale and importance since 'Our Common future' appeared in 1987, providing the first wide use of SD (UNESCO, 2014, p.10). "To date, ESD has been integral into many global frameworks and conventions related to key areas of sustainable development" (UNESCO, 2014, p.11). For example:

1. Climate Change

Article 6 of the United Nations Framework convention on climate change, and its work programmes.

2. Biodiversity

Article 13 of the Convention on Biological Diversity and its work programmes.

3. Disaster risk reduction

Hyogo Framework for Action 2005-2015:

Building the Resilience of Nations and Communities to Disasters.

4. Sustainable consumption and production

Sustainable Lifestyles and Education programme of the 10-year Framework Consumption and Production 2012-2021.

2.4.1 ESD at the Regional Level

Education is a key process that can lead to change towards sustainable development. The vision of SADC is one of a common future, "a future within a regional community that will ensure sustainable community well-being, a sustainable environment and natural resource base, improvement of standards of living and quality of life freedom and social justice and peace and security for the people of southern Africa" (SADC, 2022, p.23). The Member States of Southern Africa envision thriving and inclusive sustainable development through creating job opportunities and other new opportunities for its people. As part the vision, the Member States safeguard the rich cultural and natural heritage that sustains life and communities in the region (SADC, 2022). Currently challenges in the region include inequality and unemployment, a degrading natural resource base and inadequate constitutional development needed for quality ESD (SADC, 2022, p.10). Today most education systems in SADC countries have a focus on issues related to the environment and sustainability within a social and economic justice framework (GRN, 2004, p. 20). There is still much to be done to strengthen implementation and wider political support (GRN, 2004). In Southern Africa, environment and sustainability education has taken account of development challenges from the start, but also recognises the notion of development under neo-liberalism and globalisation are not without serious problems with some negative impacts on societies in the Global South (Lotz-Sisitka & Lupele, 2017 p.3). In most African societies, there is a need to address a range of intersecting issues such as social inequality and poverty (economy); cultural change, social justice and health risks (society); natural resource depletion; biodiversity loss and global climate change (environment) and governance, democracy and peace (politics) (Lotz-Sistka & Lupele, 2017, p. 4)

2.4.2 National Context

Namibia being, a semi-arid country, depends on seasonal rainfall. Resultantly, the country goes through harsh conditions which lead to either drought or floods. Due to such vulnerability, Namibia finds it necessary to engage in ESD and related activities. In Namibia, ESD has been promoted at the national level and recognised by the Ministry of Basic Education, Arts and

Culture and the Ministry of Environment, Forestry and Tourism through the national policy and other policies, curriculum guides and circulars. As alluded to earlier, since it gained its independence in 1990, Namibia has given high priority to environmental concerns (MoE, 2005). This resulted in the government signing and responding to international agreements such as Convention of Climate Change in 1992 (Loubser & Simalumba, 2016) and the presentation of The Green Plan at the World Summit on Sustainable Development in 1992 (MoWCT, 1992). This also includes the country being signatory to Sustainable Development Goals (SDGs) and Agenda 2030 Global Education. It also responds to the United Nations Decades of Education for Sustainable Development (ESD) by incorporating Education for Sustainable Development into its education policies. Thus, the Ministry of Education, Arts and Culture stipulated that Environmental learning be integrated[1] in all the subjects in basic education which is from pre-primary to grade 12 (MoE, 2005; MoE, 2005).

As to recent developments, Namibia has launched a National Environmental Education and Education for Sustainable Development National Policy for environmental education to guide citizens from all walks of life in Namibia on environmental attitudes. The Ministry of Environment and Tourism in collaboration with the Ministry of Education, Sports and Culture launched the policy in 2020. The National EE/ESD Policy mandates that educational institutions, including primary schools, among others, shall be required to mainstream EE and ESD issues into the planning systems, policy and practice, and community service (MEFT, 2019). It further emphasises that the institutions should develop programmes and courses on EE and ESD and incorporate environmental sustainability issues of importance to Namibia in their curricula. The newly launched EE/ESD National Policy also constitutes that all the institutions in Namibia incorporate EE in their planning and actions. The programme forms part of the global Sustainable Development Goals with a core focus on SDG 4: Quality Education, whilst also fitting into other global frameworks such as ESD2030. In Namibia, the terms EE and ESD are often used interchangeably, reflecting their overlapping roles in promoting sustainability in education and other areas (MEFT, 2019).

[1] The term ‘integration’ is commonly used in the Namibian basic education curriculum, and it simply means ‘infusion’ or ‘incorporation’ of ESD in all subjects taught.

2.5 English Language Teaching and Education for Sustainable Development

Language is a powerful means of communication through which different values and experiences are mediated (Petkute, 2012). English language is highly influential in the Namibian context and is crucial to Namibia's education system. This is because English has a dual purpose, that is it is taught as a subject from Grade 1 to Grade 12 and it is the official medium of instruction from pre-primary (at Junior Primary phases there are two options: either English or mother tongue) to Grade 12 (MoEAC, 2015; MoEAC, 2016).

Like other languages, English is an important tool for thinking and an important means of communication (MoEAC, 2016). The English language instruction in Namibia aims at creativity and intellectual development; enabling learners to express thoughts, ideas, experiences and values as an essential part of personal development (ibid). This does not necessarily make other languages less important.

English as a subject underpins the entire curriculum: the stories learners read and listen to, the topics they deliberate on, the role-plays they perform, will have cross-curricular links. These should include topics relating to the environmental, health, information and technology, human rights and gender, and democracy (MoEAC, 2016). These issues are compulsory in the Namibian curriculum and are required to be integrated into English lessons. Learners are expected to understand and deal with these issues and develop values as they read, talk and write about them. English as a school subject also aims to help learners develop self-confidence and a better understanding of the world they live in; and develop positive attitudes, values and understanding of local, social and cultural issues (ibid). This is done through the stories, articles and texts they read and listen to, story-telling, dramas and role plays, writing and drawing.

Namibia takes a skills-based approach to teaching English (listening, speaking, reading and writing) rather than theme-based approach that is used in other subjects. English avails itself more easily than content-based subjects to focusing on current affairs employed as topics to teach the skills. This means a wide range of topics can be used by the teacher to integrate ESD into their lessons: they are not limited to a certain 'recipe' of content. This can create a significant opportunity for English teachers to integrate or at least touch on several SDGs. By using a variety of teaching techniques, teachers can help learners employ and develop different learning processes and attend to the diverse needs of the learners in the class (UNESCO, 2012). With variety, learners have a chance to grow as learners and to enhance their skills and capacity

to learn and think (ibid). Not all learners learn in the same way, some prefer to listen, others to read, and still others to participate more actively (ibid). ESD pedagogies often draw on the arts using drama, play, music, drawing and design to stimulate creativity and imagine alternative futures (ibid). One of the pedagogies ESD draws from is communication skills from languages which expands the vision of how to stimulate creativity, critical thinking and a desire for life-long learning, which are all cognitive abilities that support sustainable societies (UNESCO, 2012). In the following section (Section 2.5.1), I will discuss how the ESD is generally integrated in the Namibian Curriculum for basic education.

2.5.1 Integration of ESD in the Namibian Curriculum

ESD is crucial to the Namibian basic education curriculum because it empowers learners to take informed decisions and responsible actions for environmental integrity, economic viability and a just society (UNESCO, 2014); this is different from earlier approaches where school learning focused largely on transmitting environmental knowledge (MoE, 2005). ESD also enables learners to develop their cognitive and non-cognitive skills such as critical thinking and competences for collaboration, problem solving, coping with complexity and risk, building resilience, thinking systemically and creatively, and empowering them to take responsible actions as citizens, fulfilling their right to quality education (UNESCO, 2021). ESD perspectives should lead to more opportunities for all people to gain knowledge, develop positive attitudes and values, and acquire skills and competencies to live responsibly and sustainably (UNESCO 2018).

As per a UNESCO standard, EE has to be integrated into all curricula of formal education which includes primary and secondary education (UNESCO, 2017). The Namibian curriculum has made it mandatory to integrate EE as a cross-curricular theme which includes ESD; all subjects are required to integrate it using pedagogies suitable for such subjects. This has been part of the curriculum since independence until it was last reformed in 2015 to fully accommodate ESD in every subject from pre-primary to grade 12. The Namibian National Curriculum for Basic Educations highlighted that "the cross curricular themes namely HIV and AIDS, health and wellness, human rights and democracy, information and communication technology, environmental learning and road safety are integrated across the curriculum throughout basic education (MoEAC, 2016, p.18). The aims of the Namibian basic education

curriculum regarding the development of an environmentally sustainable society are to provide the scientific knowledge, skills, attitudes and values needed to ensure that the environment is respected and sustained, and to develop individual's ability to make environmentally wise choices in terms of economic activities and also family planning (MoE, 2005; MoEAC, 2016).

2.6 Environmental Education Programmes and Related Initiatives in Namibia

Reorienting teacher education by mainstreaming ESD requires many fundamental changes in the rationale of education and in content and approaches of the curriculum, teaching, learning and assessment (UNESCO, 2018). As per UNESCO (2018), initial teacher training is important to determine the kind of knowledge and understanding that an educator will poses and lack/need regarding ESD in order to support them with knowledge they need to integrate ESD. Continuous in-service programmes are especially important in a country like Namibia where rapidly increasing enrolments have led to overcrowded classes and resources are severely constrained in order to find new mechanisms to teach under such circumstances, by learning from others and receiving necessary training. Educators and trainers are powerful agents for delivering the educational response to sustainable development (UNESCO, 2014), thus they need to be equipped and updated with current issues pertaining the environment in order to deliver it to the learners.

In the past, school learning focused largely on passing on environmental knowledge, whilst opportunities for engaging with real-life issues were limited (MoE, 2005). Hence, different organisations have in place programmes that are aiding teachers in advancing their knowledge to teach ESD theoretically and practically. Namibia offers various programmes and related initiatives focused on finding solutions to social-ecological issues. These programmes include: *Teach for ESD, EduConservation, EduLink,* the *Sustainability Starts with Teachers (SST)* programme, the *Water, Sanitation and Hygiene (WASH)* programme and the *Namibia Environmental Education Network (NEEN)*.

This research project focused on the *Teach for ESD* programme to analyse how it is aiding Senior Primary English Language teachers integrate ESD into their teaching practices. *Teach for ESD* is an initiative of the Namib Desert Environmental Education Trust (NaDEET), a non-governmental organisation in Namibia that was established in 2003. NADEET works closely with the MoEAC, it was also part of the task force for the drafting of the 2019 EE and ESD policy. This programme is a professional development initiative for teachers to build their

knowledge, skills and leadership in implementing ESD in schools. The main aim of *Teach for ESD* is to develop the capacity of teachers to implement ESD as a cross-curricula topic at all levels in the Namibian school curriculum. This provides an opportunity for teachers to implement different ESD interventions at their schools and/or communities using the resources and training availed to them. The programme trained 240 teachers from all 14 regions in Namibia for its first cohort from April 2021 to December 2022. It is currently open for applications for its second cohort which will run from 2024.

The programme is supported by the Ministry of Education, Arts and Culture, which has approved the conducting of the baseline survey and the programme; and worked together with EE/ESD stakeholders to implement different aspects of the programme. The programme has used participatory approaches to provide teachers with training. The programme has also provided an ESD resource pack for teachers to implement various ESD topics/activities through their teaching and school activities with support from NaDEET. Teachers provide feedback regularly to NaDEET on the tasks completed and seek assistance for implementation of their planned ESD initiatives.

The Basic Education Ministry through the Directorate of the National Institute for Educational Development (NIED) signed a memorandum of understanding in 2020 with the Sabine Plattner Africa Charities (SPAC) and Leadership for Conservation in Africa (LCA), to pilot a curriculum support and enrichment programme, *EduConservation*. The aim of the project is to enrich and supplement the curricula of the formal education in the area of EE/ESD.

EduLink is an ESD network established by the EduVentures organisation to strengthen the implementation of EE/ESD in Namibian schools. This ESD network aims to equip educators and EE centres in the regions with pedagogical content knowledge, to enable cross-curricular teaching of ESD through hands-on learning using real life examples (Eduventures, 2019).

Sustainability Starts with Teachers (SST) programme is a regional programme that falls within UNESCO's ESD: Towards achieving the SDGs' or ''ESD for 2030' programme. The aim of the programme is to support capacity building for Southern African teacher educators in Early Childhood Education, Primary and Secondary Education, and Technical Vocational Education and Training (TVET), to respond to regional sustainable development concerns and opportunities, the Africa Agenda 2063, and the SDGs (Lotz-Sisitka et al., 2019). Namibia is

one of the countries participating in this initiative. Teacher educators participating in this programme are empowered to support teachers to integrate ESD in their teaching practices.

Environmental Day, Namibian schools join the rest of the world to observe the Environmental Day on the 5th of June every year. Environmental Day is the United Nation's most important day for encouraging worldwide awareness and action for protection of the environment. On the day, schools host events to showcase sustainability activities and practices that have been prepared in advance by both teachers and learners. The activities include planting of trees, sustainability poems and songs, health activities, and so forth.

Water, Sanitation and Hygiene (WASH) programme which was established by The Society for Family Health (SFH) organisation in collaboration with the Ministry of Education and supported by UNICEF. This project is designed to address hygiene and sanitation needs of school going children in Namibian schools.

Namibia Environmental Education Network (NEEN) is a network with social media platforms where teachers and other stakeholders share environmental knowledge and encourage each other. It is committed to creating environmental awareness for all in Namibia.

2.6.1 Teachers as an ESD Driving Force

Teachers have a crucial role to play in integrating ESD in education and bringing about real and lasting change in society (UNESCO, 2018). They help shape the worldview and attitude of learners and develop their potential and skills to tackle the real-life challenges surrounding sustainable development (UNESCO, 2018). To be effective in translating sustainability into educational content and pedagogical approaches, in-service teachers, and teacher educators need to be conversant with contemporary issues of sustainable development (UNESCO, 2018). Teachers are key agents aiding societies to learn their way to sustainable lifestyles and practices (UNESCO, 2018). In the changing global landscape of education, the role of teachers and other educators is vital for developing critical thinking and independent judgement, rather than unreflective conformity (UNESCO, 2015). Teachers are unquestionably the most significant mediators of change in the teaching and learning process in the classroom and should be continuously capacitated (Brodie, 2013; Chauraya & Brodie, 2018).

2.6.2 ESD Pedagogies

The teaching and learning of ESD needs methods and strategies that can guide it just like in any other content. Echoing Scoullos and Malotidi (2004), there are no methods or approaches specifically designed for ESD teaching and learning but through creativity and innovation, existing methods can be adapted for ESD lessons. Scoullos and Malotidi (2004, p.17) argue that when the existing approaches are properly adapted for ESD, they will be unique in these ways:

- they are focused on the development of knowledge and awareness and critical thinking about local and global sustainable development issues;
- they demonstrate principles that reflect cooperation, democracy and respect for diversity and rights for others;
- they allow learners to engage in identifying and resolving real-life problems or identifying and implementing projects; and
- they allow learners to work and present the results of their work collaboratively and allowing for multiple perspectives and use of multimedia approaches.

Some of the teaching and learning approaches compiled from UNESCO (2018), Scoullos and Malotidi (2004), Eilam and Trop (2010), Chinn and Mahotra (2002) and Tibbitts et al. (2023), share the following examples of methods relevant for ESD:

Learner-centred

Learning is most meaningful when topics are relevant to the learners' lives, needs, and interests, and when learners themselves are actively engaging in creating, understanding and connecting to knowledge.

Community-based

It is good practice for learners to learn in the context of tackling a real-life issue or problem found or talked in their local community.

Stimulations and associated methods

Role-plays, games, debates, drama and other related activities are entertaining and can motivate learners which will lead in learning taking place.

Experimental methods

Experimental methods are useful for developing a range of scientific practices, life skills and attitudes. Experimental methods are suited to developing thinking skills, practical skills, communication skills and social skills.

The case-study method

The case-study method entails using case-studies in teaching and learning, which is important for sustainability. The method relies on the fact that special cases, stories, examples, activities or characters can be found that can serve to illustrate concepts and issues in real-life contexts.

Hands-on learning

Refers to aspects of inquiry that involve, experimentation, preferably vis-a-vis real world problems.

Minds on learning

Refers to cognitive and meta-cognitive skills, such as critical thinking which are complementary to hands-on inquiry of authentic issues.

In order to integrate ESD into the lessons successfully, teachers should also consider these principles adapted from Tibbitts et al. (2023):

- Importance of localisation: teachers should use local context and what is relevant to the learners.
- Integrative materials: ESD should be integrated uniquely in each subject as subjects use different approaches.
- and interdisciplinary approaches: ESD should be integrated in all the subjects across the curriculum.

2.7 Theoretical Framework

Labaree (2020, p.2) explains that a theoretical framework "introduces and describes theories formulated to explain, predict and understand" phenomena and extend knowledge within the limits of "critical bounding assumptions". Anyon et al. (2009, p. 3) define a theory as a "coherent structure of interrelated concepts whose contemplation and application help us to understand and explain discursive and social phenomena and provides a model of the way that discourse social systems work and can be worked upon." Considering the research questions

this study is seeking to answer, this study drew primarily on sociocultural theory derived from Vygotsky's (1978) original work to make sense of teachers' learning process. Although Vygotsky's pioneering work in cognitive psychology focused on children, many of the fundamentals of his sociocultural theory (some of which are outlined below) are relevant to adult learning and thus to teacher professional development. Thus, it was applied in this study that involves adult learners who are the in-service English Language teachers and the *'Teach for ESD'* trainers were framed as teachers or facilitators. To complement sociocultural theory and gain a clearer perspective on the knowledge gained or used by English Language teachers, I also drew on Shulman's (1986) Pedagogical Content Knowledge (PCK), in particular Mavhunga and Rollnick's (2013) Topic-Specific PCK in order to assess what the teachers have learned in terms of integrating ESD in their English Language practice. These two theories are explained further in the sub-sections below.

2.7.1 Socio-cultural Theory

John-Steiner and Mahn (1996, p. 191) explain that sociocultural approaches to learning, "are based on the concept that human activities take place in cultural contexts, are mediated by language and other symbol systems, and can be best understood when investigated in their historical development". These ideas are based on the work of Lev Vygotsky and his collaborators in Russia in the 1920s and 30s (ibid.). Vygotsky (1978) posits that teaching and learning processes that occur in the classroom are the products of understanding of human intelligence in society and social culture. In this case study, sociocultural theory helped me to theorise the in-service English teachers' engagement in the *Teach for ESD* programme. I was guided mostly by three Vygotskian concepts that can also be applied to adult learning: *Social Interaction, Zone of Proximal Development (ZDP) and Scaffolding.* I summarised the meanings of these concepts and how they are related to this study in table 2.2.

Table 2.2

Summary of Vygotsky's Socio-cultural Concepts Employed in this Research Project

Concept	Relation to the research study
Social Interaction	The social relationship that occurs in the learning environment. These are the methods that facilitators/trainers use to facilitate and encourage the learning process and boost the social interaction among them and the teachers.
Zone of Proximal Development	The variety of challenges teachers face at different levels during the learning process.
Scaffolding	The ways NaDEET and its facilitators/trainers scaffold the teachers' learning and assist them with more knowledge that they can implement to integrate ESD into their teaching practice.

2.7.1.1 Social interaction as the source of development

According to Vygotsky, a child's development depends on social interaction and that the cultural tools used in those interactions are how people make meaning. He wrote: "Every function in the child's cultural development appears twice: first, on the social level, and later, on the individual level; first, between people (interpsychological) and then inside the child (intrapsychological)" (Vygotsky, 1978, p. 57). Recognising that learning is lifelong and is more like "… a learning continuum, which stretches throughout life, with different emphases, problems and strategies at different times" (Taylor & Hamdy, 2013, p. 1561), Vygotsky's concept of social interaction applies to adult learning too. I expected that the in-service English teachers' interactions with the facilitators and activities of the *Teach for ESD* programme (social interactions) are fundamental to how and what the teachers are learning about ESD integration. The teachers depended on the 'more knowledgeable others' (MKO) from the *Teach for ESD* training programme but (hopefully) "take on increasing responsibility for their own learning and participation in joint activity" (John-Steiner & Mahn, 1996, citing Lave & Wenger, 1991). MKO refers to someone who has better understanding compared to other people in respect to a specific task, process or concept (Vygotsky, 1978).

According to Vygotsky, there is a need to connect learners (teachers) to their learning environment through social interaction and this will allow them to construct knowledge resulting in them being able to integrate ESD better. Rubtsov (2016) argued that the social interaction between the more knowledgeable other (MKO) and learners (teachers) is a way of

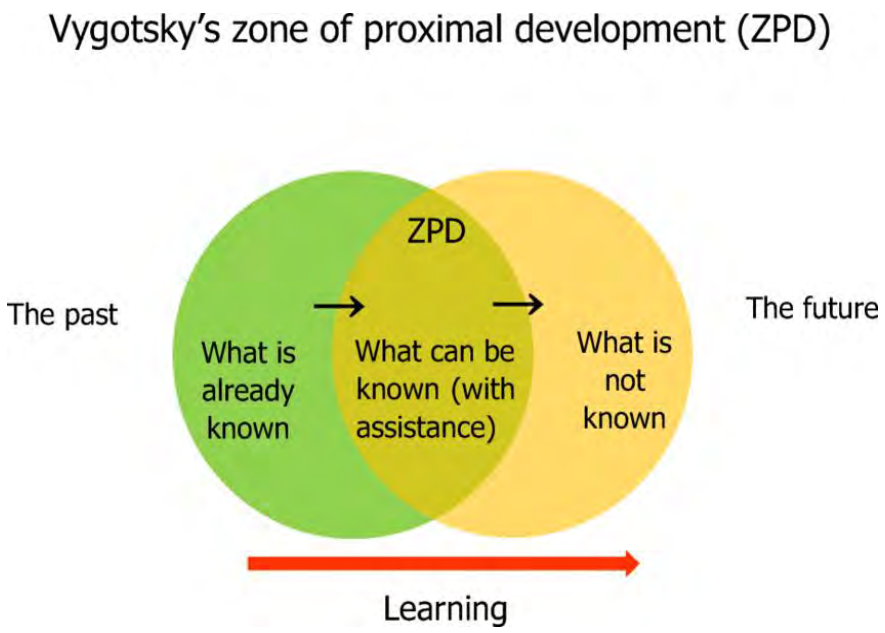
distributing functions which comprise some methods of mastering functions. Social interaction that occurs between teachers and trainers plays a crucial role in this study pertaining the integration of ESD. The environment where the teachers and the trainers meet is regarded as a social set up which facilitates the teaching and learning.

2.7.1.2 Zone of Proximal Development (ZPD)

In Vygotsky's words, the Zone of Proximal Development (ZPD) is the "distance between the actual development level as determined by independent problem-solving and the level of potential development determined through problem-solving under adult guidance in collaboration with more capable peers" (1978, p. 86). This is the difference between what a learner can achieve independently without assistance and what she or he can achieve with guidance and from a skilled person. Vygotsky sees the ZPD as the area where learning takes place and therefore where teaching should be focused, allowing the learner to develop skills they will use on their own, developing higher mental functions. This makes learning much easier, convenient, helpful and efficient. Figure 2.1 illustrates Vygotsky's ZPD.

Figure 2.1

Vygotsky's Zone of Proximal Development (ZPD)



Note: Adapted from Nomura et al. (2019)

The goal is for the MKO to be less involved as the learner develops the necessary skills. Regarding this study, the *Teach for ESD* facilitators are regarded as the MKO who support teachers effectively in their transition to their ZPD. I focused on identifying each teacher's ZPD (for ESD integration) and their learning processes within the zone.

2.7.1.3 Scaffolding

Vygotsky defined scaffolding in teaching as the role of teachers and others in supporting the learner's development and providing support structures to get to that next stage or level (Raymond, 2000; Mishra, 2013). Meanwhile Brunner (2004) explains scaffolding as the support given during the learning process tailored to the needs of the learners to assist them to achieve their own learning goals. Teachers provide scaffolds so that the learner can accomplish certain tasks they would otherwise not be able to accomplish on their own (Bransford, et al., 2000). Other learners can also be a more knowledgeable peer, the teacher(s) and the more knowledgeable peer operate as the source of information when helping learners. The level of the support provided by the teachers should be parallel to both the learners' needs and ability so that the teaching and learning can take place. Vygotsky (1978) notes that cognitive understanding of the concepts being taught for learners to reach their ZPD is facilitated by the use of scaffold. Hence Mishra (2013) considers it as a concept that is closely related to the idea of ZPD. Taylor and Hamdy (2013, p. 1564) give a good explanation of the importance of scaffolding that applies to the experiences in-service English teachers might have when told that they need to integrate ESD into their teaching:

> We need someone to lead us over the threshold, introduce us to the new ideas, and probably explain some of the language. As we start to build our knowledge and understanding, we need to have some idea of where things fit, how they fit together, and some idea of how the individual pieces are part of a greater whole. 'Scaffolding' provides that perspective.

The goal of the (teacher) educator or trainer is for the learner to become independent and a problem solver (Hartman, 2002). Mishra (2013) notes that over the course of teaching or training, an MKO that has authority adjusts the amount of guidance to fit the learner's current position. They also highlight an important aspect of scaffolding instruction that it is temporary,

hence it should be parallel to learner's needs and ability to adjust when needed. Bransford et al. (2000), state that the scaffolds provided are activities and tasks that:

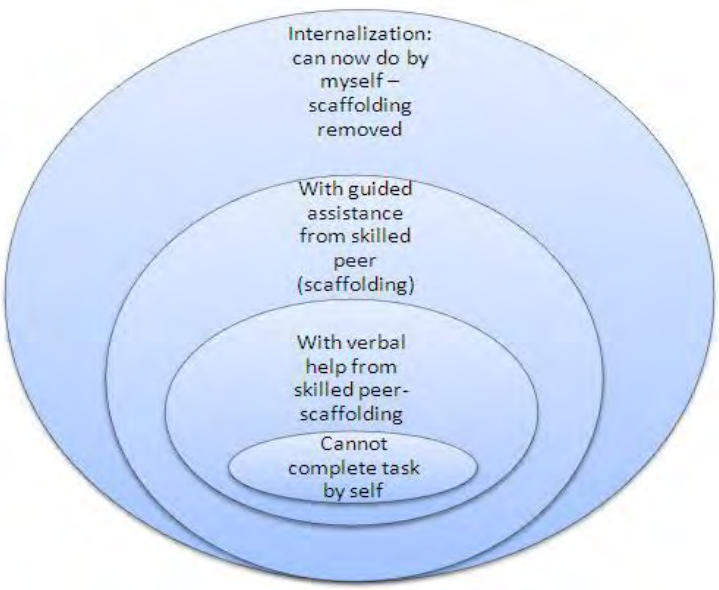
- Motivate or enlist the learner's interest related to the task.
- Simplify the task to make it more manageable and achievable for a learner.
- Provide some direction in order to help the learner focus on achieving the goal.
- Clearly indicate differences between the learner's work and the standard or desired solution.
- Model and clearly define the expectations of the activities to be performed.

In this case study, I looked for the ways that the *Teach for ESD* facilitators scaffolded the English teachers' learning and assisted them with more knowledge that they could implement to integrate ESD into their teaching practice. I also looked at the support structure NaDEET put in place to make the teaching and learning take place.

The scaffolding process and how it supports learning is illustrated diagrammatically in figure 2.2 below:

Figure 2.2

Scaffolding Process and How it Supports Learning



Note: From Denhere et al., 2013, p. 372.

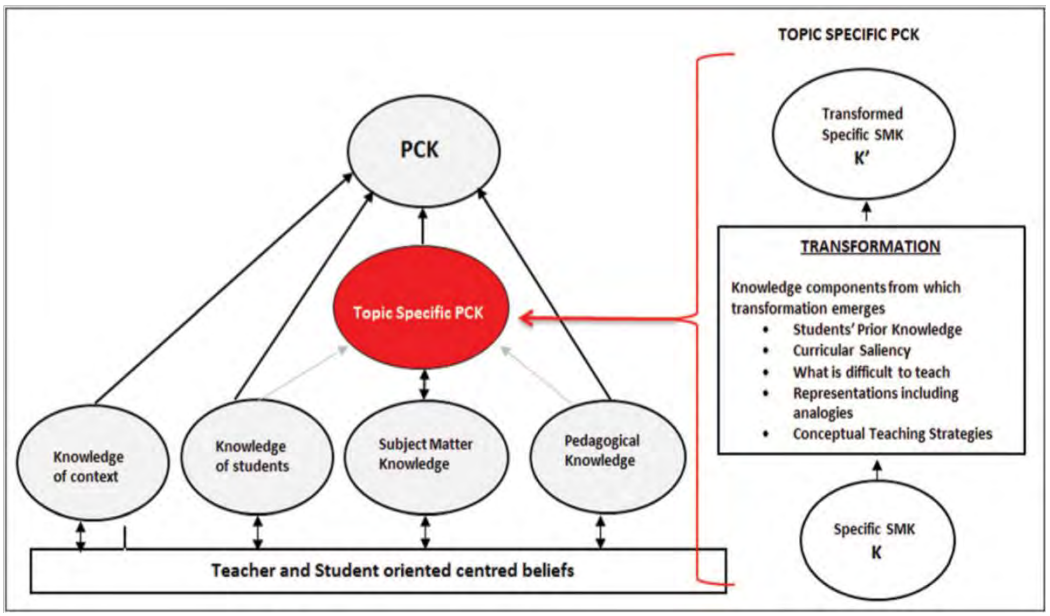
2.7.2 Pedagogical Content Knowledge

The term pedagogical content knowledge (PCK) was first introduced by Shulman (1986) to reinforce the importance of links between teachers' subject knowledge, pedagogical knowledge, understanding of classroom context and the needs of individual learners. The PCK that teachers have helps them to learn about the nature of how effective learning should be done (Mavhunga et al., 2016). PCK is specialised knowledge about the content to be taught that is possessed only by the teachers (Mavhunga & Rollnick, 2013). Shulman (1986) highlighted that PCK includes an understanding of what makes learning of a specific topic easy or difficult, and the conceptions and perceptions that students of different ages and backgrounds bring with them to the learning of frequently taught topics.

Shulman's (1986) seminal work on PCK culminated in re-examining PCK by various experts through embarking on studies on the components and sources of PCK and how it is developed. Mavhunga and Rollnick (2013) being one example, ascertained that different topics have different teaching methodologies, which they themed Topic Specific Pedagogical Content Knowledge (TSPCK). Teachers generally generate knowledge according to the components of the topic contents they are working with (Mavhunga & Rollnick, 2013). PCK is widely known to be topic-specific and it is specialised knowledge about the content to be taught possessed by the teachers (Aydin et al., 2014, Mavhunga & Rollnick, 2013). This provided me with a framework to analyse English Language teachers' lessons along with their lesson plans and teaching materials which focused on ESD-related topics in their classrooms. For example, teachers could choose to focus on the topic of biodiversity loss, or climate change, or marine pollution. As such, this research drew specifically on Mavhunga and Rollnick's (2013) topic-specific pedagogical content knowledge (TSPCK) which is derived from PCK. See the illustration in figure 2.3.

Figure 2.3

A Model of Topic-Specific PCK



Note: Source Mavhunga & Rollnick, 2013, p. 115.

According to Mavhunga and Rollnick (2013), TSPCK comprises of: learner prior knowledge, curricular saliency, what is difficult to understand, representations and conceptual teaching strategies. These concepts were employed in this study to examine the knowledge and learning that occurs during the ESD integrated lessons. These concepts were explored during the lesson observations that occurred in the participants' classrooms.

- *Learner prior knowledge* entails correct and incorrect ideas about a topic, it also includes the teachers' skills in dealing with misconceptions learners have about that specific topic. Even though Mavhunga and Rollnick (2013) assert this is the knowledge that learners come with from the previous grade, I would rather argue that prior knowledge is not limited to grade learning but can be extended to any other knowledge brought from home, society or even from any other gathering learners find themselves at.

- *Curriculum saliency* involves identifying the 'big ideas' in the topic to be taught and identifying the most important concepts that hold the topic together. The teacher needs to ascertain prerequisite concepts learners need to know and take into consideration before presenting the topic to the class. Mavhunga and Rollnick (2013) and Mavhunga et al. (2016) highlighted that for the teacher to effectively address curricular saliency,

the teacher must be able to work with the big ideas. Teachers should be able to sequence these big ideas in a way that results in learners comprehending the concepts being presented to them. Mavhunga and Rollnick added that the knowledge of concepts that constitute the topic being taught and the relationship between them is of paramount important to the teacher for the accurate information to be selected and presented to the learners in the learning environment. Of the same opinion, Sibida (2018) pointed out that when teaching the concept of the topic, correct sequencing of the topic concepts is of importance to learners' comprehension of the topic being presented in the classroom. Therefore, teachers themselves have to study the topic well and prepare their lessons before presenting them to the learners.

- *Representations* include analogies, illustrations, examples, explanations and demonstrations that are used to support and scaffold explanations of difficult concepts. These are mostly used as teaching aids that teachers contemplate might have high possibilities of enhancing the understanding of a certain topic. Tibell and Rundgren (2010) find analogies beneficial as they help learners to envisage non-concrete concepts which could bring misconceptions on the topic or concepts being taught in the classroom. Analogies are comparisons between one thing and another, typically for the purpose of explanation or clarification.

- *What is difficult to teach* pertains to identifying concepts that learners commonly struggle to learn. It focuses on how teachers deal with challenging concepts within the topics they teach.

- *Conceptual teaching strategies* focuses on the particular teaching strategies that teachers employ to help learners acquire conceptual understanding.

I used these concepts to analyse participating teachers' evidence of integrating ESD into their lessons. For example, how the teachers presented ideas about sustainable development or environmental issues to their learners, how they made abstract or difficult concepts such as sustainability accessible and meaningful to their learners, and what teaching and learning materials and strategies they used to teach or integrate specific topics.

2.8 Conclusion

This chapter reviewed the literature that is the concepts and theory relevant for this study. It articulated the concept of TPD, thereafter it described the context of ESD globally, regionally and locally, and its concepts in alignment with the Namibian school curriculum. Finally, it detailed the theoretical framework which drew primarily on sociocultural theory derived from Vygotsky's (1978) original work to make sense of teachers' learning process; which was complemented by Shulman's Pedagogical Content Knowledge (PCK), in particular Mavhunga and Rollnick's Topic-Specific PCK in order gain a clearer perspective on the knowledge gained or used by English Language teachers.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the research methodology which was adapted for this study. I begin with discussing the research paradigm, introducing how the research was carried out and interpreting its meaning. I then dive into research design to explicitly demonstrate how and where the research was carried out. Thereafter, I discuss my positionality and reflexivity, and their implications for this study. Subsequently, I discuss the rigour and trustworthiness concerning this study. Finally, I engage in a brief discussion of ethical issues regarding this study.

3.2 Research Paradigm

This study is designed as a qualitative case study in an interpretive research paradigm. A research paradigm is a set of beliefs that portray one's worldview in a study (Cohen, Manion & Morrison 2018; Creswell & Poth, 2018) while Christensen, Johnson and Turner (2014) define it as a framework of thoughts or beliefs by which reality is interpreted. According to Cohen et al. (2018), an interpretive paradigm views the social world as an emergent social process which is created by the individuals concerned. This paradigm is suitable for this study as it allows an understanding and interpreting of the programme's ways of supporting teachers and teachers' experiences of environmental education programmes.

3.3 Research Design

This qualitative case study has been conducted with three English Language Senior Primary teachers participating in the *Teach for ESD* programme run by an NGO (NaDEET) and NaDEET staff members. The two-year *Teach for ESD* programme has been running since January 2021 and so the teachers were nearing the end of their professional development process when the study commenced. It is thus an appropriate time for me to hear their reflections and observe the developments in their English language teaching practice.

I generated data using semi-structured interviews, document review and lesson observation. The data was collected over five weeks, from mid-October 2022 (after the school mid-term break) into March 2023.

3.3.1 Case Study

Bertram and Christiansen (2020) define a case study as a systematic and in-depth study of a particular case in its context. Meanwhile Yin (2003, p.15) interprets it as a way of investigating an empirical topic by following a set of 'prespecified' procedures. A case may be a group of people, a school, a community or an organisation. A case study methodology is suitable for this study as it allowed me to acquire in-depth understanding of how an ESD teacher professional development programme is aiding Senior Primary English Language teachers to integrate ESD into their teaching practices. The case is NaDEET's *Teach for ESD* programme with a focus on three Senior Primary English Language teachers from Otjozondjupa who have been participating on the programme since 2021.

3.3.2 Research Sites and Participants

The study was carried out using a hybrid mode, at the participating teachers' schools in Otjozondjupa region and virtually with the NaDEET staff. Otjozondjupa region is located in the central part of Namibia. The NaDEET staff were interviewed through a zoom meeting. This research study was conducted on NaDEET's *Teach for ESD* programme that offered a professional development training on EE/ESD to 240 teachers across the country.

The participants in this research study were the three Senior Primary English Language teachers from Otjozondjupa region that participated in the *Teach for ESD* programme. The other participants were the NaDEET Staff who were working directly with the *Teach for ESD programme*. The table below shows the participants' profiles. The teachers were interviewed and had their lessons observed (one lesson was observed per teacher); and for NaDEET staff, a focus interview was conducted with them.

Table 3.1

Participants Profiles

Pseudo Name	Position	Gender	Number of years at current Position
Teacher 1 (Mrs Matt)	Teacher	Female	7
Teacher 2 (Mrs Tom)	Teacher	Female	12
Teacher 3 (Ms Londy)	Teacher	Female	4
NaDEET Staff 1	Planning, Monitoring and evaluations officer	Female	Not available
NaDEET Staff 2	Senior Environmental Educator	Male	Not available

3.3.3 Selection Criteria

Purposive sampling is employed for this research study. Purposive sampling means selecting participants according to criteria relevant to a particular research question (Creswell, 2009) and in special circumstances where the sampling is done with a particular purpose in mind. In essence, this study focused on Senior Primary English Language teachers only as it is attempting to enhance the implementation of ESD in English Language for Senior Primary Phase in Namibian schools. I opted for this sampling since it has proven very difficult to reach all the Senior Primary English Language teachers participating in the programme due to the fact that they are from different regions in the country and especially because we were faced with a difficult situation of the COVID-19 pandemic at the start of this study that had seen the implementations of different stages of lock-down and other regulations.

The reason for choosing NaDEET and their *Teach for ESD* programme is because it was the only organisation with an active EE/ESD professional development programme for teachers including Senior Primary English Language teachers in Namibia at the time of conducting this research project. This was discovered during a contextual profiling exercise prior to the development of the research proposal. The NaDEET Staff who were working directly with the *Teach for ESD* programme were identified by the organisation itself to be interviewed as a panel.

The three Senior Primary English Language teachers from Otjozondjupa were selected because: (i) they were practising Senior Primary English Language teachers who are participating in the *Teach for ESD* programme, and (ii) they were all based in the region where I am teaching, which gave me easier access to the teachers, especially because we were faced with COVID-19 pandemic at the commencement of the study.

3.3.4 Data Generation Methods and Tools

The data in this study was generated using three qualitative research methods that are featured in table 3.2 below. Fieldwork commenced in October 2022 with document review and preliminary semi-structured interviews. A second round of interviews was conducted with each teacher directly after video-recorded observations of their ESD-aligned lessons at the participants' schools. Two NaDEET staff were also interviewed through a focus interview. The fieldwork concluded in March 2023 with a reflective interview with each teacher as they conclude the *Teach for ESD* course.

Table 3.2:

A Summary of Research Methods and Tools

Research method	Purpose (aim of using this method)	Research participants involved	Research instrument
Semi-structured interviews (preliminary)	To find out: a) what the English Language teachers knew / understood about ESD and sustainability concerns in Namibia. b) what challenges they faced and the gaps they would like to fill with ESD in English teaching. c) what they learned / expected to learn from the *Teach for ESD* programme.	Three Senior Primary Phase English Language teachers	Interview Schedule (see appendix A)
Document review	a) to look at the features of *Teach for ESD* programme with regard to supporting English language teaching b) to study the overview of the programme c) to find out what NaDEET says teachers are lacking		Teach for ESD Baseline survey Teach for ESD Overview Teach for ESD Toolkit Teach for ESD Badges Overview 2021 Teach for ESD Annual Report
Lesson observation	a) to observe how far the participating English language teachers have changed their teaching practice to integrate sustainability concerns b) Observe if they have made any other progress at the school ground	Three Senior Primary Phase English Language teachers	Lesson observation sheet (see appendix E)
Semi-structured Interview (follow-up)	to gain more understanding of the teachers' presented lessons	Three Senior Primary Phase English Language teachers	Interview schedule (see appendix B)
Semi-structured interviews (reflective)	a) to find out teachers' experiences in the *Teach for ESD* programme	Three Senior Primary Phase English Language teachers	Interview schedule (see appendix C)
Interview (NaDEET staff)	a) get additional information about the *Teach for ESD programme* apart from what is obtained from documents reviewed b) get more information about how English Language teachers have responded to the programme in terms of active participation in the programme and ESD implementation at their respective schools.	NaDEET staff	Interview schedule (appendix D)

3.3.4.1 Document Review

Yin (2003) points out that reviewing documents is a very useful tool and it is mostly used to corroborate and augment evidence from other sources in case study research. Notably, Gasa and Mafora (2015) suggest that document review is an ideal method of collecting data in qualitative research. Some authors such as Bowe (2005) call it document analysis. Yin (2003) however argues that the documents are not always accurate. Nevertheless, in this case study research I employed document review to collect secondary data for data triangulation purposes. I reviewed relevant documents for the *Teach for ESD* programme after gaining permission from NaDEET to access them. These documents included:

- a Baseline Survey Report which was conducted by NaDEET staff before the implementation of the programme. (D1. Haindongo, 2019).
- the *Teach for ESD* programme overview. (D2. NaDEET, n.d.).
- the *Teach for ESD* Toolkit. (D3. Keding & Volkmann, 2021).
- the *Teach for ESD* Badges Overview. (D4. NaDEET, n.d.).
- the 2021 *Teach for ESD* Annual Report. (D5. Braune, 2021).
- the *Teach for ESD* 2021-2022 Programme Report. (D6. Braune, 2023).

I reviewed these documents to gain insight into what the training offers in support of Senior Primary English Language teachers. Other documents reviewed are those of participating teachers, including their lesson plans (three) and worksheets and/or activities prepared for learners. These documents helped with evidence of how the English Language teachers have changed their teaching practice to integrate sustainability concerns. This complemented the data that was generated from the interviews and lesson observations as will be discussed below.

3.3.4.2 In-depth Semi-structured Interviews

Boyce and Neale (2006, p. 3) recommend in-depth, semi-structured interviews when seeking "detailed information about a person's thoughts and behaviours or want to explore new issues in depth". Semi-structured interviews provide some control over the content of the discussion by guiding interviewees with carefully designed questions, but they are open-ended enough to allow interviewees to elaborate (Cook, 2008).

In this study, preliminary semi-structured interviews (See Appendix A) focused on how the Senior Primary English Language teachers from the Otjozonjupa region, who participated in the *Teach for ESD* programme, were motivated to apply to the programme and in integrating ESD in their teaching practice; what their initial experiences had been, and what they identified as the main challenges in integrating ESD. The second interviews were follow-up semi-structured interviews (see Appendix B) conducted after I observed an ESD-aligned lesson designed by the participating teachers, and the questions focused directly on the intentions and experiences of teaching that specific lesson. They were conducted the same day I observed their ESD-focused English lessons, and at a time convenient to the teachers. The third interviews were reflective and conducted in March 2023 just as the teachers concluded their two-year *Teach for ESD* programme. The reflective semi-structured (in-depth) interviews were conducted to acquire data from the three Senior Primary English Language teachers on their experiences of the *Teach for ESD* programme and what knowledge they might have gained from the programme (see Appendix C). All the interviews were audio-recorded for data analysis.

Semi-structured interviewing as discussed above, was a suitable method for probing for clarification about their lesson plans and capturing the teachers' reflections near the end of their professional development experience with NaDEET. The open-ended questions provided an opportunity for continued dialogue and discussion around the research questions. As with the preliminary interviews, the interviews were audio-recorded for data analysis.

Additionally, I interviewed two of NaDEET staff working directly with the *Teach for ESD* programme and responsible for facilitating and supporting the teachers during this programme. This was a collective interview with the two NaDEET staff being interviewed together and it was employed for triangulation purposes and their perspectives gave me a clear picture of the TPD process (see Appendix D).

3.3.4.3 Lesson Observations

I observed one lesson per teacher (three lessons in total) using Mavhunga et al.'s (2016) TSPCK rubric (see appendix E) in which they showcased an English Language lesson that is

oriented to ESD. I was interested to observe how they infuse ESD into their lessons and the extent to which they have implemented tasks/projects given to them by NaDEET.

Qualitative observation is a field research method used by researchers to obtain real-time data about subjects' behaviours, interactions and experiences in the actual environment in which they naturally occur (Lofland & Lofland, 1995). Qualitative observational research is exploratory and attempts to capture the situation as experienced by the research participants (the English teachers) rather than according to categories that the researcher has predetermined. Lesson observations cannot give access to how the teachers feel about ESD, ESD pedagogies or any environmental topics, but they were a chance to see what the teacher can actually do in their teaching practice in terms of integrating ESD into their lessons. The observed lessons were video-recorded, with the teachers' and their superiors' permission for later data analysis.

3.3.5 Data Management

All the data collected were indexed and stored using different storage modes for back up and convenient accessibility whenever needed. This was also for the purpose of being accounted for. Hard copies of documents reviewed and the notes I made from the documents were stored in a locked cupboard, they were also scanned and saved on the Google Drive where a folder named 'Document Reviewed' was created. Each document was indexed too. The interview key responds I noted from the interviews and transcribed interviews were also locked in the cupboard; they were also scanned and stored together using pseudonyms, with interview recordings in the computer and on a Google drive for backup. The lesson observations video recordings were saved on the computer and on Google Drive. The table below shows how the data collected was organised.

Table 3.3:

Data Collected Organisation

Data Set	Data Source	Data Index
Document review	Baseline Survey Report	D1
	Teach for ESD Overview	D2
	The Toolkit	D3
	Teach for ESD Badges Overview	D4
	2021 Teach for ESD Annual Report	D5
	The *Teach for ESD* 2021-2022 Programme Report	D6
Interview	Audio Recording	
	• Interview1	T1AI1-T3AI1
	• Interview2	T1AI2-T3AI2
	• Interview3	T1AI3-T3AI4
	Interview Schedules with Key Responses	
	• NaDEET Staff Interview	NSIS
	Transcribed Interviews for teachers	
	• Interview 1	T1TI1-T3TI1
	• Interview 2	T1TI2-T3TI2
	• Interview 3	T1TI3-T3TI3
Lesson Observation	Video-recording	T1V-T3V
	Transcribed Videos	T1TV-T3TV
	Lesson Plan	T1LP-T3LP
	Teaching Materials	T1TM-T3TM

3.3.6 Data Analysis

To make sense of the data (analyse) generated through document review, interviews and lesson observations, a thematic analysis was utilised that at first allowed themes or patterns to emerge from the data, and later it was informed by the study's theoretical framework. This was done with the aim of answering the research sub-questions and main question, and achieving the goal of the study, which is to understand the professional development needs, wishes and experiences of Senior Primary English language teachers who seek to integrate ESD into their teaching practice.

Thematic analysis is defined as a way of organising data by identifying main ideas observed within raw data (Braun & Clarke, 2006). It involves the researcher familiarizing herself with the data, generating initial codes, searching for themes, reviewing the themes, defining and naming themes, and producing a report (ibid). I analysed the video recordings guided by concepts introduced in Chapter 2, such as the teachers' content knowledge, the sociocultural connections they make with sustainable development content, and the resources that seem to have scaffolded their own lesson-planning skills. This helped to observe the participants' practical evidence of how the programme aided them to integrate ESD.

Simultaneously, I used socio-cultural theory as a lens to analyse how the *Teach for ESD* programme has aided teachers to integrate ESD into their teaching practices. Additionally, the lesson plans and lesson observations were analysed using the TSPCK translation device designed by Mavhunga et al. (2016) to verify its efficacy (see Appendix E). The analytical tools adopted for this study to analyse the teachers' ZPD and TSPCK are shown in appendix F and Appendix G, respectively.

3.4 Positionality and Reflexivity

McMillan and Schumacher (2014) suggest that researchers should offer open and truthful disclosures and explanations to reflect how and where their position might influence the research process. As a Senior Primary English Language teacher, I was aware of the potential power relation between the teacher participants and me as a researcher. I assumed that participants would recognise me as an insider and outsider simultaneously. Teachers considered me as an insider by being a fellow English Language teacher of the same phase, but also as an outsider by being a researcher. I assumed that participants might not be "open and candid" about certain information (Holmes, 2018, p. 8) because I am both an insider and an outsider. Hence, I explained to them the purpose of conducting the study before commencing with data generation.

I also assumed that the teachers might see me as a 'more knowledgeable other' because I am a researcher studying Environmental Education at Master's level, thus I tried to use terminologies that were commonly used in our context. Engaging with fellow English teachers and having a dialogue with them offered me an opportunity to learn from them and improve my own teaching practice, and I shared my experience with them too.

Furthermore, the NaDEET staff might have seen me as an insider by being oriented to EE and ESD. They would assume that I was familiar with all the environmental terminologies and practices, which was not the case. I was honest when they mentioned concepts that I was not familiar with and they explained them to me. By being an outsider to NaDEET, they saw me as an external person evaluating their programme and initially were reluctant for me to conduct this study on their programme. I clarified the objectives and expectations of the study when I set up the study and I found it necessary to continue with these conversations with them during the study. I was also aware of the importance of my own reflexivity, which is supported by regular presentations with the Master's course, and feedback from my supervisors.

3.5 Rigour and Trustworthiness

This study is located in an interpretivist paradigm where there are main criteria for rigour and trustworthiness, namely: credibility, confirmability, dependability and transferability (Bertram & Christiansen, 2018; Lincoln & Guba, 1985, cited in Cohen et. al. 2018). *Credibility* means that the data should describe the participants' reality and the research may use mechanical ways to record the data (Bertram & Christiansen, 2018). *Confirmability* implies that data findings should be able to be 'confirmed' by others and draw same or similar conclusion (Kivinja & Kiyini, 2017, p.34; Bertram & Christiansen, 2020, p. 190). Meanwhile *dependability* refers to "the extent the researcher can account for variations in the study, or for how and why the findings of the study are different to that of the previous study" (Bertram & Christiansen, 2020, p. 202). *Transferability* refers to the extent the research can be transferred to another context and still fit in (Bertram & Christiansen, 2020)

Credibility was attained by digital audio-recording of the interviews and video-recordings of the lesson observations that were then stored for future retrieval. I also printed out the digital documents that I have reviewed and stored them for future retrieval. Member-checking is another way that I employed to verify that the data and findings that I reached are credible. In this case, I did member checking when I had written a draft summary of each teacher's experience on the *Teach for ESD* programme. To ensure the quality of this research project, I triangulated the semi-structured interviews, lesson observations and document reviews which I used to explore how *Teach for ESD* programme is aiding English Language teachers for Senior Primary Phase integrate ESD into their teaching practices.

Confirmability was achieved by making the research process transparent (Bertram & Christiansen, 2018) and providing sufficient details for the participants to confirm if they would have reached a similar conclusion (Cohen et al., 2018) in how I analysed the data. In this case, the interviews were transcribed verbatim, and the original audio-recordings saved in case of questions.

Dependability was achieved using three complementary data generation methods for triangulation purposes, as described in Section 3.3.6, data analysis and data discussion were guided by established theories and concepts which should add rigour to the research findings. I noted the importance of attending my Master's course contact sessions and continuous discussions with my supervisors.

Finally, in the case of transferability, the findings of this case study can be of relevance to other regional directorates of education in Namibia; English Language of Junior Primary, Junior Secondary and Senior Secondary phases; and it can also be applied to other language subjects in the Namibian curriculum. This was achieved by providing thick descriptions of each teacher's experiences and of the support that was provided by NaDEET in aiding teachers to integrate EE/ESD in their teaching.

3.6 Ethical Considerations

Ethics is an open-ended process with the potential to expose new challenges and generate new possibilities. It has to do with behaviour that is considered right and wrong (Jickling et al., 2021; Bertram and Christiansen, 2020) when conducting a research study. Thus, research requires us to act in ethical ways, and this starts at the conception of the research project, and it ends with how we share our findings (Merriam, 2009). Ethics should be considered as mandatory in any research and should not be compromised in any way. I have been guided by ethical guidelines from the proposal of this research project and throughout the study, putting into consideration Rhodes University Ethics Guidelines and the risks of not adhering to the ethics principles.

Other principles or criteria that guided me are that of Bertram and Christiansen's (2020), *autonomy* which implies that one has to get the consent of each participant and each participant must participate voluntarily, *non-maleficence* means that the research should not harm participants or any other persons, and *beneficence* which states that the research must be beneficial.

Rhodes University Ethics committee approved my research proposal with a clearance number 2022-5849-7009 (see Appendix H). Prior to conducting my research, I sought permission from NaDEET in order to conduct research on their programme, *Teach for ESD*. I wrote to the Organisation formally, focusing on what I wanted to achieve with this research project. The gatekeeper permissions were obtained from NaDEET (see Appendix I), and the principals of the participating teachers (see Appendix J, K, and L) where the schools of the participating teachers are located.

Further, I negotiated with each participating teacher for them to participate in the research study. I was explicit that participating in this study was voluntary and they could withdraw at any given time if they were dissatisfied with the research or were no longer interested in participating. I also discussed with each of them in detail about my research project; I was clear about the aims, objectives and expectations of the study and the intended duration of the study, and that of interviewing them and observing their lesson when I invited the participating teachers to join the study. Thereafter, I wrote formally to them the details and asked them to sign informed consent forms (see Appendix N) and return them as evidence of agreement to be included in the study. I had to make my intentions clear to the teachers and allowed them to explain to the learners too. My intentions were stated and clear in the letters and during the negotiations and I continued these transparent conversations during the study as they deemed to be necessary. Pseudonyms were also used to de-identify the participants and protect their privacy. This was done after consulting them and they indicated that they did not want their identity revealed.

This study was carried out to improve teacher professional development programmes that support English Language teachers to integrate ESD into their teaching practices. The study would be of direct relevance to Senior Primary phase in Namibia specifically, but it might also be relevant to other curriculum phases, languages, and subjects and in other countries. This study might also be of interest to a range of stakeholders in education, for instance, curriculum developers, textbook writers, subject advisors, and leaders of NGO-led sustainability programmes that support teachers, especially English Language teachers, to integrate ESD effectively.

Paper based data were locked in a cabinet cupboard, they were also scanned and saved in a file protected with a password. Digital data were as well stored in a file protected with a password. Confidential and sensitive data were not shared and they could not be saved, downloaded or screenshot as it was protected. Shared information was shared displaying pseudonyms. Data that were made available digitally such as interview schedules and observation sheets had pseudonyms to hide the true identity of the participants.

3.7 Conclusion

Three teachers and two staff members of NaDEET contributed to the data of this research study. The teachers were Senior Primary teachers from Otjozondjupa region who were participating in NaDEET's *Teach for ESD* programme. Three interviews were conducted with each teacher, they gave information about their prior knowledge of ESD, what they expected to learn from the programme, their views on how the programme can help or support the English Language teachers better. Teachers were also observed as they were presenting ESD integrated lessons at their schools to show/demonstrate their ability and creativeness in integrating ESD into their lessons. The NaDEET staff members were interviewed about the context, aims and features of the program.

CHAPTER 4: DATA PRESENTATION

4.1 Introduction

This chapter presents the study's data for the reader to understand the events, experiences and perspectives of the Senior Primary English Language teachers' participation in the *Teach for ESD* programme. Analysis of this data is presented in the following chapter. The data set included: three sets of semi-structured interviews with the three Senior Primary English Language teachers (preliminary interviews, interviews after lesson observations, and reflective interviews after completing the *Teach for ESD* programme); an interview with NaDEET staff; lesson observations; and document reviews. This chapter is divided into three sections. The first section (4.2) presents carefully selected data from the reviewed documents and from the interview conducted with NaDEET staff. The data presented in Section 4.2 is aimed at answering sub-question B2: *What are the features of the Teach for ESD programme, especially regarding support for Senior Primary English Language teaching?*

The documents reviewed and a brief outline of their contents are listed in Table 4.1 below. These documents, together with the NaDEET staff provided necessary information about the history and the context of the *Teach for ESD* programme, the programme principles, content knowledge that was provided to the teachers, pedagogical approaches adapted for the programme, and the ESD integrated lesson plan content.

Table 4.1:

Reviewed Documents

Document	Description
The Baseline Survey Report (2019)	A report on the survey conducted by NaDEET prior to the implementation of the *Teach for ESD* programme to identify the current environmental programmes and activities taking place in the schools with the aim to improve the implementation of ESD across the schools in Namibia.
The *Teach for ESD* Overview (May 2021)	The 6-page pamphlet is given to teachers who are accepted in the programme. It gives an orientation to the *Teach for ESD* programme, this includes, how the programme works, its components, how it ends, how the teachers and *Teach for ESD* advisors will keep in touch and the programme timeline.
The *Teach for ESD* Toolkit (2021)	The toolkit consists of a set of guides on three main topics: Environmental Knowledge, Understanding ESD and Let's Get Practical. The guides are accompanied by a collection of ESD resources that are either in hard copy and/or digital.
The Badges Overview (August 2021)	It orientates the badge system that NaDEET implemented for the monitoring and evaluation during the *Teach for ESD* programme.
The 2021 *Teach for ESD* Annual Report (December 2021)	Reports on all the activities conducted around the *Teach for ESD* programme from the start until 2021.
The *Teach for ESD* 2021-2022 Programme Report (June 2023)	Reports on all the activities conducted around the *Teach for ESD* programme from the early stage of the programme until the end of the training of the first cohort in 2023.

The second section (4.3) presents the carefully selected data collected from two sets of interviews (preliminary interviews and reflective interviews) with the Senior Primary English Language teachers and their lessons that were observed. This data aims to answer sub-questions B1 and B3:

- *What support do Senior Primary English Language teachers say they need in order to integrate ESD in their English Language teaching practice?*

- *What are the participating teachers' reported experiences of the Teach for ESD programme?*

The third section (4.4) presents selected data from lesson observations and reflective interviews that were conducted with the participants. They are aimed at answering sub-questions B4 and B5:

- *Is there any evidence at the end of the Teach for ESD programme that participating English Language teachers have changed their teaching practice to integrate sustainability concerns?*
- *What features of the Teach for ESD programme seem to have enabled the changed English Language teaching practices?*

4.2 Features of the *Teach for ESD* Programme

4.2.1 Teach for ESD Programme Background

Similarly, to researchers such as Kanyimba (2002), Malua (2019) and Tshiningayamwe (2011), NaDEET identified a gap in teachers' professional development to strengthen their ESD integration. NaDEET has since taken action to fill the gap with the *Teach for ESD* programme. Prior to the implementation of the *Teach for ESD* programme, NaDEET conducted a Baseline Survey (D1) on selected schools at the central coastal area of Namibia in order to:

- Establish what current ESD activities were taking place in the coastal towns of the Erongo region, including schools in the area.

- To identify the gaps and challenges that schools and EE/ESD service providers face in this area.

- Fulfil donor requirements for Bread for the World (BfdW) who were funding the development of the NaDEET's Urban Centre to first establish a baseline of EE/ESD activities in the area to be able to monitor change in the future.

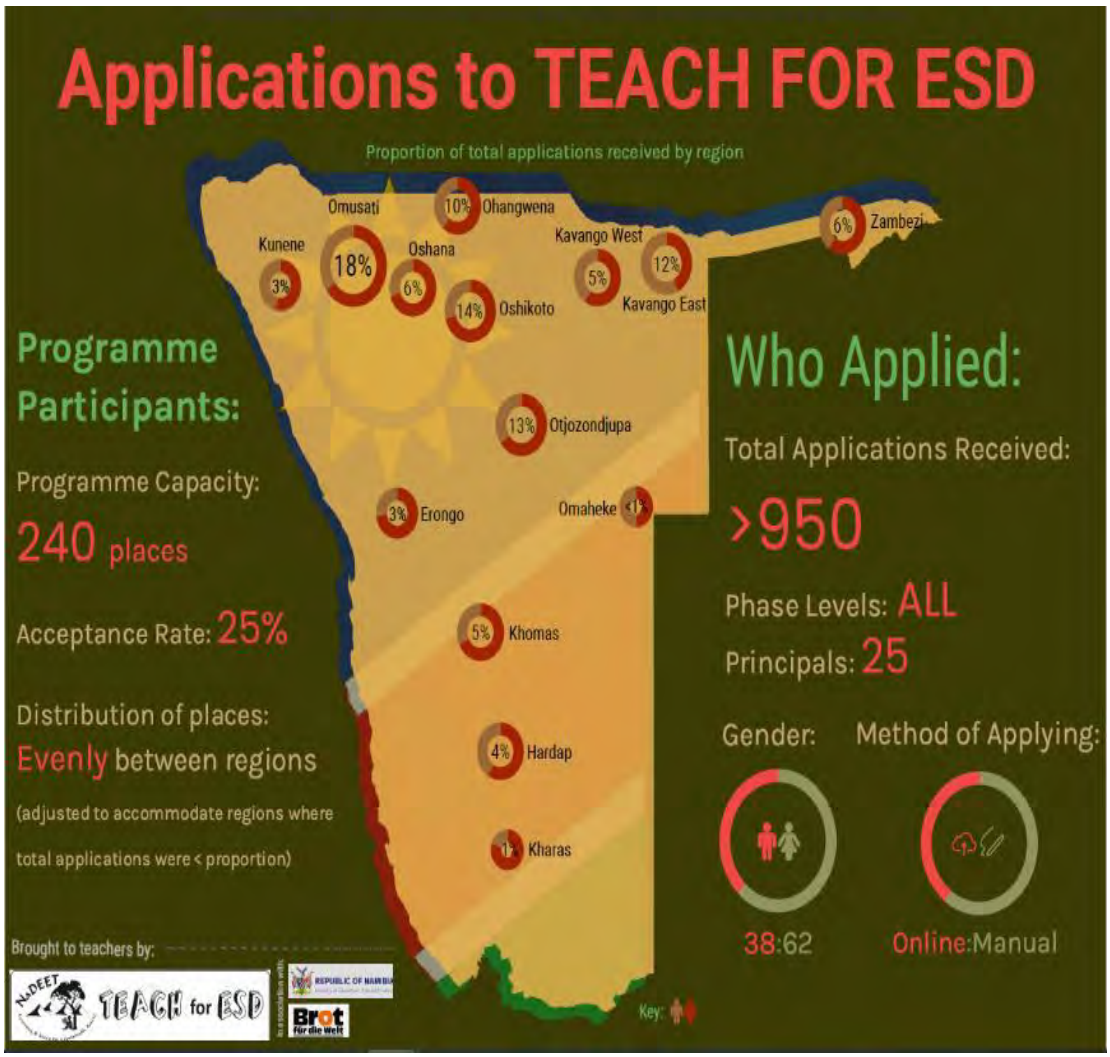
Additionally, the survey was to guide NaDEET to, "develop a cross-cutting approach to provide an EE/ESD programme that suits the needs of the coastal community based on the findings of the baseline" (NaDEET, 2019, p.3).

The baseline survey study found that many schools affirmed to have EE/ESD policies in place but could not attach copies as proof of such documents. Only three (3) schools out of thirty-eight (38) schools surveyed produced their EE/ESD policy documents. On close observation, the researchers found that the three documents were not complete policies that focused on EE/ESD but merely sets of school rules that included some aspects of EE/ESD. Therefore, the survey study concluded from the information gathered that none of the schools that participated in the survey had a fully comprehensive EE/ESD policy at the time of conducting the survey. The findings from the survey indicate that teachers are aware of the inclusion of EE/ESD in the Namibian national curriculum at all phases and it is the most common method of implementing EE/ESD at schools. However, the survey did not evaluate the implementation of EE/ESD in the curriculum. Schools also stated that there is a lack of information about the available activity options from EE/ESD service providers in the Erongo region and elsewhere in Namibia. This shows that there is a need for EE/ESD service providers to engage schools (D1).

The programme was thus developed to aid the teaching of EE/ESD at all phases in the Namibian school curriculum. The 2021 *Teach for ESD* Annual Report (D5) and The *Teach for ESD* 2021-2022 Programme Report (D6) designate that teachers had to apply in order to be enrolled into the programme. As drawn from the reports, the *Teach for ESD* programme was announced in December 2020, with the application launching in 2021. The original deadline for application submission was 26 February 2021. The deadline was later extended to 19 March 2021 due to the delay in communication to the regional directorates for education and low application turnouts. The programme later attracted a high volume of 978 applications from teachers across the country, in all 14 regions. 240 applicants were accepted into the programme. Applications from each region were chosen on transparency and objectively based on the quality of their application. According to the number of applications received from each region, places were allocated to ensure balance across all 14 regions. Figure 4.1 below illustrates the pictogram on the *Teach for ESD* applicants' demographics.

Figure 4.1:

Participants' Demographics



Note: Adopted from the 2021 Teach for ESD Annual Report. (D5. Braune, 2021).

4.2.2 Deviations in Programme Implementation

NaDEET's 2021 *Teach for ESD* Annual Report (D5) and The *Teach for ESD* 2021-2022 Programme Report (D6) indicate that COVID-19 hindered the initial programme implementation plans. Although the *Teach for ESD* programme was designed on a two-year timeline, COVID-19 and the restrictions that reshaped both the education system and society itself caused significant setbacks to the programme, resulting in the first cohort running for 21 months only (April 2021-December 2022). The programme training sessions scheduled to take

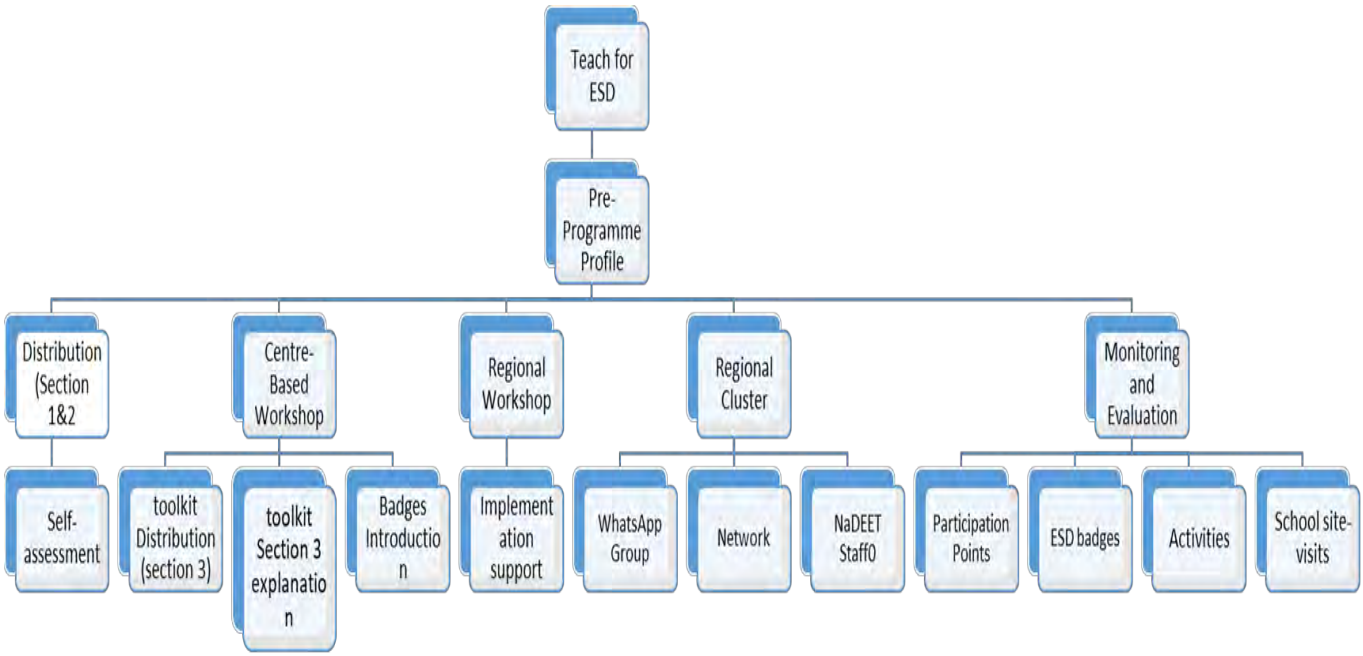
place in June and July 2021 were postponed due to a new wave of COVID-19 and the restrictions that followed. As soon as it was safe to resume, they were rescheduled to take place over a 13-week period between 23 August 2021 to 19 November 2021. The Toolkit was intended to be distributed as part of the *Teach for ESD* centre-based training, but due to COVID-19 and the postponement of the training, *Toolkit1* and *Toolkit2* were couriered to participants with quizzes for self-assessment. The conference (and the last activity of the programme) took place at NaDEET Urban Centre in February 2023.

4.2.3 NaDEET Support Structure for English Language Teachers

This section presents the ways that NaDEET supported English Language teachers' professional development. NaDEET carefully prepared a systematic and logical structure to move the teachers from their current zones to a new zone of understanding ESD and its integration in teaching. The structure was designed to allow the teaching and learning to take place successfully. The structure helped NaDEET to scaffold the information to the teachers in a way that will make them gain and understand the knowledge. Figure 4.2 presents the ways that NaDEET adopted to support the English Language teachers.

Figure 4.2

Ways that NaDEET adopted to support the English Language teachers



4.2.4 Tailor-made Support for Teachers' Needs and Level

The *Teach for ESD* is a TPD programme enriching teachers with ESD knowledge that teachers need in order to implement it successfully. According to Malua (2019) who gave a morphogenetic account of the emergence of ESD in the Senior Primary English Language curriculum, there is a need for more CPD training to strengthen teachers' agency for integrating environmental learning in their practice. NaDEET provided the support necessary for the teachers to be able to learn how to integrate ESD in their lessons.

4.2.4.1 Content knowledge

Prior to the training, NaDEET created a room for teachers to create their ESD profiles that could help them along the journeys to evaluate the changes they have made. The ESD-profile consisted of three areas: *ESD Teacher Profile* which consists of information about them as a teacher and how ESD fits in their roles; *School Environment*, completed in pairs, gives an account of different environmental aspects of their schools; and *Daily Environmental Actions*, questionnaire to evaluate sustainable footprints based on daily routines.

The *Teach for ESD* programme provided materials for teachers to use during training and after the training when integrating EE/ESD into their teaching practices. The *Teach for ESD* overview (D2) highlighted that:

> As part of the programme, NaDEET designed a *Teach for ESD Toolkit,* a resource pack that is the foundation of the *Teach for ESD* programme, with three main objectives: provide solid background information on ESD, link the participant to many excellent, existing resources on ESD and provide the foundation for practical implementation of ESD at schools.

D2 further detailed that:

> The *Toolkit* has three structural parts (as shown in figure 4.3): the resource file containing that *Toolkit* Resource Guides written by NaDEET, the resource holder containing the hardcopy resources, sources from local organisations, and the USB stick containing all the resources in digital format. The resources are accompanied by a collection of ESD

resources including books, magazines, videos and databases. Resources are either in hardcopy and/ or digital depending on availability and the type of resource.

Figure 4.3

Three Structural Parts of the Teach for ESD Toolkit

Note: Sourced from NaDEET, 2021 *Teach for ESD* Annual Report. (D5. Braune, 2021).

Similar to UNESCO (2018), which explains the goal of in-service teacher development in section 2.2 earlier, the *Teach for ESD* programme aims to "improve knowledge and teaching skills about Education for Sustainable Development". As part of the programme, NaDEET designed the *Teach for ESD Toolkit*, a resource pack that is the foundation of the *Teach for ESD* programme (D3. Keding & Volkmann, 2021). The *Toolkit* is divided into three broad sections namely Toolkit 1, Toolkit 2 and Toolkit 3 with "different topics leading the reader to the accompanying resource which can offer them more information, new ideas, or tangible resources to teach and implement activities at their schools." The information below details the sections in the *Toolkit* as adapted from D3.

Toolkit 1: Environmental Knowledge

This section comprises information about Namibia's environment, environmental crisis and Namibia's environmental crisis.

Toolkit 2: Education for Sustainable Development (ESD)

Provides an in-depth understanding of ESD by describing the background and history in ESD context and definitions and approaches in ESD concepts. The section demonstrates the global ESD timeline and Namibian ESD timeline. It further highlights some of the policies and frameworks for action adapted by Namibia and globally.

Toolkit 3: Let's Get Practical

This section is divided into ten ESD action areas which consist of topics to inspire teachers to implement ESD in their teaching and learning at school. Teachers are also provided with websites where they can find further information and activities to integrate in their lessons. They are demonstrated below:

1. *Teach an ESD Lesson Plan* helps teachers to select different tasks/topics on the Sustainable Development Goals (SDGs) to integrate in their lessons; understand sustainable development and current environmental issues and exploring environmental ethics to be adhered to.
2. *Promote Learner Well-Being* guides teachers to be able to equip learners with strategies, skills and knowledge to be able to learn for tomorrow and be ready to adapt and overcome 21st century challenges. It further provides guidance on staying healthy and food gardening.
3. *Reduce Resource Use* guides teachers on how to raise awareness through lessons, education campaigns, as well as, through small daily reminders. They are also guided on auditing and setting up a management plan to improve resource management and addressing infrastructure maintenance and improvement to deal with the root causes of resource waste.
4. *Bring Biodiversity into the Schoolyard* guides teachers on how to bring biodiversity into the school yard by raising awareness about it by identifying and recording the species diversity that is already there or bring biodiversity into the school yard; and contributes to biodiversity conservation by planting indigenous plant species and entice more animal species to come into the school yard by creating habitats and homes for them.
5. *Celebrate the Environment* introduces teachers to various special days related to the environment to celebrate at schools and in the community.

6. *Greening Leadership* teachers are introduced to development of a sustainability vision and policy that integrates ESD into the management plans and the annual school activities. They are also encouraged to form green leaders and management to help facilitate the implementation of ESD activities. This can include school boards, principals, teachers and learners.
7. *Greening School Activities and Events* teachers learn about implementing different events, like daily or weekly events such as morning line up or staff meeting; annual events such as awards ceremony first day of school or sports day; or school programmes such as school feeding programmes.
8. *Teaching in the Great Outdoors* teachers are exposed to how to conduct outdoor lessons, fieldwork, field trips and enviro tours[2].
9. *Sustaining your Actions* to overcome many environmental challenges teachers should be able to provide structure to their environmental activities. These may include establishing an environmental club, sign-up and involved with other groups and establishing financial support for their activities that can help fund it to further develop and maintain their goals.
10. *Sharing with Others* teachers receive guidance on how to share with others through different platforms such as sharing theirs stories, taking part in green community services and share well-informed opinions about environmental issues through advocacy and activism.

4.2.4.2 An ESD Lesson Plan

There is no separate lesson plan format for ESD integrated lessons, teachers use the same lesson plan format they usually use to plan their lessons. However, teachers are trained on how to integrate ESD into their lessons using the same lesson plan and are provided with possible materials in a form of a *Toolkit* but not limited to these materials as they can also collect and/or create their own materials. This corresponds to Teach for ESD Toolkit (D3. Keding & Volkmann, 2021).) that narrated that:

> Environmental Education is part of the Namibian Curriculum as a cross-cutting issue. It can be found in the syllabus for each of the subjects and phases, together with other

[2] Enviro tours can stretch over a few hours, days or weeks where several different places can be visited (D3. Keding & Volkmann, 2021). They usually include travelling longer distances and overnight stays (ibid).

> complementary topics. These topics all fit under Education for Sustainable Development (ESD) and are included in the 17 UN Sustainable Development Goals (SDGs). This means that environmental learning does not belong to any one subject alone and should be taught during the regular school day and within the set curriculum (D3, p.1).

The NaDEET staff 2 had argued that an ESD lesson plan is different in a way that:

> The teaching methods may differ as EE/ESD lessons can use an experiential/investigative approach. The assessment of such lesson plans might also require the normal assessment methods. EE/ESD lesson plans also seek to build different competencies such as critical thinking and global thinking which may not be requirements of typical lesson plan (NSTI).

However, the description given above matches that of an ordinary lesson plan,[3] thus, the only difference is the infusion on the EE/ESD content highlighted in 4.2.4.1.

4.2.4.3 Training

The *Teach for ESD* Overview and 2021 Annual Report indicate that there are two types of training that the programme offers to the teachers in order to prepare them with relevant activities and materials necessary for ESD integration. The training took place at different sites/venues to offer a range of activities or induction.

- ***Centre-Based training***

Information gathered from the Overview *Teach for ESD* document, the 2021 Teach for ESD Annual Report and the Teach for ESD 2021-2022 Programme Report documents indicate that the centre-based training workshops took place at NaDEET Centre on Namib Rand Nature Reserve and NaDEET Urban Centre. This was the first contact session with the teachers and was a week-long session. The teachers were trained on how to live and practice ESD through activities reflected in table 4.2 which prepared them to implement a holistic approach to ESD at their schools. The activities were delivered through presentations, videos, hands-on learning, games and real-life experience.

[3] Ordinary Lesson Plan is the standard learning trajectory that teachers usually use with or without integrating ESD.

Table 4.2:

Activities that Took Place at the NaDEET Centres.

Activity	Urban Centre	NaDEET Centre on Namib Rand
Exploring activities from the toolkit	×	×
Exploring the Urban Sustainability Centre	×	
Finding SDGs in Swakopmund	×	
Watching a film by Green Belt Movement founder Wangari Maathai	×	×
Measuring Enviro Footprint	×	×
Visit to Desalination Plant, Linchen Fields, Rent-A-Drum	×	
Exploring NaDEET base on Namib Rand		×
Exploring the Namib Desert Biodiversity		×
Watching the sunset on the dunes		×

The training at the Urban Centre took place on 13 September to 08 October and again on the 25 October to 05 November 2020 with different groups. Meanwhile at the NaDEET Centre on Namib Rand the training took place on 23 August-17 September and again on 08 November-19 November 2021 with different groups. Figure 4.4 and figure 4.5 below show some of the activities that took place at the centres during the workshops.

Figure 4.4

Teachers Exploring the Namib Desert's Biodiversity

Note: Sourced from NaDEET, 2021-22 Programme Report. (D6. Braune, 2023).

Figure 4.5

Teachers on Excursion at Erongo Desalination Plant

Note: Sourced from NaDEET, 2021-2022 Programme Report. (D6. Braune, 2023).

- ***Regional Training and networking***

The *Teach for ESD* Overview (D2) document indicates that, "the programme offers two regional training sessions meant to provide teachers with further support on topics from *Teach for ESD Toolki*t. ESD *Toolkit* is a range of materials provided to teachers to guide them in implementing ESD at their school." The components of the *toolkit* are highlighted in section 4.2.4.1. These sessions are designed to give teachers opportunities to discuss and receive guidance on their implementation activities as well as meet and network with teachers from other schools as Denuga (2019) emphasises that CPD affords teachers an opportunity to acquire knowledge from each other and this might increase their classroom efficacy.

4.2.4.4 Pedagogies Employed for the Programme

The programme used different approaches to deliver its content to the teachers and to make sure the teachers captured the ESD content knowledge. These include constructivist, collaborative, inquiry-based and reflective approaches.

- ***Constructivist***

The programme is designed to promote active participation as it has a *Toolkit* that consists of many activities that guide teacher on how to implement ESD at their schools. This helps teachers to learn through their experiences and reflections.

- ***Collaborative approach***

The Teach for ESD Overview (D2), 2021 Teach for ESD Annual Report (D5) and The *Teach for ESD* 2021-2022 Programme Report (D6) show that the *Teach for ESD* programme promotes collaboration because teachers from the same school are paired according to how they have applied to be enrolled in the programme. They also have regional groups and each regional group is allocated an advisor who is a NaDEET staff member. D2 further states that teachers are in the programme as individuals but they will also work as a team. It also states that teachers will receive two training sessions in their regional groups for further support on topics from the *Teach for ESD* toolkit. The trainings are also an opportunity to discuss and receive guidance on the implementation activities as well as to meet and network with teachers from other schools in the region. Therefore, teachers are not learning in isolation as they are in pairs and groups to share ideas and work together.

- ***Inquiry-based approach***

NaDEET has created platforms where teachers can engage with one another as well as with the NaDEET staff. This enables teachers to ask questions, thus creating a learning zone for them. These platforms are such that teachers can work in pairs at the school level, and as groups at the regional level and also engage through WhatsApp groups.

- ***Reflective approach***

Badges, directly linked to section 3 of The Teach for ESD Toolkit (D3) introduced earlier in section 4.2.4.1 and as reflected in the *Teach for ESD* Badges Overview (D4), are monitoring and evaluation tools for assessing teachers in the programme and their implementation of their ESD activities at school.

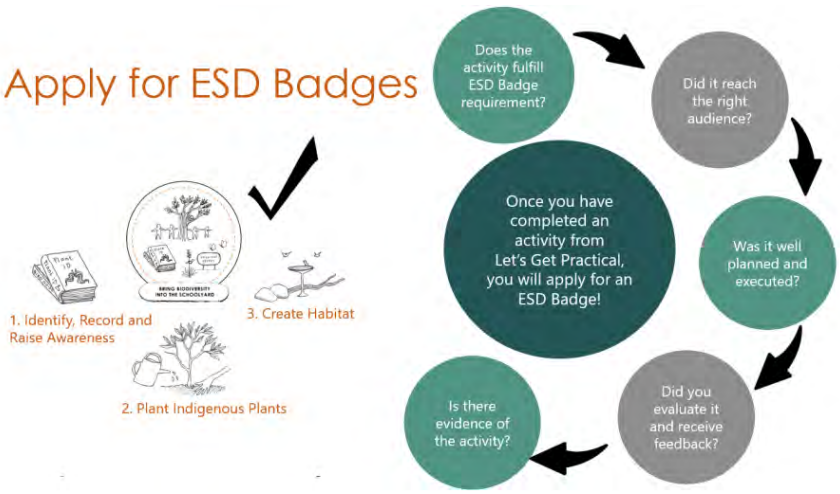
4.2.4.5 Assessment Approach

Throughout the programme teachers are assessed on two main areas, Education for Sustainable Development area and Participation in the programme. NaDEET keeps track of teachers' progress using a *badge award system*. D4 listed two types of *Teach for ESD* badge awarding systems: Education for Sustainable Badges and Participation badge. Through this system teachers are assessed and awarded individually, teachers are required to apply for the badges and the processes as reflected in figure 4.6. Teachers are also awarded with certificates of performance and participation at the end of the programme.

D1 states that a total of ten different practical areas are introduced to teacher but stipulates that teacher are required to implement a minimum of 5 activities at their schools, to help them integrate ESD in their classrooms. D1 further advise that, "by using the resources provided and/or developing your own to suit your context, these activities will improve your teaching and school's sustainability." Figure 4.6 below shows the process of applying for the badge, which involves the process of evaluation.

Figure 4.6

The Process of Applying for a Badge



Note: Adapted from the Teach for ESD 2021 Annual report. (D6. Braune, 2023).

4.2.4.6 Monitoring and Evaluation

The badge system is employed as a system for monitoring and evaluation. It ensures that teachers receive necessary training, resources and support they need to implement successful ESD activities. It also allows NaDEET to understand the real value of their work, make changes where needed to design impactful future programmes.

4.2.4.7 Motivation

Intrinsic motivation involves motivation from within whilst extrinsic motivation involves doing something because one wants to be rewarded (Santrock, 2018). The programme employed intrinsic motivation method by allowing participating teachers to select a minimum of five activities to implement at their schools. The extrinsic motivation is the badge award system, whereby teachers are assessed and awarded individually. As individuals, teachers should participate and submit documentation for them to be awarded points. All teachers that have successfully participated and completed the programme will be recognised and awarded, when the first round of programme implementation comes to an end in the 1st term of 2023. In addition, teachers who performed exceptionally well will be awarded with prizes.

4.3 Teachers' Experiences of the *Teach for ESD* Programme

The participants gained different knowledge from the programme, which helped the to improve their teaching practice.

4.3.1 Mrs Matt's Experience

4.3.1.1 Background and ESD Prior Knowledge

Mrs Matt is an English teacher at a school in Otjozondjupa region. She has seven years' experience in teaching English Language and Social Studies. She says she joined the *Teach for ESD* programme because:

> *...at the time I was a member of the Environmental Club at the school and we do a lot of activities which includes a school gardening and the school gardening is under an organisation which is Namibia Environmental Education Network and through this platform we were introduced to the course or the training of Teach for ESD whereby certain teachers who are interested or who have an interest in environmental activities would apply to be equipped with information, knowledge and expertise on how to carry environmental*

activities at their schools. So, through Namibian Environmental Education Network we were introduced to this training. We applied and that is how we were selected for the training.

Prior to getting involved with the *Teach for ESD* programme, she had been integrating ESD but with no idea that she was doing so. She indicated that, "*after I have received the training that's how I came to realise which themes, which topics are Environmental Education topics"*. Mrs Matt's prior knowledge in ESD included: practising gardening, being a member of environmental club, integrating ESD into her lessons (even though she did not know she was doing so) and using firewood instead of electricity to cook at school.

Mrs Matt's school is situated in a semi-urban area and it's mostly attended by learners coming from surrounding farms. At the time of the observation, it consisted of 1543 learners from pre-primary to grade 7. The school operates from two premises of limited classrooms, the grade 5-7 learners are accommodated in the neighbouring school.

4.3.1.2 ESD Knowledge Scaffolded by NaDEET

Through *Teach for ESD* programme, Mrs Matt learned what ESD is and now defines it as: "*An idea of teachers being sensitive to environmental issues and environmental topics and making it a priority to integrate environmental education into their lessons and ensuring that learners are sensitized on the current environmental crisis as well as ways on how we can conserve and preserve our environment".* NaDEET scaffolded Mrs Matt's knowledge through The *Teach for ESD* Toolkit section 1 under the topic *Environmental Knowledge*, which explains that it is essential for educators to have a thorough understanding of the global crisis, climate change, land use change, pollution, water scarcity and biodiversity sub-topics, detailing how they are impacting different sectors in Namibia. Her ESD definition aligns with the Sustainable Development Goals (SDGs) as reflected in section 2.1 of the Teach for ESD Toolkit specifically goal 4, Quality Education focusing on Target .7 (see Section 2.2. in the Teach for ESD Toolkit).

Session 5 titled '*What is ESD?'* from the centre-based workshop also assisted her with understanding the ESD concept better as the more knowledgeable other, who was the facilitator during the workshop in this case, explained it during a presentation.

Apart from being able to define what ESD is, her EE/ESD knowledge in general also expanded during the period she engaged in the programme. She indicated that she has become aware of current environmental crises such as climate change, global warming and drought through the programme. She revealed that, "*I knew the definition of drought but just to go into detail…but now there is so much that I know."* She indicated that she has learned about the impacts of droughts, the long-term effects of repeated drought conditions, and factors that contribute to countries experiencing drought. The programme assisted her to have an in-depth understanding of drought through D3 that provided information on Environmental Crisis and Environmental Issues in Namibia. The two topics were also elaborated through a presentation during the centre-based training. Mrs Matt also reflected on a video that they watched by PBS News, titled Hothouse Earth. She said: "*through that video, my eyes were opened to see the problems that we are currently facing and if these problems are not controlled, where we will be in the next near future."*

Apart from the classroom knowledge or ESD integration in the lesson, Mrs Matt also learned how to get practical with ESD in her English Language classroom. She indicated that the *Teach for ESD* programme supported her as she gained more knowledge to explicitly integrate ESD into her English Language lessons by implementing activities outside the classroom that will enhance ESD teaching and learning to take place.

She narrated that:

> *we learned how to do composting, we also learned how we can improve our soil fertility and have living organisms in our soil that can improve the yield or outcome of our crops. We are also doing fireballs which is reducing waste whereby we take papers that learners throw away and from the dustbin and we are making fireballs whereby we are making a pulp, mixing papers with water and create fireballs that we are using to make fire at school because we have a school feeding programme. And these in a long run, we are saving electricity because instead of using electricity to cook food for the learners, we use these fireballs. Also, we are saving trees because in a place of electricity, our school usually buys firewood. So, in days where we are using fireballs, wood is not being used and electricity is also not being used* (T1TI3).

She has learned how to make fireballs during the workshop at NaDEET Urban Centre. The *Teach for ESD* Toolkit Section 3.2 and 3.4 has also assisted Mrs Matt with the guidance on how to grow healthy plants and ensuring that the soil is fertile.

Another way of implementing ESD that Mrs Matt said they have employed at their school and have adapted from the *Teach for ESD* programme is an *"environmental policy where learners are sensitising other learners on the importance of picking up rubbish and putting it in the dustbin and making use of the dustbins that are around the school."* She said she has drafted the policy with her colleagues using the guidelines from The *Teach for ESD* Toolkit section 3.6 Greening Leadership. The toolkit stipulated that *"we can create a common vision and develop a policy to guide our school's ESD initiatives"* (Keding and Volkmann, 2021, Toolkit 3.6., p. 6).

Even though Mrs Matt indicated that she has integrated ESD into her lessons before attending the *Teach for ESD* programme, she said that *"I came to realise already before the training I have been integrating ESD activities without knowing that I am doing so."* She did not know that she was integrating ESD into her lesson because she did not know what integration of ESD entails. Mrs Matt revealed that through the *Teach for ESD* programme she learned about the value of open discussions and intentional teaching. During the regional training workshop, they had a session where she learned teaching with an intention to make a change and having critical discussions that could help to solve a problem. She said:

> *I learned that it [an open discussion] is good when a problem such as environmental problem where each person contributes to say how it can be solved, everyone comes in with ideas so that people feel like it's a collective responsibility to change the problem* (T1TI3).

She added that:

> *One thing that I have learned is called intentional teaching where you just teaching not for the sake of teaching and completing your lesson but, teaching a topic because you want to change the thinking of a person and also because you want this person to make a reflection, to reflect on their life and also their everyday lives and see what they can change and how what they do can improve the environment* (T1TI3).

Mrs Matt revealed that, through the *Teach for ESD* programme, she has learned how to teach her learners by getting involved in the planning and also practically such as, *"coming up with water saving mechanisms, designing trap showers and so on."* Learners are also learning

through, *"celebrating environmental days such as World Water Week where the whole school is involved, different learners coming up with ideas on how to save water."* She narrated that the school had a competition, and learners were fully engaged, and it was a fun activity through which other learners also learned things that they did not know, such as how one can save water at home or at school. She indicated that learners are also taught through *"green nudges*[4] *around the school"* where awareness was raised, such as by having notices on 'Switch off the Lights', 'Use Container When Drinking Water', and 'Don't Litter'.

4.3.1.3 Summary of Mrs Matt's Accomplishment

This section summarises the preceding sections that present Mrs Matt's experience during the *Teach for ESD* training. The table 4.3 illustrates Mrs Matt's accomplishment and how it is linked to the *Teach for ESD* training. The attached resources to the Toolkit guides include manuals, videos websites, booklets, presentations, comics books, lesson plans, articles.

[4] Green nudges is a positive and gentle persuasion to encourage sustainable behaviour in education institutions (UNEP & GRID-Arendal, 2020). Behavioural science indicates that simple 'nudges' towards everyday greener decisions can help people develop sustainable habits and live more in line with their environmental values (ibid).

Table 4.3

Mrs Matt's Accomplishment

Accomplishment	Link to the *Teach for ESD* training
ESD knowledge	• Toolkit 2.2 & 2.2 Guides; • Workshop Session 5 (What is ESD)
Integration of ESD	• Toolkit 3.1 Guide • Workshop
Environmental Crisis	• Toolkit 1.2 (summary and resources) & 1.3 guides (summary and attached resources) • Workshop Session 1 (The Environmental Crisis) • Video (The Hot House Earth)
Water saving mechanisms; shower traps	• Workshop Session • Toolkit 3.3 (summary and attached resources)
Composting	• Toolkit 3.2 (summary and attached resources)
Fireballs	• Toolkit 3.3 (summary and attached resources)
Green nudges	• Toolkit 3.3 guide (summary and attached resources) • Handbook (The Little Book of Green nudges) (UNEP, GRID-Arenda & Behavioural Insights Team, 2020)
Environmental policy	• Toolkit 3.6 guide (summary and attached resources)
Awareness and Celebration of Environmental days	• Toolkit 3.5 guide (summary and attached resources
ESD teaching pedagogies (Open discussion, intentional teaching)	• Regional workshop

4.3.1.4 Mrs Matt's Suggestions for Teach for ESD

Mrs Matt suggests that all teachers be provided with *Teach for ESD* workshops and those that have gone through the *Teach for ESD* training get a continuous monitoring and evaluation just to ensure that they are being supported during the implementation of environmental education. Additionally, she proposed that the Ministry of Education, Arts and Culture, NaDEET and the teachers can work together to come up with more teaching materials specifically meant for junior primary or senior primary phase learners.

4.3.2 Mrs Tom's Experience

4.3.2.1 Background and ESD Prior Knowledge

Mrs Tom is a teacher at a school in Otjozondjupa region where she is teaching English Second Language grades 6 & 7. She has 12 years of teaching experience. She said that she decided to join the *Teach for ESD* programme because *"I have a love for nature and also I was curious to know what exactly was this NaDEET."* She also added that so that she can *"make change in the world especially with greening the world."* Mrs Tom indicated that when she was studying towards her teaching qualification at the college of education, she was involved in debating about environmental issues and they also had discussions on environmental issues and contemporary issues. These activities did not fully scaffold her ESD knowledge to be able to integrate it into her English Language lessons.

Mrs Tom's school is an isolated school located deep in the village where there are no houses or any other buildings nearby. Most of the learners come from far villages and are accommodated in the hostel. The school has 949 learners and 4 blocks of 4 classrooms.

4.3.2.2 ESD Knowledge Scaffolded by NaDEET

Through attending the *Teach for ESD* programme, Mrs Tom learned the importance of ESD. She emphasised that, *"we should equip our learners on different sustainable methods so that they are able to sustain themselves either in farming and so on."* She also highlighted that she became more knowledgeable on *"environmental issues and sustainability"* as she got to know about SDGs as she was presented with in-depth knowledge of SDGs during the centre-based training and by engaging with Toolkit 2.1 and 3.1 which provide extended resources about the SDGs.

She was inspired to plant a few trees at her school by the Green Belt Movement founder Wangari Maathai's videos that they watched during the centre-based training. In the video Maathai was giving a lecture when she received a Nobel Peace Prize in 2004 that she was awarded by the Norwegian Nobel Committee for contributing to sustainable development, democracy and peace. She was also guided by Toolkit 3.10 guide on how to plant trees and the importance of doing so; the toolkit section also has links to more videos of Maathai giving insight to Maathai's actions and stance as an environmental protector and change activist.

Toolkit 3.3 Guide raises awareness about the reduction of resources usage especially water and energy, this led Mrs Tom to install bulbs that save electricity. The same guide highlighted waste and litter management and helped her to decide to use recyclable papers to make fireballs. In order to sustain their activities that they implemented at their school, Mrs Tom said that, they have *"developed an environmental club that is taking care of the environment around here,"* which she adapted from the Toolkit 3.9 that provided a short summary and attachments (manuals and a presentation), and from presentations during the regional workshop training.

4.3.2.3 Summary of Mrs Tom's accomplishment

This section summarises the preceding sections that present Mrs Tom's experience during the *Teach for ESD* training. The table 4.4 illustrates Mrs Tom's accomplishment and how it is linked to the Teach for ESD training. The attached resources to the Toolkit guides include manuals, videos websites, booklets, presentations, comics books, lesson plans, articles.

Table 4.4:

Mrs Tom's Accomplishment

Accomplishment	Scaffold
ESD knowledge	• Toolkit 2.2 & 2.2 Guides • Workshop Session 5 (What is ESD)
ESD integration	• Toolkit 3.1 Guide • Workshop
SDGs	• Toolkit 2.1 & 3.1 Guides (summary and attached resources)
Fireballs	• Toolkit 3.3 Guide (summary and attached resources
Planted trees	• Toolkit 3.10 (summary and attached resources) • Workshop (Wangari Maathai's Video)
Energy-saver bulb installation	• Toolkit 3.3 Guide (summary and attached resources)

4.3.2.4 Mrs Tom's Suggestions for Teach for ESD

Mrs Tom proposes that NaDEET writes books that can be distributed to school libraries where learners can do more reading on environmental issues. She also believes that the programme (*Teach for ESD*) should also target young people rather than targeting teachers only to raise sustainability awareness among the youth. As a teacher who did not receive in-depth ESD training during pre-service teacher training, she recommends for the programme to be

incorporated within institutions of higher education to make it easier for the teachers coming from universities to already be aware or have more skills on how to integrate this into their lessons. Finally, she advises the programme be accredited.

4.3.3 Ms Londy's Experience

4.3.3.1 Background and ESD Prior Knowledge

Ms Londy teaches English Language for Senior Primary Phase at a school situated in Otjozondjupa region. She has five years of teaching experience. She said she got involved with NaDEET's *Teach for ESD* programme after they (NaDEET) *"sent an email"* to their school *"looking for volunteer who wanted to get involved with the Teach for ESD".* She narrated that she wanted to at least gain more knowledge about ESD in order to dispense it to the learners.

Ms Londy indicated that before the *Teach for ESD* programme she integrated ESD into her English Language accidentally because she did not know what she was doing was actually ESD integration, but, because it is part of the curriculum. She said that she has previously done reading comprehension activities on rhinoceros and listening comprehension about Arbor Day during her English Language lessons. She also indicated that her ESD knowledge was vague before getting involved with the programme.

Ms Londy teaches at a school in a refugee camp, her learners are refugees. The school accommodates 126 learners. The school has 6 blocks of 4 classrooms.

4.3.3.2 ESD Knowledge Scaffolded by NaDEET

Through the *Teach for ESD* programme, Ms Londy came to know that ESD involves information about Environmental Education and how to sustain the environment as well as protect it. She further indicated that she became more knowledgeable because she learned a lot of things that she didn't know or had little knowledge about especially the SDGs which she learned through centre-based training with the complement of the Toolkit and WhatsApp discussions.

Ms Londy narrated that during the centre-based training they were taught how to calculate their environmental footprint, where one calculates how much waste they produced, how much

electricity was used and how to manage that even at school level. She said that the Toolkit also provided her with further information regarding the environmental footprint calculation.

Similar to Mrs Matt and Mrs Tom, Ms Londy also expressed how the Teach for ESD programme aided her with recycling of papers and saving of energy through making fireballs and using them as a source of energy to cook. She narrated that making fireballs is interesting because they produce a lot of waste at school especially paper; one can turn waste into useful products rather than just being a waste product.

She also added that in the regional workshop and WhatsApp group for *Teach for ESD* programme, she learned a new way of integrating ESD, for example, teaching learners through doing practicals to help them learn better and sometimes done outdoors. Some of the activities that she said she implemented at her school include *"the nudges"* they do at school *"to save water and electricity"* and the environmental club that she started in order to monitor the activities.

4.3.3.3 Summary of Mrs Londy's accomplishment

This section summarises the preceding sections that present Mrs Londy's experience during the *Teach for ESD* training. The table 4.5 illustrates Ms Londy's accomplishment and how it is linked to the *Teach for ESD* training. The attached resources to the Toolkit guides include manuals, videos websites, booklets, presentations, comics books, lesson plans, articles.

Table 4.5:

Ms Londy's Accomplishment

Accomplishment	Scaffold
ESD knowledge	• Toolkit 2.2 & 2.2 Guides • Workshop Session 5 (What is ESD)
ESD integration	• Toolkit 3.1 Guide • Workshop
SDGs	• Toolkit 2.1 & 3.1 Guides (summary and attached resources)
Fireballs	• Toolkit 3.3 Guide (summary and attached resources
Environmental footprint counting	• Toolkit 3.3 Guide (summary and attached resources
Green nudges	• Toolkit 3.3 guide (summary and attached resources) • Handbook (The Little Book of Green nudges)
Environmental club	• Toolkit 3.9 Guide (summary and attached resources)
Teaching outdoors through practical	• Regional workshop

4.3.3.4 Ms Londy's Suggestions for Teach for ESD

Ms Londy advocates for NaDEET to develop *Teach for ESD* materials specifically for English Language to be used by English Language teachers to teach the learners rather than having common items that all teachers are using across all subjects when they are teaching. She adds that it would be much better with more and tailored information. She says currently there are broad materials that only touch on some topics like deforestation just maybe the definition, and that if there was something else that the teachers can use to stimulate the learners during the English lessons to provide them with more information that it would be appreciated.

4.4 The English Language Teachers' Classroom Practice

In this section, I present the data generated from the three teachers' lesson plans, the lesson observation notes when I observed their lessons, and the follow-up interviews. From the lesson observations, I witnessed the interaction between the teachers and their learners, how they approached teaching the specific topic that they had chosen, and how the employed representations to teach specific topics they had chosen as highlighted by Mavhunga and Rollnick (2013). The written lesson plans helped me to understand the intention and flow of each lesson and offered insights into pedagogical design elements of a lesson that can be difficult to observe, such as the focused skill, the topic, basic competencies being developed,

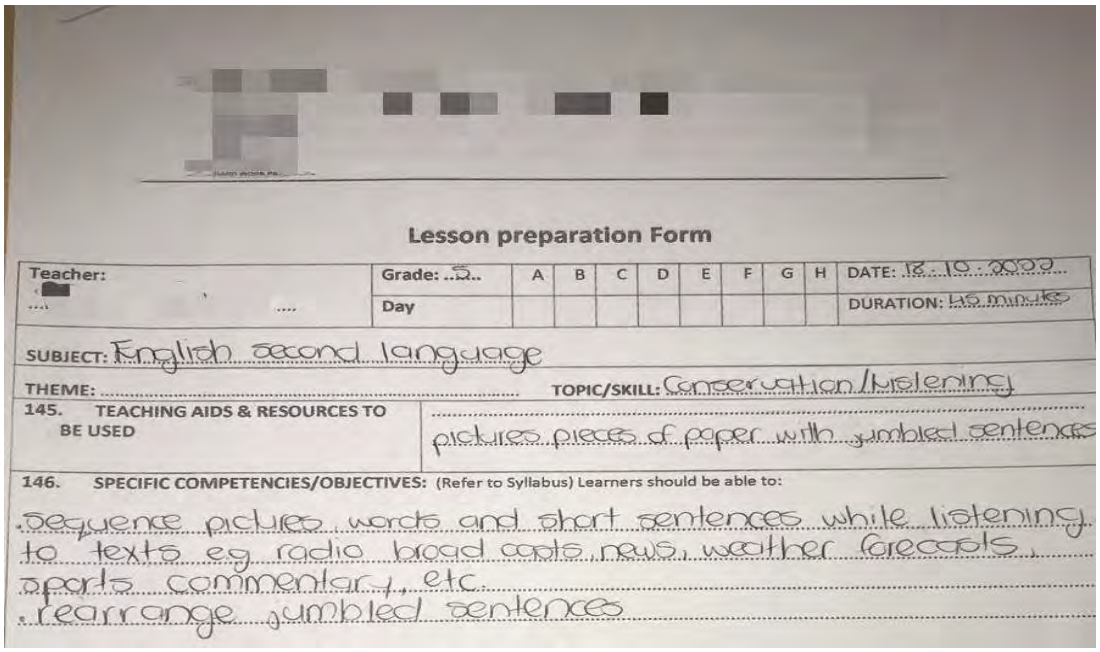
amongst other things. The follow-up interviews were made to corroborate the research findings collected during the lesson observation and to get the teachers' personal reflections on the lesson and its relationship to ESD. In Chapter 5, this data will be analysed in more depth from the vantage point of Mavhunga and Rollnick's TSPCK. English Language teaching focuses on the development of language skills that should be achieved through integration of suitable topics. In the three lessons that I observed, the teachers focused on the appropriate language topics and the ESD focus integrated into the lesson.

4.4.1 Mrs Matt's Practice

I observed one English language lesson of Mrs Matt's. A class of 41 learners which was followed by a reflective interview later on the same day. Her learners were making fireballs that afternoon after school hours. Before the lesson started, Mrs Matt handed me a copy of her lesson plan which described the components of the lesson as shown in Figure 4.7.

Figure 4.7

Mrs Matt's Lesson Plan Extract



Lesson preparation Form

Teacher: [redacted]

Grade: 5 | A | B | C | D | E | F | G | H | DATE: 18.10.2022

Day | DURATION: 45 minutes

SUBJECT: English second language

THEME: | TOPIC/SKILL: Conservation/Listening

145. TEACHING AIDS & RESOURCES TO BE USED: pictures pieces of paper with jumbled sentences

146. SPECIFIC COMPETENCIES/OBJECTIVES: (Refer to Syllabus) Learners should be able to:

. Sequence pictures words and short sentences while listening to texts eg radio broad casts news, weather forecasts, sports commentary, etc.

. rearrange jumbled sentences

The topics of the lesson were Conservation and Listening, and when asked what informed the topic she chose in a listening skill lesson she stated that:

> *I, since I-I went through the training of Teach for ESD, I feel compelled to integrate Environmental Education topics or themes into my lesson, so as I was planning to teach my learners the skill of listening, I decided to-to get a topic based on Environmental Education and I chose Conservation because it's my responsibility as a Teach for ESD*

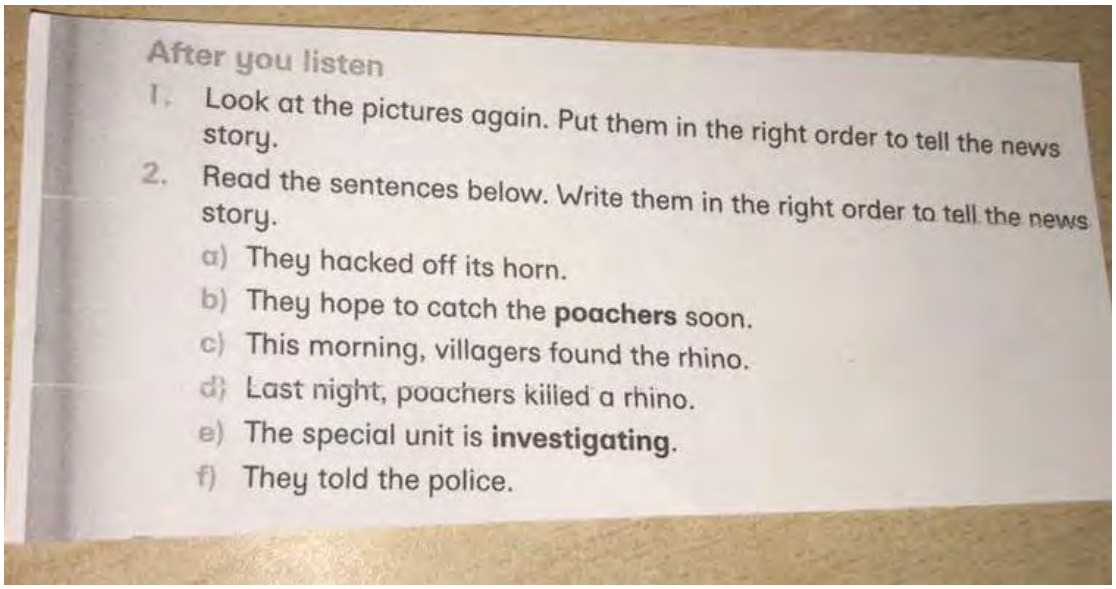
agent to sensitize learners on Environmental Education topics and this was one way I could do it through my listening lesson. (T1TI3)

From Mrs Matt's response it can be deduced that she understands her role as a teacher with ESD awareness to integrate it in her English Language lessons. She is also aware of EE/ESD topics that one can integrate in order to raise EE/ESD awareness among the learners.

As indicated on the lesson plan and seen during the lesson presentation, Mrs Matt used flash cards during the introduction and pictures for lesson presentation and handouts (see Figure 4.8) with six sentences.

Figure 4.8

Learners' Activity



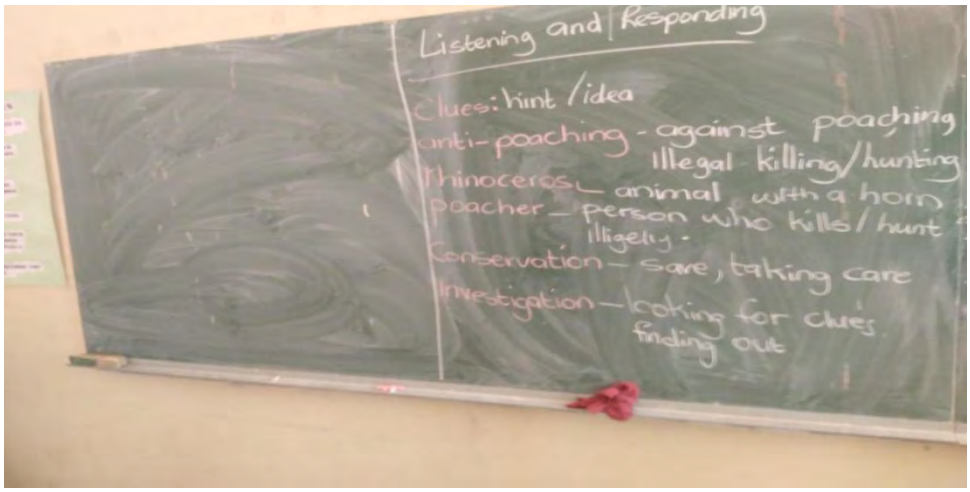
Ms Matt started her lesson by writing *Listening Comprehension* on the chalkboard. She then asked the class what they are going to do for the day and one learner responded that they are going to listen to the teacher and then respond to the questions. She affirmed adding that she is going to read something to the class and they are going to respond to it. During the interview I asked Mrs Matt how she elicited her learners' prior knowledge. She responded:

I chose to give my learners words which I used in the reading text. So, I gave these words to learners that I grouped in groups and the reason I gave them words is I wanted them to use their knowledge that they know about these certain words so that they can define the words and also tell me the meaning of these words. (T1TI2)

This was reflected in her lesson when she gave them flash cards with words and instructed the learners to discuss the meanings of the words in their group; these words are also used as the important concepts (big ideas) holding the topic of this lesson. The flash cards were written: *clues, anti-poaching, rhinoceros, poacher, conservation, investigation*. She then asked the learners to give the meanings of the words as they discussed in their groups. As the learners gave the meanings, she elaborated or corrected them if they are wrong. They came up with final meanings as shown in Figure 4.9 below and Mrs Matt wrote them on the chalkboard.

Figure 4.9

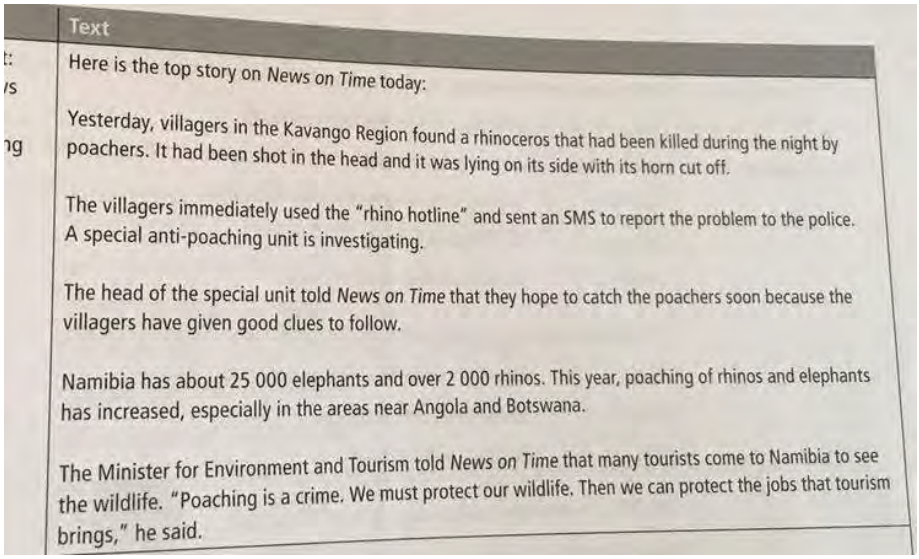
Definitions of the Important Concepts



Mrs Matt proceeded to read the article to the class in the Figure 4.10 about poaching.

Figure 4.10

Article Used for Listening Comprehension



Text

Here is the top story on *News on Time* today:

Yesterday, villagers in the Kavango Region found a rhinoceros that had been killed during the night by poachers. It had been shot in the head and it was lying on its side with its horn cut off.

The villagers immediately used the "rhino hotline" and sent an SMS to report the problem to the police. A special anti-poaching unit is investigating.

The head of the special unit told *News on Time* that they hope to catch the poachers soon because the villagers have given good clues to follow.

Namibia has about 25 000 elephants and over 2 000 rhinos. This year, poaching of rhinos and elephants has increased, especially in the areas near Angola and Botswana.

The Minister for Environment and Tourism told *News on Time* that many tourists come to Namibia to see the wildlife. "Poaching is a crime. We must protect our wildlife. Then we can protect the jobs that tourism brings," he said.

After reading the article, she gave the learners pictures in groups (see appendix N).

Mrs Matt used pictures as part of representations to enhance the learners' understanding of poaching. She then told the learners that the pictures are about the article she read but they are not in the correct order and asked learners to put them in chronological order according to how she read the article. She said, "*You can put numbers, you are allowed to put number. A-a-a-a don't put numbers is fine. Just see how you will arrange your pictures. I must see how you have arranged them."* Learners started discussing the meaning of the words in their groups which allowed Mrs Matt to identify misconceptions.

Mrs Matt then pasted the pictures on the chalkboard.
Mrs Matt: Are we done? That was a very fast activity if you were listening.
Mrs Matt: Are you still not done?
Some learners: Mrs we are done.
Mrs Matt: For each group I am only going to ask you only one should stand and tell us which one is the first and so on.

She told the learners she could see people surrounding a rhino in picture 1 and then asked the class what they could see in the other pictures. The learners said in picture 2 there is a man behind the bushes with a gun looking at the rhino, they assumed it's a poacher. Picture 3 there is a man holding a cell phone and picture 4 people cutting off the horn of a rhino. Picture 5 the rhino is alone at night.

Mrs Matt asked which picture fits being number 1 until number 5. Learners rearranged the pictures and giving the answers orally. Their answers were:
Picture1: A rhino alone at night
Picture 2: A man behind the bushes looking at the rhino
Picture 3: They are cutting off the horns of the rhino
Picture 4: People surround a rhino/village people looking at the poached rhino
Picture 5: The man with a cell phone calling/messaging the police/anti-poaching unit

For the last activity, the teacher now asked learners to arrange the sentences they were given on pieces of paper in the correct order (see figure 4.7, no. 2). Individual learners were asked to read the sentences aloud first before they did the activity.

Post the lesson observation, I asked Mrs Matt what conceptual strategy she had employed in her lesson to ensure that learners acquired the conceptual understanding. She responded that:

> *The central methodology that I used was collaborative learning because all the activities were being done in groups, starting from the activity that was done in the introduction part which was where learners were to discuss the meaning of the theme, coming to learners rearranging pictures based on the text and again working on the sentences, putting the sentences in order, all the activities were done in groups and I would say the other methodology that I used is discussion where I would add on the responses that learners would give or where I would rephrase or paraphrase myself so just to encourage learners to think deeper and have a different perception of what I wanted them to achieve and so on.* (T1TI2),

Since this is an English lesson where competencies are based on skills, Mrs Matt revealed in the interview that the topic (Conservation) she chose to integrate in her lesson, has assisted her to achieve her basic competency of the lesson by reading an article and letting her learners rearrange the pictures in chronological order. The basic competency as reflected on the lesson plan is that:

- Learners should sequence pictures, words or short sentences while listening to text e.g., radio broadcasts, news, weather forecasts, sport commentary, etc.
- Rearrange jumbled sentences.

Apart from the teaching aids that she used during that specific day, Mrs Matt also gave an account of teaching aids she employs in other lessons when integrating ESD. She narrated:

> *I vary from depending on the nature of the lesson the skill for the day, like for today My very first lesson on ESD was a listening text but later on I also aided with a video that I got through my workshop Teach for ESD. Sometimes I would make copies from the, we-we have a lot of resources that we got from the workshop, and they are arranged according to different themes that one can teach. I would make copies from this book if it's a topic for example, Climate Change, I would find a text and then make copies from these books because these books have right information and the information is also current, it's not outdated. So ya, either I use the toolkits or I would use the videos that I have, I have videos on my USB that were loaded during the workshop, or I would download pictures from the internet if the topic that I want to use is limited, media, it depends* (T1TI2).

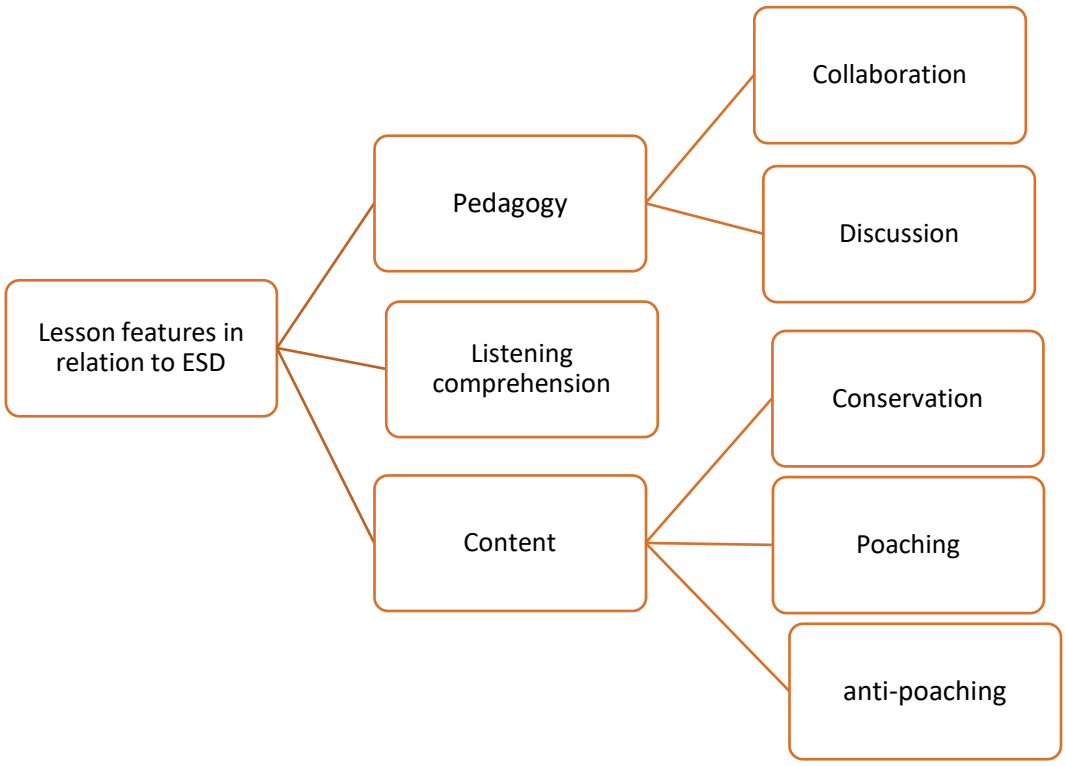
I posed this question because I wanted to know the concrete support she employs when she scaffolds explanations of difficult concepts. Mrs Matt revealed that as she was planning for the lesson, she faced challenges of determining concepts that might be difficult to the learners. She said that:

> *I went through the text that I have chosen to read for the learners, I had to imagine which words might not be familiar to the learners. So, there I was a bit struggling to determine which words are those because sometimes we do not really know how far are the learners' prior knowledge when it comes to certain things but ya that is one of the challenges.* (T1TI2).

In the end Mrs Matt felt her lesson was moderately successful and she was satisfied with it because the lesson connected very well with learners' prior knowledge. She also indicated that there were a few learners who had no idea what certain words (concept) meant, of which she indicated that it is okay because learners will always have different levels of understanding.

Figure 4.11

Mrs Matts' Lesson Features in Relation to ESD



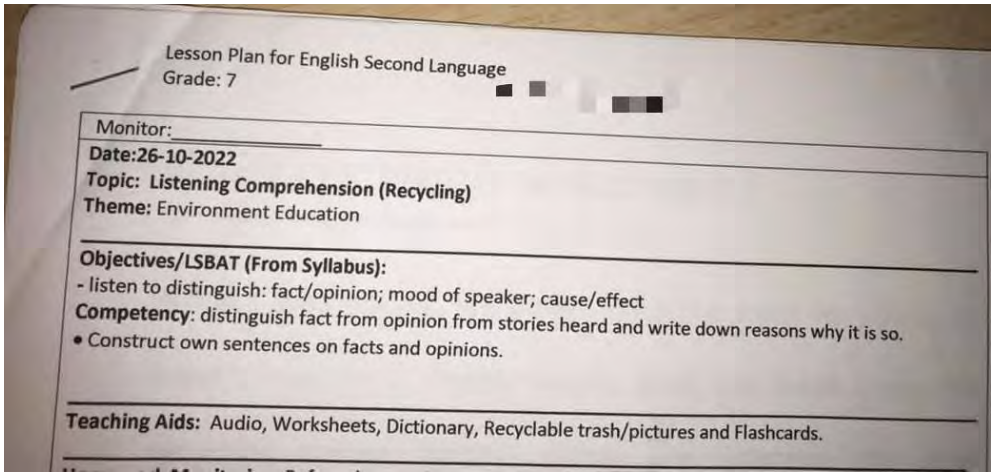
4.4.2 Mrs Tom's practice

I observed one lesson of Mrs Tom's English language class of 39 learners which was followed by an interview immediately after the lesson.

Mrs Tom's lesson plan indicated that the topic for her lesson is Listening Comprehension (Recycling) and the theme is Environmental Education (see Figure 4.12 for an extract from Mrs Tom's lesson plan).

Figure 4.12

Mrs Tom's Lesson Plan Extract


Lesson Plan for English Second Language
Grade: 7

Monitor:

Date:26-10-2022

Topic: Listening Comprehension (Recycling)

Theme: Environment Education

Objectives/LSBAT (From Syllabus):

- listen to distinguish: fact/opinion; mood of speaker; cause/effect

Competency: distinguish fact from opinion from stories heard and write down reasons why it is so.

• Construct own sentences on facts and opinions.

Teaching Aids: Audio, Worksheets, Dictionary, Recyclable trash/pictures and Flashcards.

I asked Mrs Tom what prompted her to choose to integrate the topic of Recycling in her Listening Comprehension lesson. She responded that,

> *We live in the environment or area where there are no recycling companies or recycling bins then I thought of learners could be aware of what items can we reuse or reduce or recycle ourselves in our small community in which we live* (T2TI2).

Mrs Tom started the lesson by showing learners different materials, she allowed them to circulate the materials so that all the learners can touch and feel them. She also asked learners to observe if *"there are any labels and logos on the materials"* (T2V). Some of the materials were: an empty coffee container, empty 2 litre cooldrink bottle, empty 30 eggs tray, empty milk paper container and empty bean tin. She then pasted on the chalkboard three labels/flash cards (Reduce, Reuse, and Recycle) which she used as important concepts learners need to

understand. She gave learners dictionaries to look up the meanings of the words on the labels. When I asked Mrs Tom why she used these teaching aids, she responded that ideas were from the toolkit that she received from NaDEET as part of the *Teach for ESD programme*. She added that the toolkit guided her in planning and presenting the lesson. She mentioned that she experienced challenges in collecting items especially metallic objects though she had a lot of papers. One can be faced with teaching aids challenges especially in her case as the school is situated deep in the remote areas and it is so isolated. I further asked her the type of teaching one can use when teaching ESD integrated lessons, her response was: *"One could possibly use a lot of items like pictures, objects and flash cards and also worksheets that will guide the learners"* (T2TI2). I engaged these questions because teaching aids are crucial as they help with learners' understanding of the concepts they might struggle to understand.

Mrs Tom then wrote *Listening Comprehension* on the chalkboard. Under that, she wrote the words reduce, reuse and recycle with the meanings given by the learners. She elaborated on the responses received from learners to write up the final definitions on the chalkboard as shown in figure 4.13.

Figure 4.13

Mrs Tom's Lesson on Recycling

Commenting on how she elicits her learners' prior knowledge, during the interview, Mrs Tom revealed that she was eliciting her learners' prior knowledge in order to know what learners already know and identify misconceptions they might have regarding the topic of recycling. Further adding that:

I started with is starting from the known to unknown, the dictionary work where they had to get the different meanings of words so that they will understand what the words meant. And also, that they had to feel some of the objects that could be used to recycle or reduce. (T2TI2).

Continuing with the lesson, she told the learners that the class will do a Listening Comprehension activity on recycling by listening and filling in the missing words in the text. She told the class that after the Listening Comprehension, *"we are going to try to see if we can recycle some of the items that we have here in class, whether we can recycle or reuse them."* Mrs Tom distributed the answer scripts (the text with missing words) to the learners and read the text with missing words aloud before learners listened to the full text. She then played the tape recorder (she did not provide the source of the script) and then learners completed the activity while listening to the tape recorder. After the Listening Comprehension activity, Mrs Tom instructed learners to get into four groups. She then asked one volunteer from each group to go in front and pick one label (metals, plastics, paper & glass) and paste the label on a box, which they took back to their groups. Mrs Tom then asked learners to collect items that went with the label that was chosen by the volunteer in their group, with the following instructions:

You are going to collect items from our plastic of trash there that I will circulate in the class. You collect items that you think you can recycle in your group. You can make something new from that…and then we come for presentation of what you created from your materials. Some of your groups, you are so tough luck we could not get enough materials for them but the few that you have, think of what you can do. (T2V).

Learners got started into their groups and created new items. The teacher then called for presentations. This is what the groups made out of their items:

- Metal group: Made a cup out of a beans tin with a paper handle; a *blompot* (flowerpot) made out of a coffee container; a spoon out of a certain metal; and they have also claimed that they have made a padlock but it seems like they only took it as it is and covered it with a red paper.
- Glass Group: Made a jar out of mayonnaise glass bottle with a red paper handle.
- Plastic Group: Made a cup out of a 1.5 litre cooldrink bottle that was cut in a size of a cup; a pot plant made out of a 2 litre cooldrink bottle; and a waterproof coat made out of a plastic carry bag.

- ✧ Paper Group: Made a house out of a box of photocopier paper with a roof made out of a 30 eggs tray; a cupboard made out of a box of teabags covered with a red paper; and a bed made out of a cereal box covered with a red paper.

The activity Mrs Tom gave her learners stimulated their creativity as she allowed them to practice what they are taught about recycling, reuse and reduce. It also allowed her to identify misconceptions and what was difficult to understand. This activity concluded the lesson.

When asked to share how the integration of the topic, recycling helped her achieve the basic competencies of Listening Comprehension skill, Mrs Tom said:

> *Learners were able to use their hands in a construction of items or even going into a stage where they have to think and analyse what they could make out of certain products. So, that have led to the competency of them experimenting* (T2TI2).

Her answer seems to be not connecting to the basic competencies she had in here lesson plan because in her lesson plan she wrote that the basic competencies are:

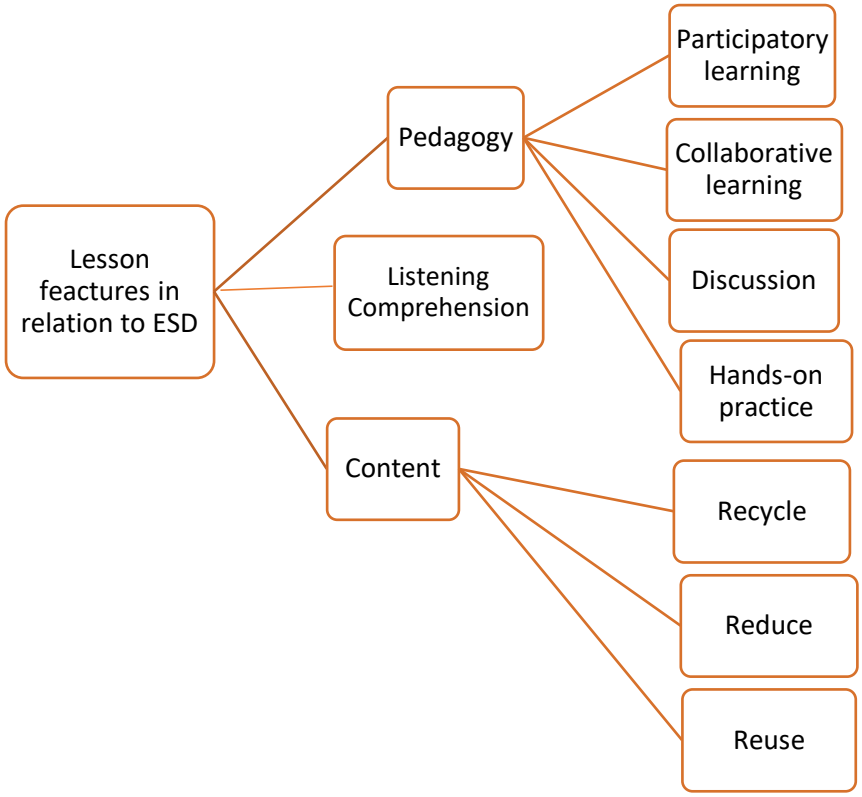
- Learners will be able to distinguish fact from opinion from stories heard and write down reasons why it is so.
- Learners will be able to construct own sentences on facts and opinions.

Looking at her lesson delivery, the lesson did not focus on facts and opinion as her competencies stated. When I asked Mrs Tom the type of methodology she selected for this lesson she said that learners "*were involved group work where they had to do task as a group"* (T2TI2). Meaning that she employed cooperative learning, whereby learners work together to complete lesson activities.

The diagram below visually summarises Mrs Tom's lesson.

Figure 4.14:

Mrs Tom's Lesson Features in Relation to ESD

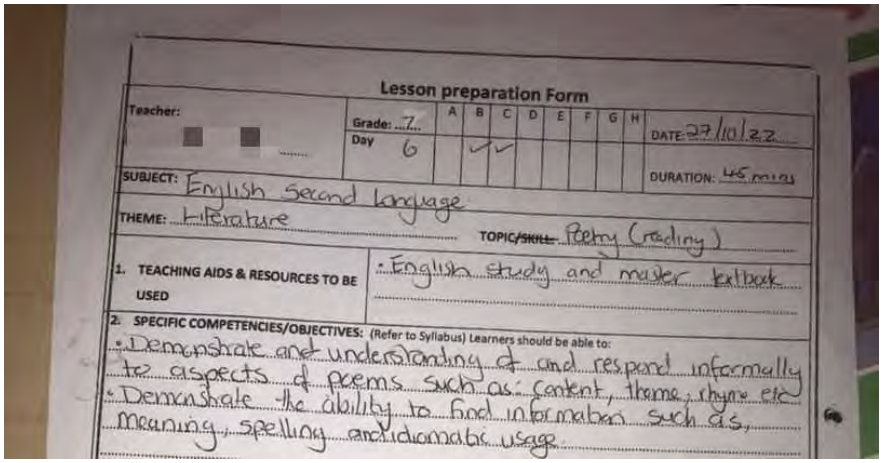


4.4.3 Ms Londy's Practice

I observed Ms Londy's Grade 7 class that consisted of 39 learners and had the interview after school hours so as not to disturb her other teaching responsibilities. She gave me a copy of her lesson plan before the lesson started. Figure 4.15 shows an extract from the lesson plan.

Figure 4.15

Ms Londy's Lesson Plan Extract



Lesson preparation Form

Teacher: [redacted]

Grade: 7 Day 6 | A B C D E F G H | DATE 27/10/22

SUBJECT: English Second Language | DURATION: 45 mins

THEME: Literature | TOPIC/SKILL: Poetry (reading)

1. TEACHING AIDS & RESOURCES TO BE USED: • English study and master textbook

2. SPECIFIC COMPETENCIES/OBJECTIVES: (Refer to Syllabus) Learners should be able to:

• Demonstrate and understanding of and respond informally to aspects of poems such as: content, theme, rhyme etc

• Demonstrate the ability to find information such as, meaning, spelling and idiomatic usage

During the interview I asked her what informed her choice of topic to integrate ESD in her lesson. She replied that:

> *I saw that this was the great opportunity to talk about trees because I know that Arbor Day normally takes place in October every second Friday of October. So, it was going to be a good opportunity to talk about it at the right time of the year normally it happens*. (T3TI2).

Ms Londy decided to keep up with current affairs when she chose the topic, so that when it is finally Arbor Day, the learners are already familiar with the concept. Although the English language topic indicated in her lesson plan is poetry.

As we engaged in our interview, I asked her the methodology she used in the lesson and she responded that:

> *I prefer the learner-centred approach whereby the learners give as much information as they can but also being authority figure in the class to facilitate the lesson. So, I use the learner-centred approach method.* (T3TI2).

In addition, I asked Ms Londy to share the types of teaching aids she uses when integrating ESD into her teaching lesson. She responded:

> *I do use articles sometimes that you would find in the textbook based on the topic that we are addressing especially nowadays we have these topics that address Teach for ESD or Environmental Education. So those ones that we find in the textbooks or some that I find in*

the newspapers. Sometimes I also use videos where I can because we do have a projector. (T3TI2).

Teaching aids help the teacher to explain the concepts and also assist learners to understand the topic or concepts involved better.

Ms Londy started the lesson by telling the class that the lesson of the day is "*Reading and Understanding a Poem" (*T3V). After telling the learners the lesson of the day, she asked her learners to *"list all the things the trees give us"* (T3V). She then proceeded to ask what Arbor Day[5] is before the learners listed the benefits of trees. One learner answered that, *"is a day when people plant trees".* She affirmed the answer. Ms Londy asked the learners again to list the benefits of trees saying, "*you should mention all the benefits we get from the trees"* (T3V). The learners listed: oxygen, fruits, shade, wood for making firewood, building materials and medicine. The teacher noted them on the chalkboard. Both questions on Arbor Day and benefits of trees were used to elicit learners' prior knowledge, to identify what they already know and any misconceptions they might have about the topic. She later reflected during the interview that she asked the questions because she had already taught them about Arbor day, and she wanted to build on that lesson before introducing the new lesson. As shown below:

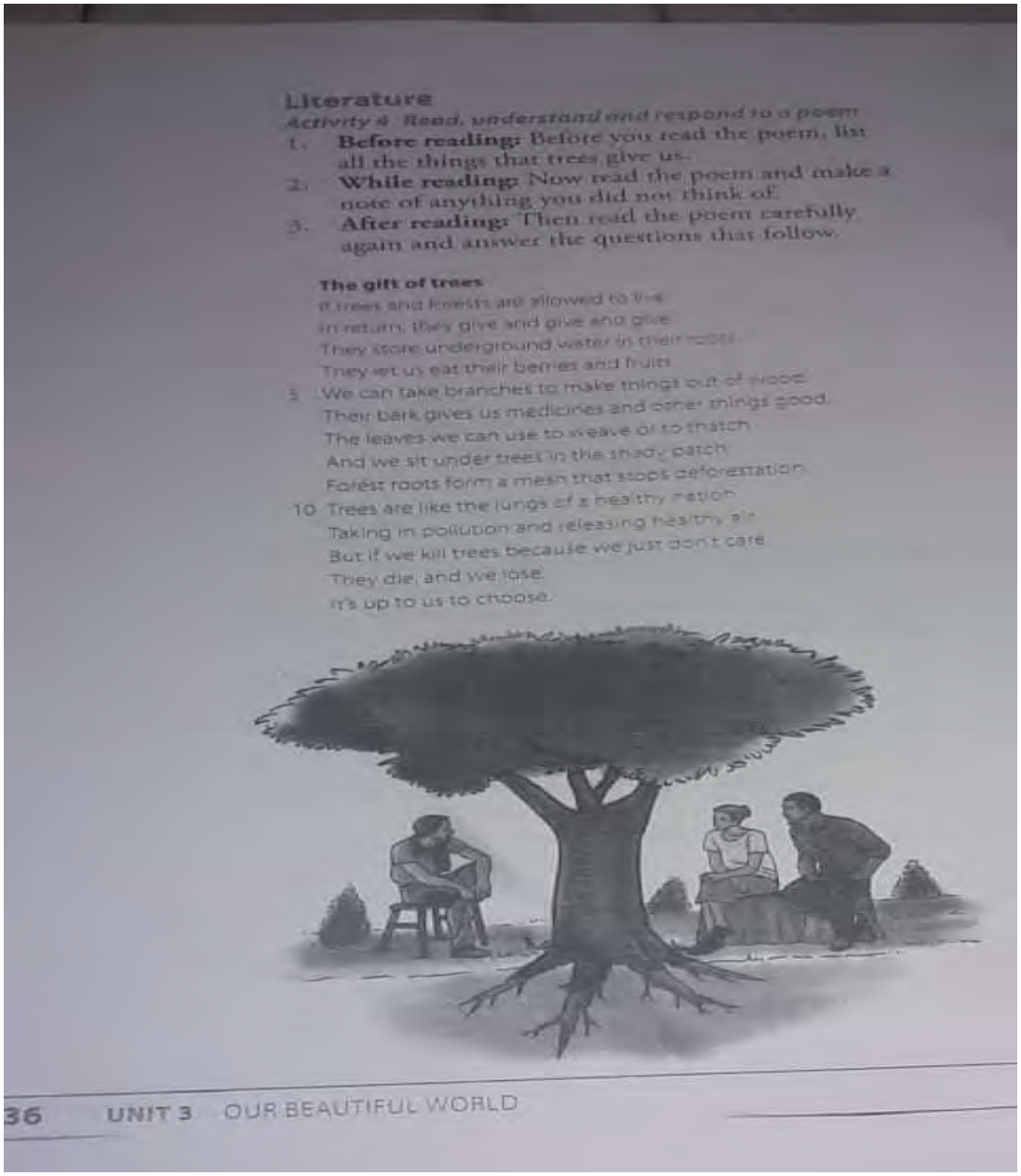
Coming to this lesson we had already done a Listening about Arbor Day, so this one I was just trying to get them to remember because they are linked, the poem and the Arbor Day [lesson] that we did. (T3TI2).

Ms Londy continued reading the instructions of 'While Reading' activity, *"Now read the poem and make a note of anything you did not think of"* (T3V). She read the poem (Figure 4.16) aloud while learners were following in their textbooks.

[5] As highlighted in Chapter 1, Arbor Day is the day that people around the globe celebrate the preservation and planting of trees.

Figure 4.16

A Poem (The Gift of Trees)



Literature

Activity 4 Read, understand and respond to a poem

1. **Before reading:** Before you read the poem, list all the things that trees give us.
2. **While reading:** Now read the poem and make a note of anything you did not think of.
3. **After reading:** Then read the poem carefully again and answer the questions that follow.

The gift of trees

If trees and forests are allowed to live
In return, they give and give and give
They store underground water in their roots
They let us eat their berries and fruits
We can take branches to make things out of wood
Their bark gives us medicines and other things good
The leaves we can use to weave or to thatch
And we sit under trees in the shady patch
Forest roots form a mesh that stops deforestation
Trees are like the lungs of a healthy nation
Taking in pollution and releasing healthy air
But if we kill trees because we just don't care
They die, and we lose
It's up to us to choose

36 UNIT 3 OUR BEAUTIFUL WORLD

After Ms Londy has done reading the poem, in response to question 2, the learners added: Weaving (baskets), purify the air, store water in their roots and their roots form a mesh to stop deforestation. Ms Londy then asked, *"do you think trees are important?"* (T3V), learners replied that they are important. Ms Londy wrote the benefits of trees on the chalkboard as they were discussed in class and used the chalkboard notes to explain the benefits of trees to human beings. She asked another question, *"are we taking care of the trees though, I mean if you look here in [town], just when you look outside, what is going on? Do we have trees?"* (T3V). When

learners responded that there were no trees, the teacher asked why. One learner responded by saying, *"they are cutting,"* while another one said, *"they are cutting for firewood"* (T3V). Ms Londy added that at the end of the day the cutting down of trees for firewood might affect them in a negative way and there will be none of the benefits listed on the chalkboard. She asked, *"what happens to us then?"* (T3V) the learners responded, *"we will die"* (T3V) she added, *"so the trees are the lifeline"* (T3V).

Ms Londy read the instructions of 'After Reading' activity, *"Then read the poem carefully and answer the following questions"* (T3V). She then delegated one learner to read the poem aloud as others were following in their textbooks. The teacher then started with the questions.
Ms Londy: "*What word is repeated in line 2?"*
A learner responded: *"the word give"*
Ms Londy*: "How does that repetition help to show trees are so beneficial to people? Why do you think they keep repeating the word give and give and give? What are they trying to do?"*
A learner: *"Because they give us life."*
(Ms Londy seems not satisfied with the answer and posed a follow-up question)
Ms Londy*: "Yes, but why are they repeating the word 'give'?"*
A learner: *"Because they repeat it, because they are used by many generations."*
Ms Londy then emphasised by saying, *"basically they are trying to show the importance of what trees give us, they are trying to emphasise that trees are always giving us and they are beneficial to us"* (T3V). Ms Londy continued, *"C. List eight ways that trees help people according to the poem"* (T3V). The teacher instructed learners to read line by line, starting from the first line and spot out the answers. The learners listed: fruits and berries, wood (branches), medicine, shade, oxygen, store underground water in their roots, leaves to weave baskets and form a mesh to avoid deforestation. They were not noted on the chalkboard as they are already written there. Ms Londy, *"D. Explain in your own words what deforestation means in line 9. Line 9 says 'Forest's roots form a mesh that stops deforestation',"* (T3V). One learner responded, *"When people cut down trees."* Ms Londy seems not satisfied and asked if someone can help the respondent, but then no one said anything. She then proceeded to ask, *"What is it called cutting down trees and not replacing them?"* (T3V). Still nobody said anything, she then said, *"basically, deforestation is cutting down trees without replacing them, when we are destroy the forest"* (T3V). She gave an example of the area where the school is located that there must have been a forest even if it was not a big one but people have cut down trees and never replaced them. She then asked an additional question as to what solution do people have

to cutting down of trees. Learners responded that, *"they should plant more tree"* (T3V). Ms Londy asked, "What is the day of planting trees called?", to which learners responded that it is called Arbor Day. She explained that people cut down trees because they need firewood and to build their houses but they do not realise that they are finishing all the trees and they might end up dying one day if there are no more trees, and *"that's why they came up with Arbor Day to encourage planting of more trees"* (T3V). Ms Londy, *"F. What is the simile in line 10? Start the answer with trees are compared to…"* (T3V). One learner answered, "*to lungs of a healthy nation"* (T3V). She asked again *"Why are they compared to the lungs of a healthy nation?"* One learner said, *"because they give oxygen,"* (T3V). Ms Londy emphasised that *"trees take in carbon dioxide and release oxygen, and oxygen is the one that we need, so basically they purify the air around us."* Ms Londy, *"G. Explain why this poem is a sonet, use a dictionary if you do not know the answer. Anyone who knows what a sonet is?"* (T3V). She then delegated one learner who had a dictionary to find the meaning of the word sonnet. She assisted him to find the word, he then read out the meaning aloud, *"is a poem of 14 lines"* (T3V). Ms Londy confirmed that the poem has indeed 14 lines. Ms Londy, *"H. How is the length of the last two lines different from the rest of the poem?"* (T3V). The learners answered, *"they are short"* (T3V). She asked again *"How does that help us to differentiate from the rest of the poem? Why do you think they are short?"* (T3V). She the read the two lines *"The guide and; It's up to us to choose."* One learner answered,*"they try to advise"* but Ms Londy sounds not satisfied, *"but why do you think they are made short in literature?"* (T3V), but no one said anything and she then said that:

> *we have a choice and if we are not acting now, our lives will be short, short like these line. Either one chooses to lose and die by continuing cutting and causing environmental damage or you are going to stand up acting right so that we can live longer. We need to encourage that.* (T3V).

Ms Londy, *"H. What is the choice that we have in line 14?"* (T3V). One learner responded, *"to take care of trees,"* the teacher then added that, *"it is up to us to take care of trees or just be careless and die."* The teacher, *"J. Give the rhyme scheme of the poem"* (T3V).

The class with the teacher came up with the rhyme scheme:

Live A

Give A

Fruits B

Roots B

Wood C

Good C

Ms Londy concluded the lesson by asking learners what they learned from the poem. One learner said that she learned to stop cutting down trees, another said that they must avoid cutting trees because they give energy and another one said that *"encourage us why we should take care of trees"* (T3V). She also asked how many learners planted trees and which trees. Some of the trees that learners said they planted were: moringa, lemon, orange and mango. She then wrapped up the lesson by saying that the main word was deforestation which is cutting down trees and it is very important to keep trees not only for now, but for future generations too.

After the lesson observation, Ms Londy had this to say about the topic she chose in integrating ESD to achieve the competencies of the lesson, "*it assisted me, it helped me a lot because it helped me to reach the objectives that I wanted to for this lesson"* (T3TI2). Ms Londy's lesson competencies were:

- Learners should be able to demonstrate and understanding of and respond informally to aspects of poems such as: content, theme, rhyme, e.t.c
- Learners should should be able to demonstrate the ability to find information such as, meaning spelling and idiomatic usage.

Commenting on how the *Teach for ESD* programme influenced the planning of her lesson, Ms Londy said:

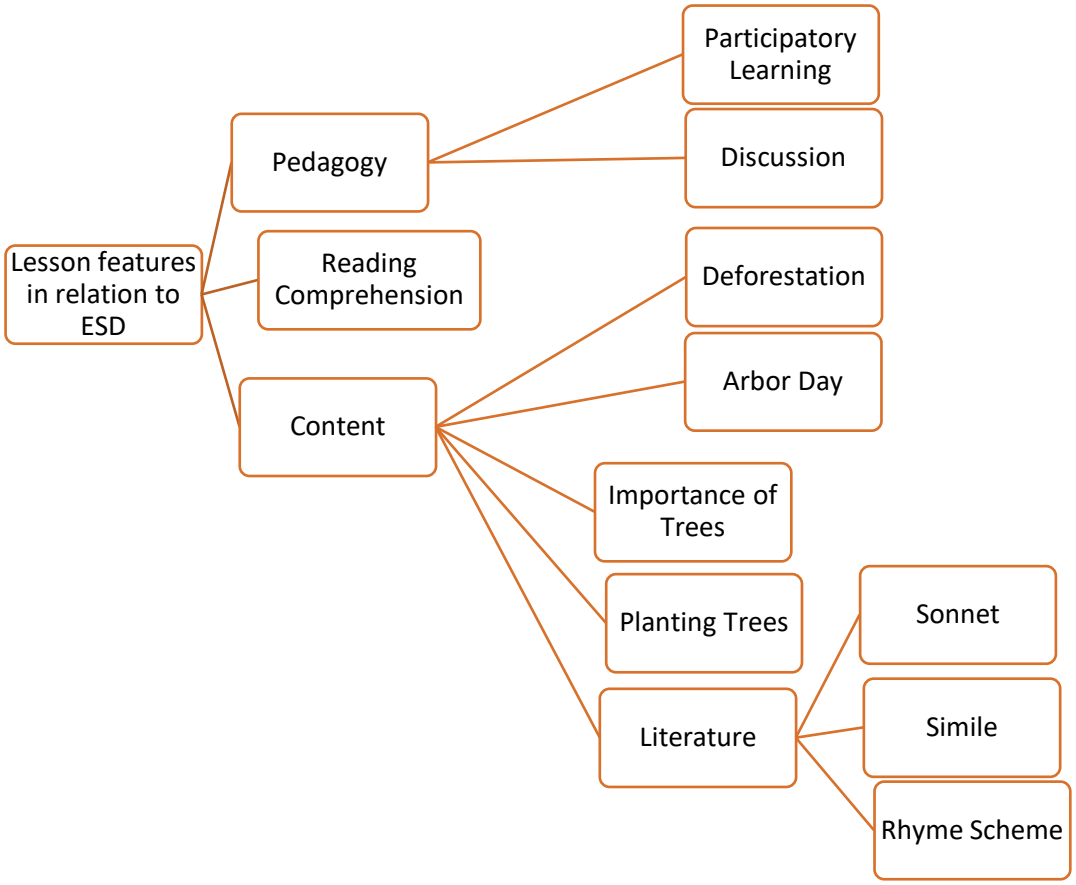
> *To a great extent because normally sometimes before I went for this Teach for ESD course, I just taught these ones because I thought they were part of the curriculum but now knowing that we are addressing these topics in our English lessons as well but more influenced by Teach for ESD. So, it really helped to a great extent.* (T3TI2).

She reflected that she is now teaching from a knowledge-base of ESD not just because the curriculum stipulated that they do so.

Ms Londy felt her lesson was successful because her learners participated actively. She added that her learners had follow-up questions which shows that they were interested in the lesson. She also observed that the learners learned some new words which she called, 'a bonus'.

Figure 4.17

Ms Londy's lesson features in relation to ESD



4.5 Conclusion

As Avalos (2011) notes, not every form of TPD, even those with the greatest evidence of positive impact, is of itself relevant to all teachers. Inclusively, *Teach for ESD* programme incorporated some features that worked for the English Language teachers to integrate ESD into their teaching practice as evidenced from teachers self-reporting. These features are: engaging with ESD concepts, global, national and local environmental issues, thematic practical application of ESD in school, excursions and garden visiting, and playing cognitive games.

Through the ESD context, teachers were able to understand the background of ESD in Namibia and as a global agenda. They also have a strong understanding of policy frameworks in the Namibian government especially the Ministry of Education, Arts and Culture as they now understand the importance of dispensing ESD knowledge to the learners. Engaging with ESD

concepts assisted teachers to understand what ESD entails and its benefits. NaDEET scaffolded both ESD context and concepts through their ESD knowledge toolkits and presentations during the centre-based training workshops that took place at Urban Sustainability Centre and NaDEET Centre NamibRand Nature Reserve and at various Environmental Education Centres in various regions. The teachers stated they were now able to define what ESD is from information provided in *Teach for ESD* Overview (D2) and engaging with other activities. A cognitive understanding of SDGs was developed through playing a game that required them to watch a video about an environmental issue and be required to match it to an SDG. D2 provided an insight of the issues Namibia and the world are currently facing, the teachers also watched videos during the training workshops that presented realities of some of the issues. The tasks NaDEET designed for teachers to complete and implement at their schools through which they earned badges, helped teachers to learn more about EE/ESD and integrate it inside and outside their classrooms. A detailed analysis of their learnings and classroom lessons follows in the next chapter.

CHAPTER 5: DISCUSSION OF THE DATA

5.1 Introduction

In this chapter, I analyse and discuss the data presented in the preceding chapter (Chapter 4). This is the data from interviews, lesson observations and document reviews. I employed an inductive approach to observe the patterns and themes emerging from the data. The empirical results are interpreted and analysed using socio-cultural learning theory and the TSPCK translation device. Where relevant, the discussion is extended with literature related to ESD integration and teacher professional development.

5.2 What was Already Known About ESD Integration

In this section, I summarise and discuss what prior knowledge and experience of ESD integration the three teachers had before the *Teach for ESD* training. The discussion is based on the interview data and is guided by Vygotsky's concept of ZPD (as introduced in Section 2.4.1). As summarised in Figure 2.1, understanding what teachers already knew about ESD integration is the necessary starting point for tracing their movement through the ZPD. I now summarise how the three teachers described their past efforts and prior knowledge of ESD integration (Section 5.2.1) and what they identify as their main needs or challenges regarding ESD integration (Section 5.3).

5.2.1 The Teachers' Past Efforts and Prior Knowledge of ESD Integration

Mrs Matt stated she had been integrating ESD in her English language lessons through some of the topics she used to teach English language skills. She reflected that, at the time, she did not know she was indeed integrating ESD until she participated in the *Teach for ESD* programme. She and her learners also engaged in gardening activities, e.g. growing vegetables, and composting in her school.

Unlike Mrs Matt who said that she had never received training on EE/ESD, Mrs Tom said that she had a background in EE. During her pre-service teacher training, she developed basic skills which were integrated in Language lessons. This helped her later to integrate EE/ESD in her English Language lessons as per the requirement of the MoEAC curriculum.

Ms Londy said that she had never been exposed to EE/ESD before the *Teach for ESD* programme. Nevertheless, she was integrating it as mandated in the MoEAC curriculum. She had integrated issues like rhino poaching, endangered animals, and Arbor Day in her lessons because they appear in the textbooks but never had any in-depth engagement with those topics as her knowledge was limited. In addition, Ms Londy was aware of some of the SDGs but with limited understanding.

The three teachers came with varying ESD experiences, making each one unique and having different ESD-related needs. The following section highlights their needs.

5.3 The Teachers' Needs and Challenges for ESD Integration

In this section, I compile and discuss what the three teachers say they needed regarding ESD integration in English language teaching. The discussion is based on data derived from the interviews I conducted with the three teachers and guided by Vygotsky's socio-cultural theory and relevant literature. During the interviews, the three teachers identified that their needs fell under these four categories: i) the need for ESD training, ii) teaching and learning materials, ii) the need for monitoring and evaluation, and iv) the need for time allocation in the time-table. I summarise and discuss each need below.

5.3.1 The need for ESD Training

UNESCO (2012) advised that professional development opportunities (which includes training) should be provided for teachers and to create awareness of ESD among the educational community. Building ESD capacity in teachers especially those who have not received in-depth ESD training previously, will help them acquire an ESD knowledge-base that will enable them to integrate ESD in their teaching. This was evident in the interview with Mrs Matt, as discussed in section 4.3.1.4. Once equipped with ESD knowledge, teachers are better prepared to integrate it in their lessons. Having an ESD knowledge-base will also boost teachers' confidence as they will be clearer about what they are doing and expected to do as noted by Chitsiga and Schudel (2012). They argue that teachers tend to teach well that which they know. This finding concurs with Malua (2019) who recommended that there be professional development opportunities in ESD, that will orientate English language teachers to ESD as teachers lack conceptual understanding and effective ESD implementation strategies.

Vygotsky posits that there is a need to connect learners (who happen to be teachers in this case) to their learning environment through social interaction. ESD training, as a form of social interaction, would expose teachers to local environmental issues and support them to develop a stronger foundation of environmental knowledge, which is needed in order to integrate ESD better.

5.3.2 The Need for Teaching and Learning Materials

The participants indicated that there is a need for teaching and learning materials in order to integrate ESD into their lessons effectively. Teaching materials play a crucial role in teaching and learning as they aid the teacher to deliver an effective lesson. Tumur and Chemwei (2015) explain that materials simplify teaching and bring life to learning by stimulating learners' learning. Busljeta (2013) asserts that teaching and learning materials encourage active learning and the development of different skills. The lesson tends to be more effective if it is delivered with pictures, real life objects and other materials, assisting in learners' understanding of the topic. All three teachers mentioned that the resources received form NaDEET supported them in planning their ESD lessons. Moreover, they recommended that more resources are needed, for example, Mrs Tom recommended that ESD resources be accessible to everyone. Ms Londy called for the development of ESD textbooks tailored for English language teaching. Mrs Matt stated that ESD materials are needed for the senior primary phase so they can be used in lesson delivery. Teaching and learning materials can be used to scaffold learners' understanding of a topic and its associated concepts.

5.3.3 The Need for Monitoring and Evaluation

Monitoring and evaluation is another way of supporting the teachers in the implementation of their activities. Mrs Matt suggested that teachers receive continuous monitoring and evaluation of their work at their schools, post-training, so they can be supported on-site as they implement environmental education at their schools. As most teachers are new to EE/ESD, on-site support "*from the Teach for ESD team"* will motivate teachers, and the feedback they receive can improve their practice. It is essential to implementation of programmes like ESD not only to keep records and assess the progress for future improvement but also to allow the MKOs to

adjust the assistance they offer to the teachers which will lead to the learners (in this case teachers) to become the MKOs themselves and begin to train other teachers in their schools.

5.3.4 The Need for More Time-allocation in the Timetable

Ms Londy and Mrs Matt reported finding the integration of ESD into English Language challenging because of the way the subject is designed. Mrs Matt said an environmental theme *"is always a challenge because then you have to work out how you can say so much about environmental topic and again stick to achieving the skill for that lesson".* While Ms Londy expressed that more time is needed *"to engage meaningfully with sustainable development whilst teaching the required English Language skills."* All the English Language national school documents, such as Subject Policy, Syllabi and the Curriculum, focus on teaching learners to acquire the following skills: listening, speaking, reading, writing and grammar, which is done by infusing current affairs topics. Thus, they find the time that is allocated for English Language lessons less because one has to teach the skills and integrate ESD at the same time. For the lesson to be effective, the learner is expected to comprehend both the English language skill(s) and the integrated topic. As a result, they find themselves teaching less of one and more of the other, or teaching both on the surface making the learners not to accomplish all they were supposed to accomplish in the English Language lesson. They suggested more time be allocated for English Language lessons in order to cater to both the integration of cross-cutting issues, ESD in this instance, and the English language skill as stipulated in curriculum documents.

5.4 Scaffolding Provided by the *Teach for ESD* Training Programme

In the previous section, I discussed the teachers' self-identified needs pertaining to integrating ESD into their English lessons. In this section, I discuss the support that the facilitators of the *Teach for ESD* programme from NaDEET rendered to support them to integrate ESD. The data in this section is based on the interview with NaDEET staff members and from NaDEET documents reviewed. Some of the support discussed here aligns with what participants said they need in section 5.3. The *Teach for ESD* programme has various activities that enabled the teachers to understand ESD and be able to integrate it in their lessons. The NaDEET programme implementation process corroborates with Daniels (2005), who articulates that the MKO or teacher, NaDEET facilitators in this case, must perform a number of functions that

allow for: teaching of emerging skills, on-going evaluation, the use of modelling, questioning and explanation to support acquisition of knowledge. The NaDEET *Teach for ESD* programme fulfilled all these functions as detailed in chapter four and further elaborated below in sub-section 5.4.1 – 5.4.4 in the following sections: ESD Portfolio pre-training task, ESD professional development training, training materials, and monitoring and evaluation.

5.4.1 ESD Pre-training Portfolio Task

The first task given to the teachers was an *ESD portfolio task* with an intention to keep a record of their ESD prior knowledge before the *Teach for ESD* training commenced. The task gave teachers an opportunity to reflect on their ESD practices and to give NaDEET insight into their teaching practice prior to the training. The task allowed NaDEET to identify the teachers' ZPD which would give facilitators an idea of where the teachers were before the training and monitor where they would be after the training, that is, what each teacher learned from the programme. As argued by Mishra (2013), a diagnostic assessment allows facilitators to adjust their support and guidance to align with teachers' starting point. I concur with Mishra because understanding the teachers' prior knowledge is essential as it guides facilitators to build on it to enable internalisation of new knowledge. Hence, this task was necessary and used throughout the training for reflection.

5.4.2 ESD Professional Development Training

The *two training* sessions teachers attended at NaDEET centres and at different environmental centres in their respective regions helped to develop the teachers' knowledge. This was achieved through receiving ESD resources (see 5.4.3 below) and through interacting with the *Teach for ESD* facilitators and fellow teachers in the programme. The two training sessions gave teachers insight into the ESD context and content and provided practical training and support to help them implement ESD activities at their schools. During the training, teachers engaged in different activities (see section 4.2.4.3 for these activities) that were part of the support Brunner (2004) refers to when he says that learners (who are teachers in this case) are given support during the learning process, which is tailored to their needs to assist them to achieve their learning goals. The training assisted the teachers in the development of new knowledge, moving from the zone of what they already know to the new zone of accomplishing work with an assistance of MKOs. The facilitators as the MKOs assisted teachers through

social interaction by guiding them and presenting knowledge on certain topics; and working collaboratively on tasks with fellow teachers assisted by the MKOs.

5.4.3 ESD Resources

Resources (*see section 4.2.4*) were used to scaffold teachers' ESD knowledge and to support them in completing programme activities and integrate ESD in their lessons and at their schools. The resources provided by NaDEET assisted teachers to contextualise ESD as they were exposed to environmental issues in Namibia and those faced by other countries in different parts of the world. This helped teachers be updated with current ESD issues as the English Language curriculum requires use of current affairs to develop learners' language skills.

5.4.4 Monitoring and Evaluation

Another task in the *Teach for ESD* programme is *monitoring and evaluation,* which is designed to measure the metrics of the teachers' progress in the programme. The teachers' progress is monitored by themselves and by NaDEET through a badge system that NaDEET employed for the programme. NaDEET also evaluated the teachers' activities that they implemented at their schools and provided them with feedback; this allowed them to note their successes and challenges and improve where possible.

5.5 Teachers' Expanded Practice of ESD Integration

This section summarises and discusses reported and observed changes in the three teachers' English Language teaching practice, following their participation in the *Teach for ESD* training programme. This includes the teaching materials they used when integrating ESD, the pedagogies they now use, and the activities they implemented at their schools to enhance ESD knowledge among learners. The data in this section is from interviews and observations on-site at each school.

The participants indicated that they now use different teaching materials to help learners understand when incorporating ESD into their lessons. They use teaching aids that are suitable for their lessons. This is an indication that they have changed from their previous way of integrating ESD especially since they stated that they used to integrate ESD just because it is part of the curriculum. Some of the teaching aids they indicated they use but they are not limited

to include: videos, textbooks, pictures, articles, flashcards, objects and worksheets. I have observed the use of flashcards and pictures that are ESD related in Mrs Matt and Tom's classroom, they both used the flash cards to discuss the concepts they deemed important for their lessons to assist learners' understanding of concepts (see section 4.4.1 & 4.4.2). Ms Londy used the textbook (a carefully selected ESD related poem) to deliver her lesson; she read and asked questions from the textbook, and her learners also read and answered the questions from their textbooks. The participants also indicated that they use some of the materials they received from *Teach for ESD* programme to make their lessons understandable. For instance, Mrs Matt, said that she made copies of articles and pictures from the *Teach for ESD* toolkit and she also used the videos they received through the programme to deliver her lessons. As discussed in the previous sections, teaching materials are crucial in lesson delivery as they assist in simplifying the lesson.

As discussed in chapter 4, the three teachers indicated that they have learned some pedagogies for integrating ESD into their lessons from the programme. For instance, Mrs Tom and Ms Londy say they are also doing practicals for their lessons, they allow learners to practice what they are learning. For example, they let their learners make fireballs that are used for cooking. Mrs Matt said she now practises intentional teaching where she does not only teach for the sake of teaching but with a purpose to make a change and allow learners to reflect on what they practice, whether it is good or bad. She also said she practised open discussion with her learners where she allows them to engage in the class and share ideas on the topic at hand. The teaching methodologies the teachers gained from the *Teach for ESD* programme allow them to deliver their lesson effectively, with the aim of making it easier for learners to acquire the intended lesson skill and the integrated topic.

Teachers have implemented different out of classroom activities at their schools as a takeaway from the Teach for ESD programme. These activities were implemented for two reasons: i) to make learners practise what they are taught in the classroom, and ii) to engage in other sustainability practices at school, so they can implement them at home and/or community. Tibbitts et al. (2023) noted that the TESD-aligned activities that the teachers implemented at their schools were: environmental clubs, making fireballs, water saving mechanisms, composting, celebrating environmental days, recycling, installing energy-saver bulbs, nudges, enviro footprint counting and planting trees (see section 4.3 for details on these activities). I personally observed some of these activities at the teachers' schools. For instance, at Mrs

Matt's school, I found learners making fireballs. I also observed around the school 'tip taps' used for washing hands by both teachers and learners that form part of nudges and water saving mechanisms.

5.6 Teachers' Recorded Level of ZPD

In this section, I summarise the teachers' ZPD as recorded from the beginning through the end of the *Teach for ESD*. The ZPD includes what they knew about ESD before engaging with the *Teach for ESD* programme and what they can now do after they were assisted through scaffolding; this is illustrated in Table 5.1. The table was constructed based on the data from the interviews and from observations.

Table 5.1

Teachers ZPD level

Teachers' Name	What could be done pre-NaDEET training	ZPD facilitated by scaffolding
Mrs Matt	• Gardening with limited knowledge • Integrating ESD without knowing • Environmental club	• Gained ESD in-depth knowledge • Teaching from base of knowledge • Making fireball • Improving school garden e.g. composting • Drafted a school Environmental policy • Improved environmental club activities • ESD teaching pedagogies (Open discussion, intentional teaching)
Mrs Tom	• ESD limited knowledge	• Planted a few trees • ESD integration • Started environmental club • Fireballs • Installed power-saving bulbs
Ms Londy	• ESD integration with limited knowledge	• Teaching from ESD knowledge-base • Gained SDGs in-depth knowledge • Implemented Environmental club • Teaching outdoors through practical • Implemented Green nudges

5.7 Evidence of What the Teachers Can Now Do

This section shares an analysis of data gathered from lessons observed as evidence of what teachers did and can do. The data does not represent everything that the teachers are able to do post the training, but it gives a glimpse of their practice from a single lesson per teacher. The lesson observation included teachers' lesson planning, teaching actions, and teaching and learning materials used in their lesson delivery. The data was analysed using Topic Specific Pedagogical Content Knowledge (TSPCK) translation device, which has the following components (introduced in section 2.4.2): *learner prior knowledge*, *curriculum saliency*, *what is difficult to understand*, *representations*, and *conceptual teaching strategies*. The data analysed for this section was presented as English Language teachers' classroom practice in section 4.4.

Even though this TSPCK translation device is used primarily in content subjects, which specify topics to be taught, I used it in English Language classrooms where the focus is on the development of English language skills and the competencies that should be achieved through integrating a specific topic. The tool therefore enabled me to analyse both the skill(s) and the topic of the specific lessons observed.

In the Namibian Basic Education system, English language skills are not taught in isolation, but they are infused in general topics. Hence teachers can teach the same skill to achieve the same basic competencies but use different topics to do so.

5.7.1 Learner Prior Knowledge

According to Geofrey (2021), prior knowledge is information that the learner has before they acquire new ideas or meanings on a new topic or concept. Prior knowledge is the knowledge that the learner comes with to the classroom regarding the topic before it is presented to them. In this regard, Canpolat et al. (2006) assert that the knowledge that learners come with plays an important role in the learning process because learning is a result of interactions between what the learner is taught and their current ideas and/or misconceptions. Yuksel (2012) emphasises that learning may be carried out effectively when the teachers determine and realise the prior knowledge of the learners.

Mrs Matt used flash cards with the words: *clues, anti-poaching, rhinoceros, poacher, conservation, investigation* to find out what the learners already know about these concepts. She allowed them to discuss with others in groups and share the knowledge they have already regarding these concepts. Black and William (1998) state that one way to uncover learners' prior knowledge is by giving them an activity that offers them an opportunity to express their understanding and reasoning. Asking learners to share their knowledge of the concepts on the flash cards enabled Mrs Matt to know what the learners already knew about the concepts. It was important that learners understood the concepts as they were part of the text she was going to read to them as part of the Listening comprehension lesson. Understanding the concepts would make it easy for learners to understand the text being read to them. This notion concurs with Campell and Campell (2009), who argue that understanding key words in a topic is critical before learners can progress academically.

Mrs Tom did not elicit her learners' prior knowledge, thus missing out on finding out what learners already knew about recycling and its associated concepts such as reduce, reuse, and recycle. Mrs Tom's elicitation of learners' prior knowledge was therefore weak as it was neither reflected in her lesson plan nor demonstrated during her lesson presentation.

Ms Londy elicited her learners' prior knowledge by first asking a question about Arbor Day to make links with what she had taught in a previous lesson on Arbor Day. This linked Arbor Day to the new topic she was going to teach them about the benefits of trees (see section 4.4.3). This linkage gave Ms Londy insight into what her learners already knew about the benefits of trees. She was then able to build on that when she taught learners a poem that described the importance of trees.

5.7.2 Curriculum Saliency

These are the crucial concepts (also referred to as 'big ideas') that hold the lesson together, in order for it to make sense to the learners. They are also required to be sequenced in a way that will make the learners understand them as they are being presented. Mavhunga and Rollnick (2013) and Mavhunga et al. (2016) highlighted that for the teacher to effectively address curricular saliency, the teacher is expected to enable the development of big ideas.

When Mrs Matt planned her lesson, she anticipated that learners might struggle with some of the concepts she was going to teach in her lesson on conservation, therefore, she created flash

cards with the key concepts (*clues, anti-poaching, rhinoceros, poacher, conservation, investigation*). In presenting her lesson, she first ensured that the learners understood what the concepts meant for them to understand the story on poaching she was going to teach them.

Mrs Tom similarly had flash card with key concepts on recycling. To ensure that learners understood the key concepts she gave them dictionaries to look up the meaning of the words (reduce, reuse, recycle) before she taught them about recycling and sorting waste.

Ms Londy chose one of the concepts 'deforestation' which was in the poem and asked learners to define it before she expanded on their definition to teach them about the possible negative consequences of this practice. Additionally, she reminded them about a key concept used when teaching poems, 'simile', which she explained before requesting learners to apply it in making sense of the poem. She also requested learners to find the definition of a sonnet in a dictionary for them to understand it before they can respond to questions about why the poem could be considered a sonnet.

5.7.3 What is Difficult to Understand

This component requires that teachers have pedagogical content knowledge to be able to assist learners with understanding difficult ESD-related concepts or to appropriately address misconceptions. The teachers taught their lessons in ways they anticipated their learners would understand better the concepts they deemed to be difficult for them to understand.

Mrs Matt used flash cards then she asked the learners to discuss the meaning of the word in the flash cards in groups, before they report back to the class. She then helped the learners explain the meanings of the words.

Just like Mrs Matt, Mrs Tom used flashcards where she wrote the words she thought would be difficult to the learners. She also expanded learners' understanding of the words with further explanations after the learners gave their dictionary definitions of the words.

Mrs Londy used the pre-, while- and after-reading method to prompt the learners' thinking in understanding the content of the lesson. She was also able to give further explains to learners, especially when they were unable to answer some of the questions.

5.7.4 Representations

Makhenane and Mavhunga (2021) define representations as analogies, illustrations, examples or demonstrations used to support an explanation given during the lesson. All three teachers incorporated representations to support the learning.

Mrs Matt used visuals to teach a story on poaching. Learners were given pictures that visually depicted the poaching story that she read to learners. They had to use the picture to chronologically tell the story as they heard it and from the jumbled sentences that summarised the story (see figure 4.7).

Mrs Tom used real recyclable objects to teach recycling. She brought waste products and gave each group a box where they could place the items based on what type of material they were: metal, glass, plastic, or paper (see 4.4.2). She was teaching them how to sort waste for recycling. The effective use of teaching resources concurs with Tumur and Chemwei (2015), who argue that the use of materials in the classroom has a potential to help the teacher to explain new concepts clearly, resulting in better learning and understanding of the concepts being taught.

Although Ms Londy did not bring any tangible items to teach about the benefits of trees using poetry, she was able to make an illustration that made learners understand the importance of preserving and planting trees. In discussing what trees give people, learners were able to see what people would lose if deforestation continued and if people did not plant trees (see 4.4.3).

5.7.5 Conceptual Teaching Strategies

Conceptual strategies focus on the particular teaching strategies that teachers use to help learners acquire conceptual understanding. Tasara (2022) defined it as effective teaching strategies for addressing known misconceptions, important conceptions, or known areas of difficulty. This component is informed by the other four components in order for the teacher to choose the correct strategy or strategies and effectively apply it. The teacher needs to assume the learners' prior knowledge, detect the main concepts of the topic, know what is difficult to understand, and be able to be considerate of the suitable representations in order to find the strategies to employ when teaching the topic.

All three teachers had a strategy on how they would teach their lesson and made conscious decisions on how the lesson would unfold to ensure achievement of the intended lesson outcomes.

In Mrs Matt's case, she wanted to teach about conservation through a story on poaching. The English language skill or competence she wanted learners to acquire was listening comprehension. She wanted learners to acquire the skill of listening with intent to understand and learn. She started by preparing flash card or key concepts that could be difficult for learners to understand but elicited their prior knowledge to determine their understanding of the concepts. She then read a story on poaching, and expected learners to listen with intent so they would be able to work with pictures depicting a summarised version of the story to tell the story using prompt sentences. She also has a recording of the reading of the story so learners could continue listening to the story. Learners had to have listening skills for them to acquire knowledge about poaching and conservation. Mrs Matt was able to integrate the ESD component whilst supporting learners' acquisition of a language skill (see 4.4.1).

Mrs Tom's lesson also focused on Listening comprehension through teaching about recycling. She started off by ensuring that learners understood the key concepts by bringing dictionaries so they could check the meaning of the words. She also brought tangible resources to class for learners to practically sort waste and reuse/recycle 'trash'. The acquisition of the listening skills was not as explicit as the acquisition of the ESD content knowledge.

Ms Londy started with eliciting learners' prior knowledge and making links with a previous lesson. The prior knowledge enabled her to make links between prior knowledge and new knowledge. Learners were given an opportunity to read the poem to learn and gain new information about the benefits of trees. New terms were explained to learners. The lesson was successful in teaching learners how to read as intended in order to learn but also to learn more about the gifts that trees give. Concepts specific to analysing poems were highlighted, e.g. simile, sonnet, rhyme. She worked well with following the theme of the lesson. She also followed the process that is used as per English Language syllabus when learner have to read text, what to do before reading, during reading and after reading. All the teachers used a learner-centred approach in their teaching, although to varying degrees.

5.8 General Impression from Lesson Observations

The summary in the table 5.2 below is an overall summary of the lessons observed in relation to the TSPCK translation device. The ratings and their meanings are further detailed in appendix E.

Table: 5.2

Overall summary of Lessons Observed

TSPCK component	**Rating**			
	Weak --	**Moderate -**	**Strong +**	**Very strong ++**
Learner prior knowledge	Mrs Tom		Mrs Matt	Ms Londy
Curriculum saliency		Mrs Matt Mrs Tom	Ms Londy	
What is difficult to understand			Mrs Tom Ms Londy	Mrs Matt
Representation		Mrs Tom Ms Londy	Mrs Matt	
Conceptual teaching strategies		Mrs Tom	Mrs Matt	Ms Londy

5.9 Conclusion

In this chapter, I summarised and discussed the data I generated from interviews with the three teachers and NaDEET staff, the lesson observation and document review. The data was discussed guided by Vygotsky's ZPD, social interaction and scaffolding as well as by PCK's related concept TSPCK. I designed two analytical tools (one on Socio-cultural theory and another one on analysing TSPCK) that helped to analyse and later discuss the findings, the tools were complemented by ESD and teacher professional development related concepts.

CHAPTER 6: RECOMMENDATIONS AND CONCLUSION

6.1 Introduction

This chapter summarises the research findings discussed in the preceding chapters. Thereafter, I present recommendations that are informed by the research findings. I then reflect on the challenges and limitations of the study before making recommendations for future research that I deem important in relation to ESD professional development and English Language.

6.2 Summary of Findings

In this section, I summarise the key findings of this study that emerged from the data collected through interviews, document reviews and lesson observations. The following are the key findings of this study.

Teachers came into the *Teach for ESD* programme with various ESD backgrounds. Despite this, all of them had been integrating ESD into their lessons before the programme, but with limited knowledge. Mrs Matt and Ms Londy never received ESD training before the programme, but Mrs Tom had received some training during her undergraduate years.

The study found that the teachers have the following needs regarding ESD integration to be able to more effectively integrate ESD into their English Language teaching practice:

- ESD training / professional development opportunities to help teachers build on their interest and commitment with ESD content knowledge and pedagogies.
- Teaching and learning support materials oriented to environmental and sustainability content, and reflecting ESD pedagogies.
- Continuing support for monitoring and evaluation of their ESD-related practices.
- More time allocated to English Language teaching in the timetable to accommodate the depth needed to achieve ESD-oriented teaching and learning. These needs are explicitly discussed in Section 5.3.

The *Teach for ESD* programme has various activities that supported the English Language teachers to understand ESD and integrate it into their lessons. These were: an ESD pre-training task; content knowledge such as environmental knowledge, in-depth understanding of ESD and practical activities; pedagogies such as constructivist, collaborative, inquiry-based

approach, reflective approach and assessment approach; ESD professional development training that took place at two centres; ESD resources such as a toolkit with a range of resources; and monitoring and evaluation.

Additionally, the study found that a notable outcome of the *Teach for ESD* programme was the teachers expanded their practice of ESD integrations into their lessons. Notably, that they now use different materials tailored to the selected topics and skills (such as reading text/articles, flashcards, real objects); they employ pedagogies that are suitable for their lessons (such as participatory, collaborative, discussion and hands-on practice); and they implemented activities at their schools to enhance ESD knowledge among learners (such as green nudges, gardens, composting, tree planting, recycling, fireballs and school environmental policy).

6.3 Recommendations

The primary aim of this study was to understand how NaDEET's *Teach for ESD* programme supported the Senior Primary phase English Language teachers to integrate sustainability concerns into their English Language practices. Guided by the findings of this study, I recommend the following:

6.3.1. Expand ESD-Related Professional Development Opportunities for English Language Teachers

The findings indicate that TPD is crucial in fulfilling the teachers' needs and wishes for ESD implementation in English Language teaching. Therefore, I recommend that NaDEET continue and where possible, extend the professional development activities that they offer to teachers, such as through the *Teach for ESD* programme. Similar activities should be provided by both the government and NGO partners that offer (or are mandated to offer) ESD professional development opportunities to teachers. Besides longer ESD training programmes, NaDEET, other NGOs and the Ministry of Education should consider Teacher Workshops as a way to engage more teachers and provide ongoing support to teachers already oriented to ESD. Such workshops could share new information about environmental topics or showcase ways of integrating such content into English Language lessons with appropriate ESD pedagogies. Teachers and their principals may even conduct workshops and interventions to improve the implementation of ESD in their schools. These recommendations build on what scholars in

Namibia such as Malua (2019), Tshiningayamwe (2011), Kanyimba et al. (2014) and Kanyimba (2002) have all emphasised that professional development activities be increased in different areas so that teachers can acquaint themselves with ESD knowledge in order to integrate it into their lessons.

6.3.2 Pre-Service Teacher Qualifications should include EE/ESD as a course or module

All the institutions that offer pre-service teachers need to offer ESD/EE courses or modules that can equip teachers more with ESD knowledge and train them on how to integrate it within their lessons. As noted by Kanyimba et al. (2014. p. 249) "the academic institutions committed to sustainability would help teachers understand" environmental education and "motivate them to seek environmentally sustainable practices." It is important for the teachers to have an in-depth understanding of ESD from undergraduate level rather waiting until they are in the profession to enrol for ESD programmes or training.

6.3.3 ESD Material Tailored for English Language Teachers

There is a dire need for more tailored ESD materials suitable for English Language teaching. Textbooks, workbooks and posters should be designed to support teaching and learning so that teachers do not have to use any materials they find or materials designed for other subjects.

6.3.4 Teachers Invest in Own Professional Development

Since there are currently limited related professional development opportunities for teachers, teachers need to invest in their own development by taking short courses and/or any other courses or by upgrading to get new qualifications in Environmental Education that can help them update their knowledge, rather than waiting to be provided with free professional development from the government or NGOs.

6.3.5 ESD in the Curriculum

There should be specific environmental themes or topics in the curriculum guide, English Language syllabi and in subject policy guides. This will guide teachers rather than leave them

to pick any topic or theme at any time which can lead to environmental education being neglected.

6.3.6 Re-designation of English Language

English Language needs to be redesigned to accommodate both skills and the ESD themes. Initially, English Language is designed to develop in learners a range of language skills, yet the curriculum also requires that ESD be integrated. This leads to the content of English Language becomes more than the time allocated in the timetable.

6.4 Recommendations for Future Research

This study found that the English Language teachers struggle to integrate ESD into their lesson planning while simultaneously teaching language skills. Further research and innovation is needed to find appropriate and effective ways of merging language skills development with environmental content. More insights into this important area will guide classroom pedagogy as well as textbook and materials development for ESD implementation in English Language teaching.

More broadly, further research is needed into models of teacher professional development such as the one used by NaDEET. Due to the urgent need for teacher professional development in EE/ESD, the strengths, limitations and opportunities provided by NaDEET's *Teach for ESD* model should be further documented and researched. Other models could also be trialled and researched, especially models that can train a number of teachers at the same time, and models that support teachers who have been in the field for a very long time and have little knowledge about ESD.

6.5 Limitations of the Study

This study cannot be generalised because it is limited to only one programme and three teachers from Otjozondjupa region who enrolled in the *Teach for ESD,* but not all the Senior Primary English Language teachers who participated in the programme. Additionally, the study depicts a small size of only three teachers, which means that the findings from the study cannot be generalised across all English Language teachers who participated in the *Teach for ESD* programme. Moreover, focused on English Language teachers participating in the *Teach for*

ESD programme leaving out other English Senior Primary teachers who might have participated in other programmes, the study cannot make general conclusions about English Language because it focused on Senior Primary phase teachers. Nevertheless, the study still provided in-depth insights into the teachers' needs, interests and experiences of ESD integration.

6.6 Conclusion

This research project set out to understand the professional development needs, wishes and experiences of Senior Primary English language teachers who seek to integrate ESD into their teaching practice. This aim was achieved through a qualitative case study of NaDEET's *Teach for ESD* programme, focusing on the support they provided to Senior Primary English Language teachers. The *Teach for ESD* programme was in its pilot phase when this case study research was conducted and was constrained by restrictions on social mobility and interactions due to the COVID-19 pandemic. Despite these limitations, the study concluded that important features of NaDEET's *Teach for ESD* programme scaffolded the teachers' ESD knowledge and lesson planning capacity. The study also found that English Language teachers need more ESD training opportunities, more tailormade teaching and learning materials suited to English Language teaching, monitoring and evaluation of their work at their schools, and more time allocation in the timetable in order to implement ESD effectively. The study further suggested recommendations that could further strengthen ESD implementation in English Language teaching for Senior Primary phase.

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APPENDICES

Appendix A

Teacher Interview 1 Schedule (Preliminary)

Interview number : ……
Date:……
Duration: 20-45 minutes

Questions	Key responses
1. What do you know/understand about ESD/ Environmental Education?	
2. How and why did you get involved with NaDEET and the 'Teach for ESD' course?	
3. Have you ever integrated ESD/Environmental Education in your English Language teaching before this Teach for ESD course?	
4. If your answer in Number 2 is 'Yes', please explain in detail what you taught and how you taught it.	
5. How long have you been integrating ESD/Environmental Education in your English Language teaching?	
6. Do you believe it is important to integrate environmental topics in English Language teaching?	
7. In your experience, what are the biggest challenges for integrating environmental themes in your English teaching?	
8. What gaps would you like to fill with teaching ESD in English Language?	
9. Have you ever received any sort of training before on how to integrate ESD/Environmental Education in your teaching practice?	
10. If the answer in no. 9 is Yes, what institute or organisation offered the training?	
11. Is there anything else you would like to share about the integration of ESD in Senior Primary Phase English Language?	

Appendix B

Teacher Interview 2 Schedule (follow-up interview)

Interview number :……

Date:……

Duration: 20-45 minutes

Questions	Key responses
1. Could you please tell how you elicit your learners' prior knowledge?	
2. What informed the topic that you have chosen to integrate in your lesson?	
3. How is the topic you have integrated helped you achieve the competencies of the lesson?	
4. What methodology did you employ in integrating this topic in your lessons?	
5. What type of teaching aids do you use when integrating ESD into your lessons?	
6. To what extent did the 'Teach for ESD' course influence the planning of this lesson?	
7. What challenges did you experience when you were planning this lesson?	
8. How successful do you think your lesson was?	

Appendix C

Teacher Interview 3 Schedule (Reflective)

Interview no.:……..
Date:……
Duration: 20-45 minutes

Questions	Key responses
1. How do you find teaching environmental and sustainability topics before and after the 'Teach for ESD' training?	
2. Did you become more knowledgeable about environmental issues or sustainable development through doing this course? Please tell me more.	
3. Did the 'Teach for ESD' course introduce you to any new teaching methods or activities (pedagogy)? Please tell me more.	
4. Apart from integrating ESD in your English Language teaching, what other activities did you implement at your school as an outcome of Teach for ESD programme?	
5. What do you think should be done to ensure successful integration of ESD in Senior Primary Phase English Language teaching?	
6. What are your highlights of 'Teach for ESD' programme?	
7. Do you recommend other teachers to partake in the programme, should the chance avail to them? Please give a reason for saying so.	
8. Do you have suggestions on how the 'Teach for ESD' programme can support Senior Primary Phase English Language teaching even better?	
9. Do you have any plans for sharing what you have learned from the 'Teach for ESD' programme?	
10. If your answer in no. 9 is Yes, kindly share how you are going to do this.	
11. What is your overall impression of 'Teach for ESD programme?	

12. Is there anything else you would like to share about the 'Teach for ESD' programme?

Appendix D

Interview Schedule (NaDEET staff)

Interview no.:……..

Date:……

Duration: 30-45 minutes

QUESTIONS	KEY RESPONSES
1. What is your understanding of ESD/Environmental Education?	
2. What prompted your organisation to initiate the 'Teach for ESD' programme?	
3. What are key the features of the 'Teach for ESD' programme?	
4. Could you please describe a typical ESD lesson plan and how it is different from an ordinary lesson plan?	
5. In what ways are you supporting Senior Primary Phase English Language teachers integrate ESD into their teaching practice?	
6. How are the Senior Primary Phase English Language teachers responding to the programme?	
7. Currently your programme caters for only 30 Senior Primary English Language teachers nationwide. Does your organisation have any plans to reach out to more teachers, especially English teachers?	
8. Is there anything else you would like to share about the 'Teach for ESD' programme?	

Appendix E

Lesson observation sheet

Table 1: TSPCK TRANSLATION DEVICE (Adapted from Mavhunga et al., 2016, pp. 312-313)

COMPONENTS	**DESCRIPTION**	**LP^{--} (Weak)**	**LP^{-} (Moderate)**	**LP^{+} (Strong)**	**LP^{++} (Very strong)**
Learner Prior Knowledge (PK)	Includes what was taught in the previous grade or lesson. Includes common learner misconceptions known in a topic. This also includes everyday knowledge from home and community	No identification or no acknowledgement or no consideration of learners' prior knowledge or misconceptions; no attempt to address the learners' misconceptions.	Identifies prior knowledge or misconceptions; provides standardized definition as a means to counteract the misconception; no evidence of drawing on other TSPCK.	Identifies prior knowledge or misconceptions; provides standardized knowledge as definition; expands and re-phrases explanations using one other component of TSPCK interactively.	Identifies prior knowledge or misconceptions; provides standardized knowledge as definition; expands and re-phrases explanation correctly; confronts misconceptions or confirms accurate understanding drawing on two or more other components of TSPCK interactively.
Comments:					
		CS^{--} (Weak)	**CS^{-} (Moderate)**	**CS^{+} (Strong)**	**CS^{++} (Very strong)**
Curriculum Saliency (CS)	Refers to the identification of the most important meaning of major concepts of a topic, without which understanding of the topic would be difficult for learners. It also includes the	Identified concepts are a mix of Big ideas and subordinate ideas; identified pre-concepts are far from topic; sequencing no value due to mixed concepts; reasons given are generic	Identifies at least 3 Big ideas; not all 3 Big ideas and subordinate ideas identified; identified pre-concepts are far from the current topic; suggested sequencing has one or two illogical placing of Big ideas; reasons exclude	Identifies at least 3 Big ideas; subordinate concepts correctly identified for all Big ideas; identifies pre-concepts relevant to the topic; provides logical sequence; reasons given for importance of the	Identifies at least 3 Big ideas; subordinate concepts correctly identified for all Big ideas with explanatory notes; identifies pre-concepts relevant to the topic and explanatory notes given; provides logical sequence of

	knowledge to logically sequence the learning and knowledge of pre-concepts needed prior to teaching a topic	benefit of education.	conceptual considerations and show no evidence of drawing on other TSPCK components.	topic include reference to conceptual scaffolding/sequential development draws on other TSPCK components, e.g., what makes topic difficult.	all Big ideas and with logical reasons; reasons given for importance of the topic include reference to conceptual scaffolding/sequential development draws on other TSPCK components, e.g., what makes topic difficult.
Comments:					
		WDU^{--} (Weak)	**WDU^{-} (Moderate)**	**WDU^{+} (Strong)**	**WDU^{++} (Very strong)**
What is Difficult to Understand (WDU)	Refers to gatekeeping concepts which are difficult to understand often because they cause conflict with previously established understanding	Identifies broad topics without reason and specifying the actual subordinate sub-concepts that are problematic	Identifies specific concepts but provides broad generic reasons such as abstract concepts.	Identifies specific concepts leading to learner difficulty; reasons given relate to one other TSPCK component.	Identifies specific concepts with reasons linking to specific gate keeping concepts and to TSPCK components such as prior knowledge and aspects of curricular saliency.
Comments:					
		RP^{--} (Weak)	**RP^{-} (Moderate)**	**RP^{+} (Strong)**	**RP^{++} (Very strong)**
Representations (RP)	Refers to a combination of representations at macro, symbol and sub-microscopic levels that may be employed to support an explanation	Limited to use of only macroscopic representation (analogies, demos etc.) with no explanation of specific links to the concepts represented	Use of macroscopic representation (analogies, demos etc.) and use of scientific symbolic representation without explanatory notes to make the links to the aspects of the concept being explained.	Use of macroscopic representation (analogies, demos etc.) and use of scientific symbolic representation with explanatory notes linking the two representations to the aspect(s) of	Use of macroscopic or symbolic representation with sub-microscopic representation to enforce a specific aspect; Explicit link with other components of TSPCK, e.g., emphasis on core aspect of CK

				the concept being explained; use of above combination of representations with reference to one other TSPCK components, e.g., prior knowledge.	demonstrated in the representations and learner prior knowledge.
Comments:					
		CST^{--} (Weak)	**CST^{-} (Moderate)**	**CST^{+} (Strong)**	**CST^{++} (Very strong)**
Conceptual Teaching Strategies (CST)	Refers to teaching strategies derived from the considerations made from the other four components and excludes general teaching methodologies	No evidence of acknowledgement of learner prior knowledge and misconceptions; lacks aspects of curriculum saliency; use of representations limited to macroscopic or symbolic scientific symbolic representation.	Acknowledges learner misconceptions verbally with no corresponding confrontation strategy; lacks aspects of curriculum saliency; use of macroscopic or symbolic representation with no linking explanatory notes.	Considers confirmation/confrontation of learner prior knowledge and/or misconceptions; considers at least one aspect related to curriculum saliency, e.g., sequencing or what not to discuss yet or emphasis of important aspects; uses at least two different levels of representation to enable understanding.	Considers learner prior knowledge and evidence of confrontation of misconceptions; considers at least two aspect related to curriculum saliency, e.g., sequencing or what not to discuss yet or emphasis of important aspects; uses either the macroscopic or symbolic representation with sub-microscopic representation to enable understanding.
Comments:					

Appendix F

Analytical Tool for Teachers' ZPD

ANALYTICAL TOOL #1: TEACHERS' ZPD

This 3-step analytical tool is guided by Vygotskian socio-cultural learning theory, in particular his concepts of the Zone of Proximal Development (ZPD). The tool is designed to identify data that helps to describe how scaffolding and the MKO supported the teachers to move in their ZPD. A separate table is completed for each teacher.

Teacher's name: Mrs Matt **Date of analysis:** 07-11-2023

STEP 1: Teacher's needs re. ESD integration	Raw data index
• "I feel like all the teachers should receive ESD training because, for example, at the school where I am, I am not the only English teacher but other English teachers that are at the school did not receive the training I have received. So, me alone I cannot pull the whole school to have, to be at the position where our learners are equipped with environmental education knowledge or where our learners do activities on environmental education."	T1TI3, p.3
• "avail teaching aids to them."	T1TI3, p.3
• "teachers can be provided with workshops"	T1TI3, p.4
• "those that have gone through the training and get a continuous monitoring and evaluation just to ensure that they are being supported the implementation of environmental education"	T1TI3, 4
• "the Ministry of Education as well as NaDEET and the teachers can work together to come up with more teaching materials specifically mean for learners of the the age of upper primary or senior primary phase."	T1TI3, p.4

STEP 2: Support provided by Teach for ESD programme re ESD integration	
Scaffolding that advanced Mrs Matt's ZPD	
• "By providing them with ongoing training and learning opportunities on how to implement EE/ESD in the curriculum. Besides that, teachers all request the support they require from their regional coordinators."	NSI;
• "Training- teachers that are part of the programme are trained to understand EE/ESD and how they can implement it in their schools."	NSI
• through several different types of contact sessions with NaDEET staff, you will receive practical training and support to help yo Implement ESD activities at your school.	D2, p.1, p.2, p.3 D5; p.8, p.13
• 219 teachers participated in centre-based training	D6; p.9
• Teach for ESD is designed to support teachers to develop ESD knowledge and skills, to collaborate and grow while learning from each other along the way.	
• "Material support – teachers receive a Teach for ESD Toolkit that guides them on how to implement different ESD activities at their schools through different lessons."	NSI; D3
• The Teach for ESD Toolkit- A uniquely designed toolkit full of resources to guide you through the implementation of ESD activities at your school	D2; p.1, p.3
• The Teach for ESD Toolkit- A resource pack that is the foundation of the Teach for ESD programme, wit5h three main objectives: ***provide solid background***	D5; p.5; D; p.8

information on ESD; link participants to many excellent, exisiting resources on ESD; provide the foundation for practical implementation of ESD at school D6, p.8

- NaDEET has implemented a monitoring and evaluation through a badge system and school site visits — D2; p.4
- The badge system is our is our monitoring and evaluation. It allows NaDEET to understand the real value of our work, make changes where needed, and to design impactful future programmes. — D4; p.1
- The badges are the monitoring and evaluatiion tool for assessing the teachers in the programme and their implementation of ESD activities at their schools — D5; p.6; D6; p.9
- The badge system reflects NaDEET's approach to learning byn involving the teachers in their own continouos assessment — D6, p.9
- Completing your ESD task, your ESD profile — D2; p.2

Social Interactions occurred between Mrs Matt and NaDEET facilitators

- NaDEET staff facilitated the regional workshops and centre-based trainig — …
- The teachers in the programme are supported by a regional coordinator to assist them on their EE/ESD journey. These staff members are the first contact people for teachers in the programme on any issues. — NSIS,
- Each regional group working group will have a NaDEET staff member as an advisor. — D2; p.5
- …while allowing NaDEET staff to act as advisors — D6, p.9; D2, D5, D6, p.17

Social Interaction occurred between Mrs Matt and other teachers in the programme

- Mrs Matt joined the Teach for ESD programme with her colleague with whom she has been working with in the programme — D6;p.6,p.7
- Mrs Matt worked with other teachers during the centre-based training and during the regional workshop — D2, D5, D6,p. 17, p.16
- Mrs Matt has been communicating with other teachers as the NaDEET created a WhatsApp group platform for teachers to communicate by sharing what they are doing at their respective schools and by posing questions — D2, D5, D6, p.17
- The participants were grouped into four smaller regional clusters, this encouraged networking and team building among smaller groups — D6; P.9
- Each regional group had their OWN WhatsApp group platform where they interact on a regular basis . He they share their challenges and successes, asked questions, and created a community of learning and action — D6; p.9

STEP 3: Teacher's account of what she can now do re. ESD integration

- "since I-I went through the training of *Teach for ESD*, I feel compelled to integrate Environmental Education topics or themes into my lesson" — T1TI2, p.1
- "it's my responsibility as a *Teach for ESD* agent to sensitize learners on Environmental Education topics" — T1TI2, p.1
- "If it weren't for the training that I went for Teach for ESD, I don't think I could have use a topics or themes such as Conservation. I could have just used any other topics" — T1TI2, p.3
- "now I am teaching from base of knowledge , I know what I am talking about and also I am aware of the current environmental crisis such as climate change, global warming, and I also-I am engaged with resources that talk about statistics. So when I am discussing environmental issues with my learners, I feel like I have,they they have a lot to learn from because I have more knowledge on most of these environmental education." — T1TI3, p.3

- "although I knew certain things, it was just on the surface for example, things such as drought, I knew the definition of drought but just to go into details, the impacts of droughts or the long term effects of repeated drought conditions or what contributes to the countries experiencing drought now there is so much that I know and I can share with my learners or with any other person." T1TI3, p.1
  - "through the training one thing that I have learned is called intentional teaching where you just teaching not for the sake of teaching and completing your lesson but, teaching a topic because you want to change the thinking of a person and also because you want this person to make a reflective-to reflect on their life and also their everyday lives and see what they can change and how what they do can improve the environment ." T1TI3, p. 1
  - "from the training, the only thing that we had at the school was the school gardening. So, the training helped us to improve our school gardening because we learned how to do composting" T1TI3, p.2
  - "we also l earned how we can improve our soil fertility and have living organisms in our soil that can improve the yield or outcome of our crops". T1TI3, p.2
  - "We are also doing fireballs which is reducing waste whereby we take papers that learners throw away and from the dustbin and we are making fireballs whereby we are making a pulp, mixing papers with water and create fireballs that we are using to make fire at school because we have a school feeding programme. And these in a long run, we are saving electricity because instead of using electricity to cook food for the learners, we use these fireballs. Also we are saving trees saving trees because in a place of electricity, our school usually buys firewood. So in days where we are using fireballs, wood is not being used and electricity is also not being used." T1TI3, p.2
  - "We are also celebrating environmental days such as World Water Week where the whole school is involved, different learners coming up with ideas on how to save water. It was a competition and learners were fully engaged, it was a fun activity through that activity other learners also learned things that they did not know how one can save water at home, how one can save water at school. We are also having green nudges around the school where we are raising awareness such as, having notices on Switch off the Lights, Use Container When Drinking Water, Don't Litter" T1TI3, p.2
  - "we are having environmental or environmental policy where learners are sensitising other learners on the importance of picking up rubbish and putting it in the dustbin and making use of the dustbins that are around the school." T1TI3, p.2
- "We are encouraging the washing of hands which is promoting health at the school and many more other planned activities that we are doing as part of the ESD training." T1TI3, p.2

ANALYTICAL TOOL #1: TEACHERS' ZPD

This 3-step analytical tool is guided by Vygotskian socio-cultural learning theory, in particular his concepts of the Zone of Proximal Development (ZPD). The tool is designed to identify data that helps to describe how scaffolding and the MKO supported the teachers to move in their ZPD. A separate table is completed for each teacher.

Teacher's name: Mrs Tom **Date of analysis:** 07-11-2023

STEP 1: Teacher's needs re. ESD integration	
	Raw data index
• "I believe that they should publish books, they can even go to school libraries where learners can also do more reading on environmental issues."	T2TI3

STEP 2: Support provided by Teach for ESD programme re ESD integration	
Scaffolding that advanced Mrs Matt's ZPD	
• "By providing them with ongoing training and learning opportunities on how to implement EE/ESD in the curriculum. Besides that, teachers all request the support they require from their regional coordinators."	NSI
• "Training- teachers that are part of the programme are trained to understand EE/ESD and how they can implement it in their schools."	NSI
• through several different types of contact sessions with NaDEET staff, you will receive practical training and support to help yo Implement ESD activities at your school.	D2: p.1, p.2, p.3 D5: p.8, p.13
• 219 teachers participated in centre-based training	D6: p.9
• Teach for ESD is designed to support teachers to develop ESD knowledge and skills, to collaborate and grow while learning from each other along the way.	
• Training- teachers that are part of the programme are trained to understand EE/ESD and how they can implement it in their schools.	NSI
• Material support – teachers receive a Teach for ESD Toolkit that guides them on how to implement different ESD activities at their schools through different lessons.	NSI
• "Material support – teachers receive a Teach for ESD Toolkit that guides them on how to implement different ESD activities at their schools through different lessons."	D2: p.5
• The Teach for ESD Toolkit- A uniquely designed toolkit full of resources to guide you through the implementation of ESD activities at your school	D6, p.9
• The Teach for ESD Toolkit- A resource pack that is the foundation of the Teach for ESD programme, wit5h three main objectives: ***provide solid background information on ESD; link participants to many excellent, existing resources on ESD; provide the foundation for practical implementation of ESD at school***	D2, D5, D6, p.17
• NaDEET has implemented a monitoring and evaluation through a badge system and school site visits	D2: p.4
• The badge system is our is our monitoring and evaluation. It allows NaDEET to understand the real value of our work, make changes where needed, and to design impactful future programmes.	D4: p.1 D5: p.6 D6: p.9

- The badges are the monitoring and evaluation tool for assessing the teachers in the programme and their implementation of ESD activities at their schools — D6: p.9
- The badge system reflects NaDEET's approach to learning by involving the teachers in their own continuous assessment
- Completing your ESD task, your ESD profile — D2: p.2

Social Interactions occurred between Mrs Matt and NaDEET facilitators

- NaDEET staff facilitated the regional workshops and centre-based training — …
- The teachers in the programme are supported by a regional coordinator to assist them on their EE/ESD journey. These staff members are the first contact people for teachers in the programme on any issues. — NSI
- Each regional group working group will have a NaDEET staff member as an advisor. — D2: p.5
- …while allowing NaDEET staff to act as advisors — D6, p.9

D2, D5, D6, p.17

Social Interaction occurred between Mrs Matt and other teachers in the programme

- Mrs Tom joined the Teach for ESD programme with her colleague with whom she has been working with in the programme — D6: p.6,p.7
- Mrs Tom worked with other teachers during the centre-based training and during the regional workshop — D2, D5, D6,p. 17, p.16
- Mrs Tom has been communicating with other teachers as the NaDEET created a WhatsApp group platform for teachers to communicate by sharing what they are doing at their respective schools and by posing questions — D2, D5, D6, p.17
- The participants were grouped into four smaller regional clusters, this encouraged networking and team-building among smaller groups — D6: P.9
- Each regional group had their OWN WhatsApp group platform where they interact on a regular basis . He they share their challenges and successes, asked questions, and created a community of learning and action — D6: p.9

STEP 3: Teacher's account of what she can now do re. ESD integration

- "The Teach for ESD lesson had been of great help because some of the ideas I got them from the ESD toolkit that guided me how to teach the lesson." — T2TI3
- "Yes I have become more knowledgeable on environmental issues and sustainability as I also got to know about the different developmental goals, the SDGs that we are heading towards and that we need to accomplish." — T2TI3
- "At our school we have planted a few trees" — T2TI3
- "also have developed an environmental club that is taking care of the environment around here" — T2TI3
- "We also had activities like installing bulbs that save electricity in a community." — T2TI3

Appendix G

Annalytical Tool for Teachers' TSPCK

ANALYTICAL TOOL: TSPCK
Using TSPCK to analyse the intended and the enacted curriculum

Teacher's name: Mrs Matt	**English** **Skill:** Listening Comprehension **Competencies:** -sequence pictures, words and short sentences while listening to texts e.g radio broadcasts, news, weather forecast, sports commentary etc -rearrange jumbled sentences	**EE/ESD topic** Conservation
TSPCK components (extracts, quotes…)	**Rating:** Weak, moderate, strong, very strong	**Raw data index**
Learner Prior Knowledge		
• "The teacher will write Listening Comprehension on the chalkboard and ask the class what they will do for the day" • Mrs Matt started her lesson by writing *Listening Comprehension* on the chalkboard. She then asked the class what they are going to do for the day and one learner responded that they are going to listen to the teacher and the respond to the questions. • She gave learners flash cards with words and instructed the learners to discuss the meanings of the words in their groups. The Flash cards were written: *clues, anti-poaching, rhinoceros, poacher, conservation, investigation*. She then asked the learners to give the meanings of the words as they discussed in their groups.	Lesson plan **Weak** There no trace of LP Lesson presentation **Strong** The teacher tested learners to see if the they know what happens in the Listening Comprehension lesson The teacher allowed the learners give the meanings of the words and she elaborated on the meanings as she writes the definitions on the chalkboard	T1LP T1TV
Curriculum Saliency		
• Not reflecting	Lesson plan **Weak** **No trace of big ideas**	T1LP
• She gave learners flash cards with words and instructed the learners to discuss the meanings of the words in their groups. The Flash cards were written: *clues, anti-poaching, rhinoceros, poacher, conservation, investigation*. She then asked the learners to give the meanings of the words as they discussed in their groups.	Lesson presentation **Moderate** **The words: clues, anti-poaching, rhinoceros, poacher, conversation and investigation are a**	T1TV

	mixture of big ideas from both the skill and topic	
What is difficult to understand		
• Not reflecting	Lesson plan No track of WDU	T1LP
• She gave learners flash cards with words and instructed the learners to discuss the meanings of the words in their groups. The Flash cards were written: *clues, anti-poaching, rhinoceros, poacher, conservation, investigation*. She then asked the learners to give the meanings of the words as they discussed in their groups.	Lesson presentation **Very Strong** She identified the concepts that are used to elicit the LP and used as big ideas	T1TV
Representation		
• "The teacher reads the Listening text on rhino poaching" • "pictures, pieces of papers with jumbled sentences" • Mrs Matt started her lesson by writing *Listening Comprehension* on the chalkboard • She gave learners flash cards with words and instructed the learners to discuss the meanings of the words in their groups • After reading the article, she gave the learners pictures in groups. • Mrs Matt then pasted the same pictures on the chalkboard • The last activity the teacher asked the learners to put sentences that they are given in pieces of papers in the correct order •	Lesson plan **Weak** No trace of RP Lesson observation **Strong** **The teacher employed chalkboard, flashcards, an article, pictures, question sheet as teaching aids** **She elaborated on learners' answers, explained where necessary**	T1LP T1TV
Conceptual teaching strategies		
• "The teacher will write Listening Comprehension on the chalkboard and ask the class what they will do for the day" • The teacher asks the learners to rearrange the sentences and pictures	Lesson plan **Moderate** The teacher acknowledges the learners misconceptions by asking them what they will do for the day, the teacher was trying to see the learners know what happens in the Listening comprehension lesson	T1LP
• She then asked the class what they are going to do for the day and one learner responded that they are going to listen to the teacher and the respond to the questions. • She gave learners flash cards with words and instructed the learners to discuss the meanings of the words in their groups • She then asked the learners to give the meanings of the words as they discussed in their groups. The learners gave the meanings; as the learners	Lesson observation **Strong** The teacher employed chalkboard, flashcards, an article, pictures, question sheet as teaching aids She asked question, elaborated on learners' answers, explained where	T1TV

are giving the meanings, she is elaborating more or correcting them if they are wrong. • They came up with these final meanings and the teacher wrote them on the chalkboard • • After reading the article, she gave the learners pictures in groups. • *You can put numbers, you are allowed to put number. A-a-a-a don't put numbers is fine. Just see how you will arrange your pictures, I must see how have arranged them.* • She told the learners what she could see in picture 1 and then asked the class what they could see in the other pictures. • Mrs Matt asked again which picture suits to be number 1 until number 5. Learners rearranged the pictures by giving the answer orally. • The last activity the teacher asked the learners to put sentences that they are given in a piece of papers in the correct order. • First she asked random individual learners to read the sentences aloud.	necessary and instructed and guided learners	

Teacher's name: Mrs Tom	**English** **Skill:** Listening Comprehension **Competence:** -distinguish fact from opinion from stories heard and write down the reasons why it is so -construct own sentences on facts and opinion	**EE/ESD topic** Recycling

TSPCK components (extracts, quotes…)	**Rating:** Weak, moderate, strong, very strong	**Raw data index**
Learner Prior Knowledge		
• No LP reflecting	Lesson plan **Weak** Not reflecting in the lesson plan	
• No LP reflecting	Lesson presentation **Weak** She rather gave learners dictionaries to look for answers, even though there learners without dictionaries, she had to confirm with them first so she skips them and proceed asking those with dictionaries	T2TV
Curriculum Saliency		

• "The teacher asks learners the meanings of the words on the flashcards from the dictionaries"	Lesson plan Weak the teacher did not list the concepts	
• She then pasted on the chalkboard three labels/flash cards (Reduce, Reuse, and Recycle)	Lesson observation **Moderate** The teacher listed the topic concepts but there no evidence of the concepts related to the skill. She could only elaborate on one concept (ReUse), the rest definitions were copied directly from the dictionaries	T2TV

What is difficult to understand

• "The teacher asks learners the meanings of the words on the flashcards from the dictionaries"	Lesson plan **Weak** The teacher did not list the concepts	
• She then pasted on the chalkboard three labels/flash cards (Reduce, Reuse, and Recycle)	Lesson observation **Strong** She listed the concepts that are also linked or used as big ideas and defined them too	T2TV

Representation

• "Audio, worksheet, Dictionary, Recyclable trash/pictures and flashcards."	Lesson plan **Moderate** The teacher listed the teaching aids used to enhance the lesson without giving depth explanation how they are used	
• Mrs Tom started the lesson by showing learners different materials she allowed them to circulate the materials so that the learners can touch and feel them. The materials are: empty coffee container, empty 2litre cooldrink bottle, empty 30 eggs tray, empty milk paper container and empty bean tin • She then pasted on the chalkboard three labels/flash cards (Reduce, Reuse, and Recycle) • She then wrote *Listening Comprehension* on the chalkboard. • learners dictionaries to look up for the meanings of the words on the labels.	Lesson observation **Strong** The teacher explained how each teaching aid is used and wrote the definitions of each concepts on the chalkboard	T2TV

- Mrs Tom distributed the answer scripts (which is the text with missing words)
- She then played the tape-record and then learners completed the activity while listening to the tape-record.
-

Conceptual teaching strategies

• "The teachers shows the learners various items" • "The teacher asks learners the meanings of the words on the flashcards from the dictionaries" • "The teacher will read out the questions and then tell the learners that they are going to listen to a listening comprehension" • "The teacher will play the audio thrice and the will answer the questions" • "The teacher will then group the learners into three groups and they will be asked to sort out trash into four categories" • "The teacher will walk around to monitor the progress"	Lesson plan **Weak** No evidence of neither acknowledgement of LP nor corresponding confrontation	
• Mrs Tom started the lesson by showing learners different materials she allowed them to circulate the materials so that the learners can touch and feel them. • She also asked the learners to observe if *"there are any labels and logos on the materials"* • She then pasted on the chalkboard three labels/flash cards (Reduce, Reuse, and Recycle). • She gave the learners dictionaries to look up for the meanings of the words on the labels. She then wrote *Listening Comprehension* on the chalkboard. Under that, she wrote the words reduce, reuse and recycle with the meanings given by the learners, as the learners are giving the meanings, she elaborates more and come up with the final definition. • She then played the tape-record and then learners completed the activity while listening to the tape-record. • Mrs Tom instructed learners to get into four groups • she teacher then called learners in front for presentations.	Lesson observation **Moderate** The teacher directed learners on what to do with limited explanation, she only elaborate on one concept.	T2TV

Teacher's name: Ms Londy	**English** **Skill:** Reading: Literature (Poetry) **Competence:** Demonstrate and understanding of and respond to aspects of poems such as, theme, rhyme etc	**EE/ESD topic:** **The gift of trees**

	-Demonstrate the ability to find information such as meaning, spelling , idiomatic expression	

TSPCK components (extracts, quotes…)	Rating: Weak, moderate, strong, very strong	Raw data index
Learner Prior Knowledge		
• "Before reading the poem brainstorm ideas with the class, all the things trees give us"	Lesson plan **Moderate** LP misconceptions are identified but no explanation is identified	
• She asked if the learners can remember the listening activity they did about Arbor day of which the learners said they can remember • She then proceeded to ask what Arbor day is before the learners listed the benefits of trees • Ms Londy asked the learners again to list the benefits of trees saying, *"you should mention all the benefits we get from the trees."* • Ms Londy, *"D. Explain in your own words what deforestation means in line 9. Line 9 says 'Forest's roots form a mesh that stops deforestation'*	Lesson observation **Very Strong** The teacher elicited the LP by identifying arbor day, benefits of trees and deforestation and rephrased explanations	T3TV
Curriculum Saliency		
• Not reflecting	Lesson plan **Weak** No big ideas are reflecting in the lesson plan	
• She asked if the learners can remember the listening activity they did about Arbor day of which the learners said they can remember • She then proceeded to ask what Arbor day is before the learners listed the benefits of trees. *Line 9 says 'Forest's roots form a mesh that stops deforestation"*	Lesson observation **Strong** The teacher identified the concepts that hold the topic	T3TV
What is difficult to understand		
• Not reflecting	Lesson plan **Weak** No broad topics are identified	
• She asked if the learners can remember the listening activity they did about Arbor day of which the learners said they can remember • She then proceeded to ask what Arbor day is before the learners listed the benefits of trees • She then proceeded to ask what Arbor day is before the learners listed the benefits of trees	Lesson observation **Strong** The concepts Arbor Day and Deforestations are linked to the LP and can be used to make learners understand the benefits of	T3TV

trees through critical thinking

Representation

- "English textbook"
- Teacher lists the ideas on the chalkboard

Lesson plan
Weak
No explanation is provided to link the big ideas

Lesson observation T3TV
Moderate
The teacher used relevant examples in her explanations
The teacher also demonstrated how the rhyme scheme is written by writing it on the chalkboard.
She gave further explanations trying to provoking learners' critical thinking order to give the answers

- The teacher noted them on the chalkboard
- Ms Londy continued reading the instructions of 'While Reading from the textbook,
- She asked another question, *" Are we taking care of the trees though, I mean if you look here in* (name withheld), *just when you look outside, what is going on? Do we have trees?*
- *"D. Explain in your own words what deforestation means in line 9. Line 9 says 'Forest's roots form a mesh that stops deforestation'."* One learner responded, *"When people cut down trees."* Ms Londy seems not satisfied and asked if someone can help the respondent, but then no one said anything. She then proceeded to ask, *"What is it called cutting down trees and not replacing them?"*
- She asked again *"Why are hey compared to the lungs of a healthy nation?"* One learner said, *"because they give oxygen,"* Ms Londy emphasised that *"trees take in carbon dioxide and release oxygen, and oxygen is the one that we need, so basically they purify the air around us."*
- She asked again *"How is that help us to differentiate from the rest of the poem? Why do you think they are short?"* She the read the two lines *"The guide and ; It's up to us to choose."* One learner answered *"they try to advise"* but Ms Londy sounds not satisfied, *"but why do you think they are made short in literature?"* but no one said anything and she then said that, *"we have a choice and if we are not acting now, our lives will be short, short like these line. Either one chooses to lose and die by continuing cutting and causing environmental damage or you are going to stand up acting right so that we can live longer. We need to encourage that."*
- Ms Londy, *"H. What is the choice that we have in line 14?"* One learner responded, *"to take care of trees,"* the teacher then added that, *"it is up to us to take care of trees or just be careless and die."*

- The teacher noted them on the chalkboard
- Ms Londy continued reading the instructions of 'While Reading from the textbook,
- She asked another question, *" Are we taking care of the trees though, I mean if you look here in*

(name withheld), *just when you look outside, what is going on? Do we have trees?*

- *"D. Explain in your own words what deforestation means in line 9. Line 9 says 'Forest's roots form a mesh that stops deforestation'."* One learner responded, *"When people cut down trees."* Ms Londy seems not satisfied and asked if someone can help the respondent, but then no one said anything. She then proceeded to ask, *"What is it called cutting down trees and not replacing them?"*
- She asked again *"Why are hey compared to the lungs of a healthy nation?"* One learner said, *"because they give oxygen,"* Ms Londy emphasised that *"trees take in carbon dioxide and release oxygen, and oxygen is the one that we need, so basically they purify the air around us."*
- She asked again *"How is that help us to differentiate from the rest of the poem? Why do you think they are short?"* She the read the two lines *"The guide and ; It's up to us to choose."* One learner answered *"they try to advise"* but Ms Londy sounds not satisfied, *"but why do you think they are made short in literature?"* but no one said anything and she then said that, *"we have a choice and if we are not acting now, our lives will be short, short like these line. Either one chooses to lose and die by continuing cutting and causing environmental damage or you are going to stand up acting right so that we can live longer. We need to encourage that."*
- Ms Londy, *"H. What is the choice that we have in line 14?"* One learner responded, *"to take care of trees,"* the teacher then added that, *"it is up to us to take care of trees or just be careless and die."*
- The teacher *"J. Give the rhyme scheme of the poem."* The class with teacher came up with the following rhyme scheme Live A, Give A, Fruits B, Roots B, Wood C, Good C. and the teacher wrote it on the chalkbord
-

Conceptual teaching strategies

- "Teacher reads the poem aloud to the class" Lesson plan
- "Teacher goes through questions with learners and asks different learners to respond each time

• Ms Londy started the lesson by telling the class that the lesson of the day is "*Reading and Understanding a Poem"*. She then reminded the class that there are three reading stages: Before Reading, While Reading and After Reading. • Ms Londy continued read the instructions of 'While Reading,' *"Now read the poem and make a note of anything you did not not think of"* • Ms Londy then asked the learners, *"do you think trees are important?"* Learners replied that they are important. She continued to explain that they are important as human beings benefits from the things listed on the chalkboard. She asked another question, *" Are we taking care of the trees though, I mean if you look here in* (*name withheld) *just when you look outside, what is going on? Do we have trees?"* Learners said there are no trees and the teacher asked why. One learner responded by saying, *"they are cutting,"* while another one said, *"they are cutting for firewood."* Ms Londy added that at the end of the day the cutting down of trees for firewood might affect them in a negative way and there will be no anything of what is listed on the chalkboard. She asked, *" what happen to us then?"* the learners responded, *" we will die"* she added, *"so the trees are the lifeline* • Ms Londy read the instructions of 'After Reading' activity, *"Then read the poem carefully and answer the following questions."* She then delegated one learner to read the poem aloud as others are following into their textbooks. • The teacher then started with the questions. • She then delegated one learner who has dictionary to find the meaning of the word sonnet • Ms Londy concluded the lesson by asking learners what they have learned from the poem	Lesson observation **Very Strong** Considers LP by asking them their prior knowledge on Arbor day and deforestation. She also asked about the rhyme scheme and the sonnet. She also followed the strategy of *Before you read, While reading and after reading* to discuss the poem with the class.	T3TV

Appendix H

RHODES UNIVERSITY
Where leaders learn

Rhodes University, Education Faculty
Research Ethics Committee
PO Box 94, Makhanda, 6140, South Africa
Tel: +27 (0) 46 603 8393
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email: e.rosenberg@ru.ac.za

https://www.ru.ac.za/researchgateway/ethics/

13 January 2023

Prof Lausanne Olvitt

Education Department

l.olvitt@ru.ac.za

Dear Prof Lausanne Olvitt and Mrs Miryam Shangheta

Re: ESD integration in Namibian Senior Primary English Teaching

APPLICATION NUMBER: 2022-5849-7009

This letter confirms that your research ethics application has been reviewed and **APPROVED** by the Education Faculty Research Ethics Committee (EF-REC). Your permission letter(s) where applicable have been received and you are free to proceed with your study.

Approval is granted for 1 year. An annual progress report is required in order to renew approval for an additional period. You will receive an email notifying you when the progress report is due.

Should any substantive change(s) be made during the research process, that may have ethical implications, you should notify the Education Faculty REC Chair via email. This includes changes in investigators. The REC Chair will advise as to whether a new application is necessary.

Do keep this clearance letter secure and accessible throughout your study and after its completion. It will be needed when a thesis is examined and when publications are submitted to journals.

Please also submit a brief report to the REC Chair on the completion of the research. This can be done via email. The purpose of this report is to indicate whether the research was conducted successfully and whether any ethics-related matters arose that the committee should be aware of, in order to guide future studies.

Sincerely,

Prof Eureta Rosenberg

Chair: Education Faculty Research Ethics Committee

Appendix I

NaDEET's approval letter

10 October 2022

Permission to Conduct Master of Education Thesis Research on NaDEET's Teach for ESD project

Title: Teacher Professional Development as a Mechanism to Advance Education for Sustainable Development (ESD) Integration in Namibia: A Senior Primary English Language Case Study
Candidate Name: Miryam Keshityeni Shangheta (19S9455), Master of Education (Full Thesis)
Programme: Rhodes University Education Department; Research field: Environmental Education
Supervisor: Assoc. Prof. L. Olvitt
Co-Supervisor: Dr Z. Songqwaru

NaDEET acknowledges your interest, granting you gatekeeper permission to conduct research on ***Teach for ESD**: improving Education for Sustainable Development (ESD) teaching and learning experiences in Namibia*, implemented in its pilot phase between March 2021 – February 2023. The aim of Teach for ESD is to build the capacity of Namibian teachers – across all subjects and phases – to increase their knowledge, skills, and resources for implementing the cross-cutting curricular theme of Environmental Education/Education for Sustainable Development at schools across the country.

COVID-19

It is important that there is an excerpt in the report immediately addressing that this project was implemented as a pilot under significant limitations (for both the participants and NaDEET.) There were many adaptations from the original planning due to COVID, therefore the outputs were not our full intention for the programme.

General Support

During the six-week case study, NaDEET will provide support regarding information about the development and implementation of the programme. NaDEET will participate in an interview, which should not be limited to one staff member. Depending on scheduling, we will try to include multiple members of the team to answers questions on the different aspects of the project.

Any changes made to the research proposal or methodologies should be communicated with NaDEET in writing. All raw and compiled data resulting from the evaluation should be available to NaDEET.

Confidentiality

The sharing of NaDEET project development materials, databases, reports, work products, or any intellectual property is at the discretion of NaDEET. Any documents shared with the researcher must be held to the highest of confidentiality and may not be shared with third parties without explicit consent from NaDEET.

Research Integrity

The personal rights and dignity of NaDEET staff, programme participants, or stakeholders who are interviewed through the evaluation process must be respected. All research methods must be ethical and cause no harm to individuals or communities. Those who request anonymity must be obliged.

Damaris Braune
PME Officer

Miryam Keshityeni Shangheta (19S9455)
Master of Education Candidate, Rhodes University

Tel: +264 81 367 5310 ~ PO Box 8702, Swakopmund, Namibia ~ admin@nadeet.org ~ **www.nadeet.org**

Appendix J

Approval letter: School

18th October 2022

ATT. Ms. Miryam K. Shangheta

Sub: Permission to Conduct Research

Your request to conduct research at [redacted] is approved. We belief that your visit at our school will be fruitful and an eye –opener for your studies.

Thank you.

[redacted] - *Principal*

Appendix K

Approval letter: School

[redacted]

Enquiries: [redacted]

18 October 2022

Miryam Kashityeni
0816523066

Dear Ms. Shangheta

RE: PERMISSION TO CONDUCT RESEARCH

This letter serves to inform you that permission is granted for Ms. Miryam Keshityeni to conduct the research titled "Teacher Professional Development as a Mechanism to Advance Education for Sustainable Development ESD integration in Namibia: A Senior Primary English Language Case Study" at [redacted] Secondary School.

For any information please do not hesitate to contact the undersigned.

Your Sincerely,

[redacted]

Ms. [redacted]
Principal:

Appendix L

Approval letter: School

30.09.2022

Dear Ms Shangheta

It is with great pleasure and honour that [redacted] management and school witness your further studies to develop yourself professionally.

We are there for delighted to inform you that we grant you permission wholeheartedly to conduct your research with our language department in the senior primary phase.

We further wish you all the best in your studies and pledge our assistance and cooperation in your research program.

Yours in Education

[redacted]

Acting Principal

Appendix M

Consent letter for participants

RHODES UNIVERSITY
Where leaders learn

EDUCATION DEPARTMENT
Tel: +27 (0) 46 603 8383
Fax: +27 (0) 46 622 8028
P.O. Box 94, Makhanda

PARTICIPANT INFORMED CONSENT

Project Title

Teacher Professional Development as a Mechanism to Advance Education for Sustainable Development (ESD) Integration in Namibia: A Senior Primary English Language Case Study

Miryam Keshityeni Shangheta (Student No. 19S9455) has requested my permission to take part in the above-mentioned research project.

The nature and purpose of the research project and of this informed consent declaration have been thoroughly explained to me in the language that I understand.

I am aware that:

1. Mrs Shangheta is currently registered for a Master of Education Degree at Rhodes University, South Africa.
2. The purpose of her research is to explore the integration of Education for Sustainable Development (ESD) in Senior Primary Phase English Language.
3. Rhodes University has given ethical clearance to this research project and I have seen/ may request to see the clearance certificate. (Ethical Clearance number: 2022-5849-7009)
4. I will be interviewed individually and all COVID-19 protocols will be adhered to. Should COVID-19 restrictions be in force, I will be interviewed on a virtual platform such as Zoom, Google Meeting or WhatsApp.
5. By participating in this research project, I will be contributing to knowledge and understanding of how ESD can be integrated in Senior Primary Phase English Language teaching.
6. My participation is entirely voluntary and should I at any stage withdraw from the study, I may do so without any negative consequences.
7. I will not be compensated for participating in this research project.

8. Time will be mutually agreed for the interview to take place.

9. Mrs Shangheta intends to publish the results in form of thesis and journal article. Confidentiality and anonymity of the data will be maintained in that that my name and identity, and the name of my school will not be revealed in any publications or research presentations.

10. I will receive feedback regarding the study's findings. Mrs Shangheta will give me an opportunity to review the sections that represent my contributions before finalising the report.

11. I will receive a copy of this informed consent that I have signed and the original will remain with the researcher.

12. I agree that my voice may be recorded, transcribed and quoted.

13. I agree to have one of my lessons video-recorded, on the understanding that it is for research purposes only and the video will not be shared beyond Mrs Shangheta and her research supervisors.

14. By signing this informed consent declaration I am not waiving any legal claims or rights.

15. Any further questions I might have regarding this research project or my participation can be answered by the Mrs Shangheta's Masters supervisors: Associate Professor L. Olvitt (l.olvitt@ru.ac.za) or Dr Z. Songqwaru (z.songqwaru@ru.ac.za)

I, …….. (full name) have read the above information and confirm that it has been explained to me in a language that I understand, and I am aware of this document's content. I therefore offer my consent and volunteer to take part in this research study.

…….. …….. ……..

Participant's signature Witness' signature Date

Rhodes University, Research Office,
Ethics Coordinator: ethics-committee@ru.ac.za
T: +27 (0) 46 603 7727
Room 220, Main Admin Building, Drostdy Road, Makhanda, 6139

Miryam Keshityeni Shangheta
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+26481 65 23066

Assoc Prof L.Olvitt
l.olvitt@ru.ac.za

Dr Z. songqwaru
z.songqwaru@ru.ac.za

Appendix N

Pictures used in Mrs Matt's lesson