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**Apiianga no te oraanga akapuapinga
e te taporoporo i te ipukarea**

**Education as Sustainable Development: Mangaia,
Cook Islands**

A dissertation presented in partial fulfilment of the requirements
for the degree of
Doctor of Philosophy in Development Studies

Massey University
Palmerston North
New Zealand.

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2016

Abstract

Sustainable development (SD) and Education for Sustainable Development (ESD) became prominent in the 1990s. Problematically, these western centric constructs have sometimes been used to justify greater economic growth despite concern about the environment. Simultaneously, greater awareness of the pivotal role culture plays in development has demanded the rethinking of SD in terms of culturally responsive and contextually relevant ‘alternatives to’ development.

Using the case of Mangaia in the Cook Islands the aim of this research was to draw out Manganians own visions for SD and their consequent expectations for the type of ESD delivered to students in the classroom. Situating the research within a hopeful post-development framework a culturally responsive, open ended, critical research methodology was used to gain an understanding of what constitutes a Mangaian SD worldview. Using participatory semi structured interviews underpinned by Mangaian *uriuri manako* (reflective problem solving) preliminary frameworks for Mangaian SD and ESD were co-constructed.

This thesis highlights that to Mangaian people SD is complex and multi modal consisting of an indigenous development centred on *oraanga Mangaia* and alternative modernities, embedded in culture, operating at the margins of the global economy. This Mangaian view of SD, interacting with externally driven development, is continually reinvented by the Mangaian people using both indigenous and western knowledge, in response to issues of sustainability.

The study argues that current western centric ‘Education about’ and ‘Education for’ SD programmes do not reflect the cultural and contextual reality of SD in the Global South. Instead, Education as Sustainable Development (EasSD) is presented as a novel concept, which embraces learning taking place within culture and is able to respond to the context and dynamism of hopeful post-development settings: it is argued that this approach would provide students with the knowledge to be able to fashion community-based sustainable futures. An EasSD approach would expose students to a broader range of livelihoods options and have the ability to strengthen a student’s language, culture and identity while potentially improving their academic outcomes. A strength based implementation that draws on the support of all development and education stakeholders offers the best chance of actualising EasSD and so empowering students with the ability to participate in, and lead, their own communities’ SD.

Dedication

This thesis is dedicated to my Mum and Dad.

June Stark French Beumelburg who sacrificed so many things for her children. You instilled in me my love of learning, academia and life. You sparked my interest in development studies.

Colin Beumelburg you encouraged me to challenge myself. You always encouraged me to do well and always backed me to succeed. You always supported my endeavours.

Your enduring love stays with me. This thesis is for you both. I know it would have made you both proud.

Acknowledgements

Te maata I taau ka oronga ko te maata rai ia I taau ka rauka.

I would like to thank the *aronga mana*, *kavana* and *ui rangatira* for welcoming me onto Mangaia and supporting my research. I am honoured by the trust that you have placed in me to highlight Mangaian culture and provide research that supports improved education on Mangaia. In addition, I am humbled by the blessings and welcome of the various church Ministers and government officials on Mangaia who all gave their backing to my research aims.

I would also like to express my gratitude to the entire Mangaian community for your friendly welcoming nature and the never ending support you showed me during my time on Mangaia. You accepted me into your community and encouraged me to participate in your daily lives. You opened your homes to me. Through countless *uriuri manako*, you provided me fascinating insights into *oraanga Mangaia* and Mangaian culture and the links to living sustainability. As proud Mangaians, many of you asked for the opportunity to be interviewed during my three stays on Mangaia. Many of you viewed the research as your opportunity to support better education on Mangaia and promote the Mangaian culture to the outside world.

I would like to thank my wife's family for accepting me as a nephew who is *kopu tangata*. In Oneroa, I would like to thank Periki and Teremoana Poila and their family for hosting me and including me in their daily lives. They willingly provided me with the information and contacts I needed to progress my research. They also provided many insights into Mangaian life and no question was off limits. In Ivirua, I would like to thank Makitangi and Tua Vaipo and Tangi Vaipo and their families for inviting me to stay in their family home I am thankful for the way you all looked after me, the cultural knowledge you imparted and your willingness to introduce me to key contacts in the village. I thank Gill and Maara Vaiimene for the use of their family home to study in it was very much appreciated.

I would like to thank all of the *ta'unga* who patiently imparted, and entrusted me with, the deeper aspects of Mangaia's rich knowledge and culture. Moekapiti Tangatakino, Inangaro Papatua and Ngametua Toko I am indebted to you all. Your input is invaluable although I take responsibility for the conclusions drawn.

Na te rima uruuru tena I rave

I would like to thank Taoi Nooroa, Tangimama Vavia, Michael Papatua, Tuara Tuara, Alan Tuara, Peter Ngatokorua on Mangaia, and Tom Te-oi Webb and Nina Tangitamaine Webb back in Whanganui for their unique insights into Mangaian culture particular in relationship to living sustainability and sustainable livelihoods.

In relation to the educational aspects of this research, I would like to thank Sue Ngatokorua principal of Mangaia School and her staff for readily and cheerfully answering my never ending questions and welcoming me into their classrooms. Sue was always available and provided valuable insights into the history and delivery of education on Mangaia. Moekapiti provided astute viewpoints on the modern day role of Mangaian culture and history and the importance of the Maori curriculum from a Mangaian worldview perspective. Gill Vaiimene enthusiastically outlined practical possibilities for a transformative EasSD curriculum.

E kai venevene te tuatua a te monomono korero

In summary, I thank all Mangaians for opening your minds and hearts while sharing with me your passion for your culture and way of life. I am also grateful for the freedom you provided me to explore Mangaian culture and then draw my own conclusions on its relationships to SD and consequentially ESD.

Tangi ke tangi ke

Te akameitaki nei au i te iti tangata Mangaia, no ta kotou tauturu mai anga iaku.

Kia manuia

I owe my wonderful supervisor's Doctor Rochelle Stewart-Withers, Professor Huia Jahnke and Professor Regina Scheyvens a debt of gratitude. I am grateful to you all for your professionalism and the challenging conversations you engaged me in. You patiently encouraged me and diligently supported me throughout the thesis. You inspire me with your passion for development studies and indigenous education. I thank The New Zealand Aid Programme and the Massey University People, Environment and the Planning Graduate Research Fund for their financial support.

I owe a huge debt of gratitude to Lia Tuffield who meticulously proofed drafts and Sam Kemp who taught me to use graphics software.

I would like to thank my family Rosemary Tolau, Colin Poila and Jasmine Turiongo for their love and support. You always backing my endeavours. I would like to thank my wife

Sylvia for her support and the unconditional love she gave me throughout the course of my study. You are always proud of me.

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List of Acronyms

AS - Achievement Standard

CBA - Cost Benefit Analysis

CITTI - Cook Islands Tertiary Training Institute

DESD - Decade of Education for Sustainable Development

EasSD - Education as Sustainable Development

EFA - Education for All

EfS - Education for Sustainability

EIA - Environmental Impact Assessment

EMP - Education Master Plan

ESD - Education for Sustainable Development

GDP - Gross Domestic Product

HRD - Department of Human Resources Development

IDG - International Development Group

IK - Indigenous Knowledge

IUCN - International Union for Conservation of Nature

JCfD - Joint Commitment for Development

MDGs - Millennium Development Goals

MFAT - New Zealand Ministry of Foreign Affairs and Trade

MIA - Mangaia Island Administration

MIRAB - Migration, Remittances, Aid and Bureaucracy

NCEA - National Certificate of Educational Achievement

NGO - Non Government Organisation

NSDP - National Sustainable Development Plan

NZC - New Zealand Curriculum

NZQA - New Zealand Qualifications Authority

NZQF - New Zealand Qualifications Framework

PACC - Pacific Adaptation to Climate Change

PEDF - Pacific Education Development Framework

PESDF - Pacific Education for Sustainable Development Framework

PICI - Pacific Islands Conservation Initiative

PRIDE - Pacific Regional Initiatives for the Delivery of Basic Education

RPEI - Rethinking Pacific Education Initiative

RPEIPP - Rethinking Pacific Education Initiative for and by Pacific Peoples

SD - Sustainable Development

SDGs - Sustainable Development Goals

SIDS - Small Island Developing States

SWAps - Sector Wide Approaches

TEK - Traditional Ecological Knowledge

UNCED - United Nations Conference on Environment and Development

UNESCO - United Nations Educational, Scientific and Cultural Organisation

USP - University of the South Pacific

SLEP - Sustainable Livelihood and Education in the Pacific

JBTE - Joint Board of Teacher Education

LLEE - Live and Learn Environmental Education

UCSIS - University Consortium of Small Island States

Glossary of Mangaian terms

Akapapaanga – Genealogy

Akaperepere - To care for

Akaputuputu taokotai – Collaboration

Akari - Mature coconut

Akarongo Kirititiano – Christianity

Akatamanako – Thinking

Akau – Reef

Akono - Care for

Akonoanga enua - Using your skills and knowledge to utilise the resources from the land and sea to provide food and shelter

Anua Enua - The original name for Mangaia meaning a terraced or raised island

Aarikianga – Hospitality

Aroa taeake kai - The sharing of food amongst extended family members

Aroa taeake - The gifting and sharing of resources

Aroaaroa – Love and sharing

Aronga Mana - Mangaia's traditional leaders

Avaiiki - Mangaian Spiritual home also called Hawaiki

Avarua - The capital of the Cook Islands and central administrative centre located on Rarotonga.

Ei – Necklace

Ei pupu - Necklace made from shells of pupu (a small snail found in the makatea)

Etene - A non-Christian person

Ika – Fish

Ivirua - Village located on eastern side of the island

Kainga - A taro garden located inland. The garden can contain other crops as well.

Kaikai – Eating

Kairanganuku - Old name for ui rangatira (traditional leaders on Mangaia)

Kakaro I te puaka I te puanio I te moa - Tending pigs, goats and chickens

Kauraro – Respect

Kavana - A transliteration for governor used in reference to chief of a puna. Also known in olden times as a pava

Keia - One of the six puna on Mangaia

Kete – Basket

Kimi i te oraanga meitaki/matutu/rangarangatu no te Mangaia whilst akono akaperepere ma te taporoporo i te ipukarea - Mangaian SD

Kimi ravenga - Critical thinking (problem solving)\

Kimi uga - Hunting land crabs

Kimi'anga Pu'apinga - Enterprise studies

Kimianga puapinga no te ipukarea - Small business based on culture

Kite peu karape - Mangaian knowledge

Kite peu karape ou - New knowledge

Ko'atu – Stone

Kopu tangata - Extended family

Maire - The name of a plant used to make a popular leaf necklace

Makatea - The raised coral reef that encircles the island of Mangaia

Mamio – Taro

Mango – Shark

Manioto – Arrowroot

Maroiroi - physical and mental strength

Maro-itiki - Popular Mangaian design used in carving and tattoos representing a legend where two brothers who fought side by side

Mātematika – Mathematics

Maunga – Mountain

Moa – Chicken

Ngakau akaaka – Humility

Noinoi apinga – Greedy

Nonu - Fruit juice believed to have health properties

Nui - Drinking coconuts

Nūmangātini - The traditional name for the King or Queen of Mangaia

Oneroa - Village located on western side of the island. Administrative capital of the island.

Ora'anga 'Iti-tangata - Social Studies Curriculum

Ora'anga ë te Tupu'anga Meitaki - Health and Physical Well-being Curriculum

Oraanga Mangaia - Traditional life on Mangaia

Pa enua - Most commonly refers to any of the 14 outer islands of the Cook Islands excluding Rarotonga.

Pakoti rouru - Haircutting ceremony

Parau – Pearl

Pare – Hat

Pana – Clam

Pava - Traditional chief of a puna

Peu angaanga - Cultural activity

Peu inangaro - Cultural beliefs

Peu oire tangata - Cultural community

Peu Ora'anga - The Arts

Peu puapinga - Cultural values

Peu ui tupuna - cultural traditions

Pitineti – Business

Puaka – Pig

Puanio – Goat

Puapinga pu - Mangaian values

Pui puaka - Hunt pigs

Puna - District, one of six major wedge-shaped land divisions in Mangaia

Purumu kikau - Coconut brooms

Rangarangatu - Commanding respect and loyalty through knowledge and wisdom

Rangatira - Leader on Mangaia

Rarotonga - Main island of the Cook Islands consisting of capital and international airport.

Rau - Traditional adaptive management of land and sea resources

Reo Mangaia - Mangaian language

Ropa – Making

Ropa kete - Making a basket

Ropa are - Building houses

Taieni – Science

Takoekoe - Bamboo (often used to refer to a bamboo fishing rod)

Takurua mataiti - New Year's village feast

Tamarua - Southern village on Mangaia

Tanga'eo - Mangaian kingfisher

Tanutanu - Planting crops

Tapere - Sub-district, a lesser land division within a puna

Taporoporo – protect

Ta'unga - Knowledge person

Te au peu enua - Mangaian culture

Te ipukarea ia rangarangatu - Specific Mangaian customs connected to religion, culture, language, epistemologies, traditions, ways of living, reciprocal obligations, land tenure systems and relationship with nature.

Te peu Maori - Cook Islands culture

Te reo Maori Kuki Airani - Cook Islands Maori language

Te Toki Purepure a Mangaia - Mangaian adze

Tekinoroti – Technology

Tiotio - Small reef fish

Tipene - A type of flower

Tiriara - Largest lake on Mangaia

Tiromi - Smashed cooked taro

Tivaevae - Mangaian quilt

To tatou ai tupuna - Our ancestors

Toitoi toki - Carving adzes

Tu inangaro – Relationship

Tuitui – Sewing

Tunumanga – Cooking

Uipaanga – Meeting

Ui paanga pukuru - Traditional Mangaian New year's village meeting

Ui rangatira - Leaders (plural)

Ungakoa - Small crab

Uriuri manako - Problem solving often in a group

Veitatei - One of six puna on Mangaia

Umukai - Feast

Chapter 1 Introduction

1.1 Seeds of the thesis

The questions arising in this thesis originated in 1985 and they have continued to resurface throughout my now thirty year interest in Pacific development and education. In 1985, aged 22, I embarked on a two year Volunteer Service Abroad (VSA) science teaching assignment at Vureas High School on the island of Ambae in Vanuatu. Placing a high value on the benefits of academic achievement, I worked extremely hard to prepare my students for their national examinations. For successful students, further education and employment beckoned. For students failing to achieve the necessary grades, a traditional lifestyle awaited without the same access to the benefits of modern material goods and services.

In 2013, part way through my PhD study, I returned to Vanuatu after a 27 year absence for a reunion with some of my ex-students in the capital, Port Vila. Invariably, they were the students who had progressed to post-secondary education and, in their early forties, found themselves with good careers. They expressed their appreciation to me for helping them to attain the lifestyles they enjoyed. Whilst happy for these former students, and now friends, I also reflected on what might have happened to the students who had returned to their villages.

While aspects of the western centric education these students received provided life skills, much of it might only have held minor relevance to the lives they led in their villages. A question I asked myself: *Why had students not also been educated, at school, to explore their culture and take advantage of the multiplicity of livelihood opportunities that exist back in their villages?*

In 1990, I embarked on another two year VSA assignment, as a science teacher, to my wife's island of Pukapuka in the northern Cook Islands. I was immersed in my wife's culture and language. I experienced first-hand the skills and knowledge Pukapukans possess in fashioning traditional livelihoods from the surrounding environment. After all, Pukapukans have lived successfully on Pukapuka for hundreds of years. However, like Vanuatu, education was still largely based on western ideas and contexts with which the

students had little familiarity¹. Pedagogically, I set about challenging this by writing a science textbook in Pukapukan language, using local contexts to illustrate scientific concepts. This approach assisted students to make sense of their learning, but still something was missing. *Should students not explore, through the lens of a Pukapukan worldview, more of their own values, culture and the contribution traditional livelihoods have, and could continue to make, to future resilience and sustainability?*

My experiences on Niue, as Head of Science at Niue High School, from 1994 to 1997, were similar. A western centric education and qualifications were considered necessary for careers in the public service. Competition for available overseas education scholarships underpinned the ethos in the senior years of schooling. *Should students not be exposed to more learning about their own culture and values so they might consider the advantages of livelihoods based on Niuean culture?* In Vanuatu, the Cook Islands, Niue, the broader Pacific and indeed the Global South, education down narrow western curriculum pathways, the result of lingering colonial education systems, has trapped some students in the gulf between raised expectations and a lack of jobs (Gould, 1993; Sachs, 2013).

In December 2013, while in Vanuatu, I meet up with Ralph Regenvanu, a minister in the Vanuatu government. In the Vanuatu context, he had echoed my concerns and the concerns of other Pacific and Global South educators about the continuing damage inflicted on students by outdated western centric education systems. Education systems that fail to encourage students from the Global South to think about the strength, ongoing resilience and opportunities that traditional livelihoods and economies might provide to their future lives. Regenvanu (2009) provided his thoughts on the state, and future direction, of Pacific education::

It is essential that we transform ... our basic education system to reflect and address the reality of the central role the traditional economy plays in providing livelihoods, security and sustainable development outcomes to the population. It is a sad fact that our basic education system is still largely premised on the colonial rationale of producing bureaucrats to run the state administration. Formal schooling ... actively contributes to the loss of the knowledge and skills that allow an individual to function as a member of their own community and a part of the traditional economy. Our basic education system continues to instil our young people with the understanding that the

¹ On Pukapuka, education was western centric, educating students for public service careers in Rarotonga.

traditional economy is not of value, while placing high value on earning a cash income and consumerism. (p. 6)

My experiences and Regenvanu's thoughts raise a number of issues. Western qualifications benefit those individual students who use it to secure well-paid employment. *However, should this be education, only function? Could student learning about their own culture, values and traditional livelihoods also be beneficial in their future lives?*

With the growing global popularity of the notion of sustainability in development², I have often wondered whether sustainability, as a theme in education, might provide a vehicle through which Pacific livelihoods could be showcased to Pacific students who currently see only western idealised solutions to development. This thesis is the culmination of my long association with Pacific education and my thinking about the ever increasing relevance of traditional Global South livelihoods and culture in the face of the global call for development that is sustainable.

1.2 The thesis problem outlined

Having reflected on my experiences as a teacher, with an interest in development, in the Pacific, I now outline the thesis problem in relation to the literature. My research is a coalescing of three main issues, discussed below:

1.2.1 Continuing western centric education

Firstly, there has been a strengthening of the dominant western education paradigm in the Global South, whereby the key function of education is a tool to build human capital; an investment deemed necessary for the economic development of a country. Knowledge of western science, business, commerce and technology, key components of westernisation, are considered to be the gateway to this success (Rist, 2002). Western education as a surreptitious hegemony, directs student aspirations towards western ideologies, values, beliefs and lifestyles (Bacchus, 1997; Karabel & Halsey, 1977; Schultz, 1961).

Development agencies often reinforce this approach by channelling aid towards western style economic growth initiatives, for example, those in the Cook Islands (New Zealand Ministry of Foreign Affairs and Trade, 2012). In a world that increasingly promotes

² Sustainable Development Goals (SDGs) replaced the Millennium development Goals (MDGs) in 2015 United Nations (2015a).

neoliberalism as the only way forward to lift people out of poverty and provide their basic needs, alternatives to development and alternative development strategies are largely ignored.

Although it can be argued that education has contributed to economic success through a neoliberal development model at the macro level the size and the nature of this impact has been contested in the Global South over the last 30 to 40 years (Fagerlind & Saha, 1983). The benefits of economic growth are often not distributed equitably. Moreover, expected economic growth has not matched the supply of graduates, resulting in unemployment of the educated (Gould, 1993).

Equally concerning, is the suffocating effect western curricula can have on students' perceptions of the value of their own traditional livelihoods. In a rapidly globalizing world, culture is often dismissed as irrelevant (Esteva & Sachs, 1992; Shiva, 1992). Esteva and Sachs (1992) explain how the discursive practices of development have invented the idea of underdevelopment; this is reinforced in education where students are taught that they live in a so called third world and there is a desperate need to aspire to first world standards. For students, schooling can represent a period of omnipresent indoctrination demeaning the worth of their parents and communities livelihoods and culture.

This narrow focus on a western education denies students the chance to think locally, within their culture, about opportunities to improve their livelihoods. Development opportunities that might leverage off the resilience of traditional economies and culture are discounted. Curry (2003) believes the assumption that development must be solely based on Eurocentric ideas needs to be questioned. The benefits of a western education are not discounted but they do not have to be at the expense of a better understanding of the continuing importance of indigenous values, culture, beliefs and traditional livelihoods.

1.2.2 Calls to rethink education in response to changing development perceptions

The second issue is a head on challenge to western notions of development and education through a resurgent interest in traditional livelihoods, culture and values. Dissatisfaction with the results of mainstream development and education strategies in the Pacific has

increased interest in alternative³ development strategies based on Pacific worldviews and the need for an indigenous education in this renaissance. Concern has been expressed about the insidious nature of western ideology, prevalent in education curricula, working to erode Pacific culture and blunt Pacific people's aspirations to define their own development journeys (Thaman, 1992, 2007). Thaman (1995) describes how Pacific educators are now questioning the values that underpin modern education and development. Taufe'ulungaki (2002) explains:

The failure of education in the Pacific can be attributed to a large degree to the imposition of an alien system designed for western social and cultural contexts, which are underpinned by quite different values. (p. 15)

The ineffectiveness of Pacific education is attributed to the "increasing incongruence between the values promoted by formal western schooling ... on the one hand and those held by Pacific communities on the other" (Pene, Taufe'ulungaki, & Benson, 2002, p. 1). Pacific researchers consider that traditional economies and culture remain the core of economic, social and environmental resilience in the Pacific (Maiava, 2001; O'Meara, 1990; Purdie, 1999; Regenvanu, 2009).

Pacific educators and researchers have been united in the call to reject educational imperialism and rethink education in the Pacific (Sanga & Thaman, 2009). They argue Pacific knowledge, thinking and culture should underpin development aspirations in the region. Therefore, education should change to reflect this shift in emphasis (Manu, 2009; Pene et al., 2002; Sanga & Thaman, 2009).

Initial changes have rightly placed an emphasis on Pacific culture and language in the curriculum to strengthen students' identity as Pacific Islanders. Such change, while obligatory, is only a beginning and in the main, I will argue educational transformation is yet to happen. Instead, a resurgent, dominant western education, building human capital to support western development models and a smaller indigenous education movement promoting language, culture maintenance and a Pacific identity run parallel in what I term a dual curriculum. The issue is a persistent western narrative upholds the belief that culture and traditional livelihoods sit at the antithesis of 'real' development. Any attempt to

³ Here I use the term alternative in relation to current mainstream development modes. Pacific people do not view development based on traditional livelihoods as alternative (Maiava, 2001; Maiava & King, 2007).

galvanise students' interest in investigating alternative ways to address development through a cultural lens, has been overlooked.

1.2.3 ESD: Challenging accepted development notions

The third issue underpinning the thesis problem is the United Nations Educational, Scientific and Cultural Organisation (UNESCO) inspired introduction of ESD into the Global South, to support a world that increasingly sees SD as the answer to development (United Nations, 2015b). Whilst ESD sits on the fringes of most Global South curricula, I will argue, in the Pacific context, ESD presents an opportunity for students to rethink development in terms of traditional livelihoods, culture and the ecology of fragile small islands (Sachs, 2013).

The relocation of western centric ESD curricula from the Global North will not be sufficient, as issues of sustainability are not addressed in local culture and context (UNESCO, 2013). ESD, infiltrated by neoliberal ideology, merely used to justify the need for ongoing technocentric development initiatives, marginalises the ability of Pacific livelihoods and culture to contribute to SD. A further concern is the tendency to present environmental education as ESD. Environmental education programmes that only deliver environmental messages in isolation, fail to challenge dominant anthropocentric thinking. Moreover, the potentially deleterious effects of poorly planned economic development initiatives on fragile ecosystems are not debated holistically.

The key issue becomes how it might be possible to situate learning around 'real' culturally responsive and contextually relevant visions of SD, at the local level in the Global South. ESD that incorporates both indigenous and western knowledge to begin fashioning best fit solutions to sustainability.

1.3 The aim of the thesis and research questions

The thesis examines the type of ESD that is required to allow Manganian students to explore their own culturally responsive and contextually relevant Manganian SD. The potential for ESD to broaden students' future livelihoods options beyond the current narrow focus on a western education for a career in the public service, or eventual migration to global labour markets, is investigated. These issues are explored in the wider context of the continuing relationship between education and development in the Global South.

The research answers the following four questions, by addressing the related objectives:

1. How do Manganians conceptualise SD and what skills and knowledge do they consider might be important for endogenous SD and sustainable lives?
 - 1a Identify what constitutes SD and a sustainable livelihood from a Manganian perspective.
 - 1b Investigate what skills and knowledge (both Manganian and western) are required to lead sustainable lives from a Manganian perspective.
2. Does the school prepare students for SD? Are students equipped / not equipped with the skills and knowledge required to undertake endogenous SD and lead sustainable lives?
 - 2a Describe the implementation of the Cook Islands curriculum framework at Mangaia School.
 - 2b Describe current curriculum that supports an ESD approach.
 - 2c Investigate the actual and anticipated place of IK, culture, and language at Mangaia School with the aim of educating students to undertake sustainable endogenous development and lead sustainable lives.
 - 2d Explore the obstacles to, or processes that support, the integration of ESD, IK, culture, and Cook Islands language into the curriculum at Mangaia School.
3. How, if at all, should the education system adapt to better equip students with the skills and knowledge required to undertake sustainable endogenous development and lead sustainable lives?
 - 3a Investigate how the development and implementation of a transformative ESD curriculum at Mangaia school, reflecting the Cook Islands curriculum framework, can equip students with the skills and knowledge required to undertake sustainable endogenous development and lead sustainable lives.
 - 3b Investigate pedagogical approaches to teaching and learning that allow students to make sense of the complexity and diversity of SD. Pedagogies that allow students to understand the dynamic interplay between the economic, environmental and social dimensions of SD and juxtaposition of Manganian and western thinking.
4. How might the Manganian community, with the support of the Cook Islands Ministry of Education and relevant aid agencies, best support Mangaia School in the development and implementation of an ESD curriculum that equips students with the knowledge and skills to undertake sustainable endogenous development and lead sustainable lives?

1.4 Thesis chapters outlined

Chapter 1 – The seeds of the thesis are introduced in terms of my long held interest in the relationship between education and development in the Pacific and the potential for ESD to be a vehicle in which students, as future leaders, can explore Global South notions of SD. The thesis problem is then explained with reference to the literature. The aim of the research is made clear by listing the questions that this thesis will explore.

Chapter 2 - The chapter reviews the ever changing relationship between education and development. Firstly, it looks at the key role education has played in supporting development strategies focused on modernisation and, more recently, neoliberalism. The chapter then turns to consider how alternative and post-development challenges to development theory have led to major theoretical rethinks of the purpose of education.

Next, the chapter introduces SD as an increasingly popular approach to development. Its role as a tool to justify continued economic growth in the face of concerns about the environment is discussed and contrasted. The potential for SD to incorporate hopeful post-development, culturally embedded ‘alternatives to development’ and alternative development strategies is proposed. Finally, the chapter details the emergence of ESD, as a new learning area in schools, promoted by UNESCO in response to this growing importance of SD.

Chapter 3 – This research uses a case study approach to rethink education in the context of ESD on Mangaia in the Cook Islands. It is therefore important to review the forces shaping education in the Pacific, with a particular focus on the Cook Islands itself. With this in mind, the chapter begins by reviewing the rethinking education movement in the Pacific. Dissatisfaction, by Pacific educationalists, academics and researchers with the results of mainstream development and education, has increased interest in alternative development and education strategies based on a Pacific worldview.

The history of the Cook Islands education system is reviewed in the context of changing development patterns over time. The discussion occurs in the context of renewed government and development partner attempts to forge ahead with western development models underpinned by neoliberalism, clashing with initiatives to rethink education in the context of indigeneity in the Pacific.

Education as Sustainable Development (EasSD) is described and contrasted to Education ‘about’ and Education ‘for’ approaches to ESD. The potential advantages of adopting a culturally responsive EasSD in the context of emerging hopeful post-development settings are then debated.

Chapter 4 - The methodology employed in the research is described in the context of the diversity and contestability of thought that has emerged around SD and ESD, further highlighted by Manganian worldviews contrasting with western development thinking. The difficulties I faced in researching in a culture that is not my own are described. The strategies employed to overcome these limitations are explained, including the role a Manganian version of *talanoa*⁴ played in obtaining credible information. Descriptions of the method employed, explain how it was possible to capture the diversity of Manganian opinion⁵ on what SD on Mangaia might entail, along with views on what the purpose of ESD at Mangaia School should be. The type and number of interviews employed are explained in the context of obtaining findings that reflect Manganians real views on SD and ESD; views that emerge from the oppositional complexity of SD (L. Smith, 1999). Finally, the limitations of the research are described.

Chapter 5 – An introduction to Mangaia and its origins are described against the background of the Cook Islands as a country. The educational, political, social and economic history of Mangaia is then described as a background to present day Mangaia. A particular focus of the chapter is the ever evolving interdependent relationship between education and development.

Chapter 6 – Mainstream western inspired development is described through a review of the government influenced Mangaia Island Administration Plan (2009a, 2010) and its relation to the objectives of the Cook Islands National Sustainable Development Plan (NSDP) (Government of the Cook Islands, 2007a). Based on a collation of interviews and group discussion, a co-constructed description of *oraanga Mangaia* (life on Mangaia), the cultural essence of SD on Mangaia is provided. Both the complementary and contrasting foci of *oraanga Mangaia* and western development thinking are revealed. Manganian current,

⁴ Described in detail in chapter four.

⁵ Views that span technocentric to ecocentric ideas are ground in a Manganian worldview but often include western ideas.

and hoped for, economic initiatives focussed on agriculture, tourism and small business are described.

Development risk on Mangaia is described in terms of the actual and potential future impact of economic development on the local environment and social norms on Mangaia. Manganians desire for self-determination is revealed in the context of the type of development they desire.

Chapter 7 – The chapter begins by canvassing parents and students’ views on what they believe education on Mangaia should entail. These views are compared against what the current curriculum contributes to ESD. They are then discussed in terms of what a transformative EasSD curriculum might necessarily need offer.

A place-based Manganian EasSD curriculum is proposed, as firstly a way forward to educate students towards an understanding of the culturally and contextual uniqueness of Manganian SD, as described in chapter 6. How a Manganian EasSD curriculum might also provide students with sound understandings and action competence⁶ on issues of sustainability at global levels is described. This is of increasing importance, given the concern around the impact of climate change, reducing biodiversity, habitat destruction and pollution on the biosphere.

A strengths based implementation of EasSD is explained as a way of building on existing teacher and community knowledge about Manganian SD. The need for students to be provided the space and time to understand, and become action competent in, Manganian SD is debated. The suggestion is made that this may be in the form of a dedicated class linked to internationally recognised qualifications at secondary level. The six key benefits of a

⁶ Action competence, in terms of sustainability is learning about environmental issues so that students can plan, and take informed action on those issues. Six aspects that support the development of student action competence have been identified through research in New Zealand schools. These are:

- Experience;
- Reflection;
- Knowledge;
- Visions for a sustainable future;
- Action taking for sustainability; and
- Connectedness. (New Zealand Ministry of Education, 2011)

place-based Manganian EasSD for students as future citizens and community leaders are explained.

Chapter 8 – The chapter starts by outlining the need for a transformative Manganian EasSD pedagogy to explore the uniqueness of Manganian SD and complement the place-based EasSD framework described in chapter 8. Based on extensive discussion with Manganian educationalists, a pedagogical framework that incorporates Gegeo and Watson-Gegeo's (2001) ideas on the need for Pacific peoples to draw on their own indigenous praxis and epistemology, to address their own development challenges, is proposed. The framework aligns to Sterling's (2001) concept of an Education 'as' Sustainable Development that emphatically rejects Education 'about' or 'for' SD approaches. In addition, a descriptions of how the framework is able to consider all SD knowledge and ideas, spanning ecocentricism right through to technocentricism and across different worldviews (Carter, 2004; Hacking, 1992), on Mangaia, is provided. The strength of the framework in providing a thinking space where western hegemony can be eliminated and the romanticisation of culture avoided is revealed. The potential for a strength-based implementation of a place-based Manganian EasSD curriculum and pedagogy is described.

Chapter 9 - The chapter starts by outlining the key barriers to the successful implementation of a place-based Manganian EasSD; a key obstacle being the need to challenge the pervasiveness of the current western thinking that influences curriculum decisions. The very real practical barriers to implementation at the classroom level are also described and possible solutions proposed.

The chapter then moves onto a wider discussion about how the key educational stakeholders might play their part in the realisation of an EasSD curriculum on Mangaia and across the wider Global South. In the school, stakeholders include teachers, senior leaders and students in schools. In the community, stakeholders are identified as parents, community leaders, including village leaders (*kavana and ui rangatira* on Mangaia) and community knowledge people (*ta'unga* on Mangaia). External stakeholders are variously described as the governments' of countries in the Global South, in particular Ministries of Education, along with the various aid partners (both bilateral and multilateral) and the many NGOs that exist both within and outside countries. The Chapter finishes by looking at the implications for EasSD implementation right across the Global South.

Chapter 10 – The chapter begins by putting the findings from the case on Mangaia into the context of SD and ESD across the wider Global South. Conceptions of SD in the Global South, from its western origins as an invention justifying continued economic growth (Escobar, 2000; Sachs, 2013), to new multidimensional understandings of what SD might entail, are explored. Concepts that consider a dynamic mix of indigenous thinking and culture, context relevant western knowledge and useful technology (Breidlid, 2013; Kawagley & Barnhardt, 1998; Maiava, 2001; Manteaw, 2012; O'Meara, 1990; Regenvanu, 2009).

Drawing on the findings of this study, the case is made for a culturally responsive and contextually relevant, locally adaptable EasSD curriculum and pedagogy in the Global South. An EasSD that encourages students to use a critical pedagogy to explore the diversity of SD thinking, considering viewpoints that range from ecocentricism to technocentricism and span different worldviews. An EasSD that is able to empower students by preparing them to build their communities' and their own vision of SD.

Chapter 11 - The chapter opens by outlining the contribution this study makes to the knowledge about SD and ESD on Mangaia, the Cook Islands and more generally, conceptions of SD and models of ESD in the many communities (indigenous and otherwise) across the Global South. The implications of the findings on further research are discussed. Some concluding remarks, about how a place-based Mangaian EasSD is useful in helping Mangaian to conceptualise their own culturally and contextually centred vision for SD on Mangaia, are made in the context of empowering students, as future citizens and leaders, to achieve a Mangaian vision for SD and support Mangaian aspirations for self-determination.

Chapter 2 Education and development: An interdependent relationship

The development process is in fact an educational process. We cannot conceive of development in the absence of education any more than education in the absence of development – Faundez (McGivney & Murray, 1991, p. 10).

2.1 Introduction

Education and development are interconnected. The World Bank states education is “critical to the world’s attainment of the Millennium Development Goals” (World Bank, 2011, p. 1) whilst Paulston (1977) argues a country’s educational goals are influenced by its theory of development. This chapter reviews how this relationship has evolved over time, focusing firstly on how education has promoted and supported modernisation and more recently neoliberalism.

The chapter then explores how scepticism about development’s ability to alleviate poverty, has resulted in a rethink about the role of education in development. Postmodern (Simon, 2008b), postcolonial (Briggs & Sharp, 2004; McEwan, 2008) and post-development (Escobar, 1995) thinking have questioned the unconditional acceptance of neoliberal and modernistic development models and challenged the role of education in obsessively supporting and reinforcing mainstream development objectives (Schuurman, 2008). Arguments by Freire (1972) that education indoctrinates students with the dominant ideology through a passive approach to learning are presented.

Post-development’s emergence is described as a response to development failure. Next, the gradual emergence of hopeful post-development thinking is explained as the realisation that both culture and aspects of modernity and technology have alleviated poverty and improved livelihoods. The impact a hopeful post-development thinking, inclusive of cultural ‘alternatives to development, grassroots ‘alternative’ development and alternative or compatible modernity might have on education, is briefly discussed.

In the final section, SD is introduced and then examined in terms of its role in development. The implications of diverse thinking that draws on ecocentric and technocentric positions, on people’s understanding of what SD ought to be is described (Adams, 2001; Rees, 1990). Importantly, concerns about the absence of indigenous worldviews and the place of traditional. Sustainable livelihoods in SD thinking are revealed.

Arguments about the need to incorporate culture into SD thinking are provided in the context of development in the Pacific.

The chapter finishes by describing the emergence of ESD as a new learning area in schools to support students thinking about SD. The UNESCO dictated descriptive, as opposed to the prescriptive roll out of ESD, allows countries the freedom to interpret its context and content within broad parameters (UNESCO, 2011b). Both the benefits and risks of a flexible implementation strategy are described. The benefits are ESD could adopt a post-development approach, open to all development thinking, the risk being curricula are steered towards particular ideologies driven by polemic viewpoints, for example, neoliberalism.

2.2 Education for economic growth

2.2.1 Education for modernisation

The link between western education and development goes back to the enlightenment period with the realisation that reason and rational thought could positively influence people's lives (LaPiere, 1965). Humans could discover knowledge about nature and its laws using cognitive processes to better their own lives. Pre the enlightenment period, the fate of humankind was believed to be largely in God's hands (Fagerlind & Saha, 1983). The conviction that the key function of education is supporting economic development came to prominence with the emergence of modernisation theory after World War 2. This theory argued that progress occurs when a country becomes industrialised, urban, and modern (Rist, 2002). A western education was used to promote science and technology, key components of modernisation. Education was also central in "bringing about the social and psychological changes necessary for the improvement of productive labour and openness to change" (Fagerlind & Saha, 1983, p. 89). Education, by promoting western culture, promotes sociocultural change as a tool to endorse modernisation (Carmen, 1996; Fox, 1997).

The argument is education builds human capital as an investment necessary for the economic and industrial development of a country (Karabel & Halsey, 1977; Schultz, 1961). As Bacchus (1997) reminds us, "most educators consider a positive linear relationship between education and economic development to be axiomatic" (p. 19). Human capital theory underpinned human resource development approaches in the

Pacific, especially manpower planning techniques, used in the 1960s and 1970s, aimed at ensuring enough professionals came through the system (Coxon & Tolley, 2005).

2.2.2 Education promoting neoliberalism

With the demise in the popularity of modernisation, the role of education simply changed to supporting development aspirations based on neoliberalism. Education's primary role was viewed as increasing human capital to support economic growth aspirations (Alexiadou, 2001; Ozga & Deem, 2000). Globalisation intensified the focus on economic outcomes by dominating political and educational agendas (Tomlinson, 2001). Students were being educated to take their place in flexible labour markets (C. Cooper, 2002).

In developed countries, neoliberalism has resulted in renewed emphasis on the commoditisation of knowledge and western culture to ensure economic growth. Knowledge is viewed "as something to be discovered, categorized and distributed" (Stevenson, 2002, p. 187). Education serves primarily an economic function, promoting individual and private interests ahead of society. Those that do well in the education system will reap the rewards they deserve (Stevenson, 2002). Beckmann and Cooper (2004), discussing the rise of globalisation and managerialism in British education, argued British educational policy "has become increasingly focused on its economic function, with broader social (empathy for others) and political (engaging in democratic processes) objectives simultaneously marginalised" (p. 3). Tikly (2001) views education as an instrument of globalisation being "an incubator of its agents" (p. 155).

2.2.3 Education: A political tool

Education has become a powerful tool in shaping students' beliefs. Hill (2003) explains that in Britain the focus on producing "compliant, ideologically indoctrinated, pro-capitalist, effective workers" (p. 8) has led to a loss of critical thought in education. Clark (2010) describes how the New Zealand National Standards debate⁷ illustrates that "education is a site of political struggle" (p. 106). The ideology promulgated is that education's core function is to prepare students for the global labour marketplace, therefore improving New

⁷ Anne Tolley, the 2010 Minister of Education, commenting on a report that suggested that the New Zealand economy could grow by up to \$6 billion a year if Kiwi children lifted their academic performance, stated, "the report was evidence of how much there was to gain from the national standards education policy" (Hartevelt, 2010).

Zealand's economic performance. Despite the New Zealand curriculum emphasising ecological sustainability as a key value (New Zealand Ministry of Education, 2007), curricula that do not directly contribute to improved economic performance have lost funding; for example, the enviro-schools programmes⁸.

In the Global South, conservative political forces ensure educational planning remains tied to national, economic development objectives (Giroux, 2011 ; Gould, 1993). According to Breidlid (2009), in Africa, indigenous culture in school curricula has been rejected in favour of a focus on western curricula over concern about being left out of the perceived benefits of globalisation. Dissemination of such thinking led many parents to discourage their children from learning about their own culture in favour of western knowledge (Fagerlind & Saha, 1983).

2.2.4 Education suppresses critical thought

Belief that education's primary role is in increasing human capital to support the economic growth agenda, exists in many education systems. Critical thinking, although valued when supporting business innovation and entrepreneurship, is not encouraged to challenge existing development paradigms by considering alternatives (Giroux, 2011). Sachs (1997) sums up the situation succinctly: "In short, alternatives to development are black-balled, alternatives within development are welcome" (para. 10). Students exposed to neoliberalism are expected to absorb its rationale without being given the chance to challenge its validity. In this way, education remains a strong determinant in influencing sociocultural and development outlook.

Reinforcing mainstream development thinking was the belief that promotion of traditional lifestyles and attitudes impedes progress (Latham, 2000; Peet & Hartwick, 1999; Rist, 2002). Indigenous education is therefore to be discouraged. Freire (1972) criticised this role education had in developing countries of imposing western mind-sets on students at the expense of indigenous thinking. He viewed education as systematically oppressing people by destroying their creative capabilities and any hope they might have of determining their

⁸ A spokesman for Minister of Education Anne Tolley, in discussing the importance of literacy, numeracy and qualifications as government priorities and the demise of funding for environmental programmes said, "The Government believes that this programme does not contribute directly to these priorities"(Foy, 2009).

own future. Freire labelled this passive approach to learning as the banking concept of education:

Knowledge is a gift bestowed by those who consider themselves knowledgeable upon those whom they consider to know nothing. Projecting an absolute ignorance onto others, a characteristic of the ideology of oppression, negates education and knowledge as processes of inquiry. (p. 46)

Pedagogically, students are considered passive and to be filled with knowledge (Zachariah, 1985). Freire (1972) explained students are “receptacles to be filled by the teacher”(p. 45). He argued this approach is used to “avoid the threat of student conscientization” (ibid, p. 48) He defines conscientization as “learning to perceive social, political, and economic contradictions and to take action against the oppressive elements of reality” (ibid, p. 15). Fagerlind (1983) reinforced Freire’s thinking describing education as:

A tool of the capitalist state ... enabling those in power to reinforce their privileged position and deprives those not in power, either by socialization into a passive role or by depriving them of the necessary cultural capital, from launching a challenge to the capitalist hierarchy. (p. 58)

Freire (1972, 1973), in challenging passive education, argued critical thinking must be part of students’ education so they can challenge power relations in society.

2.2.5 Education encouraging under development

Although human capital theory in education has intensified in the Global South, the size and nature of the positive impact on economic development is contested (Fagerlind & Saha, 1983). Expected economic growth has not matched the supply of graduates, resulting in the unemployment of the educated. Compounding this is an “increasing reliance on formal qualifications rather than real competence – the so-called paper qualification syndrome” (Gould, 1993, p. 153). Unsurprisingly, neo liberal critics have taken a negative viewpoint of the role of education in development. Rather than supporting development, they argue that western influenced education policies, processes and practices have contributed to under development (Carmen, 1996; Escobar, 1995; Esteva & Sachs, 1992; Gould, 1993; Zachariah, 1985).

Coombs (1985) notes, even though the budget for education increased in developing countries between 1960 and 1980, unemployment, malnourishment and the numbers of people living below the poverty line rose. Zachariah (1985) claims educational expansion in the Third World has resulted in high unemployment rates even amongst school graduates. A western education provides many students with false hope for the future. Gould (1993)

believes Education has “become an opiate for the people of the Third World dulling the sense of degradation, disappointment and underdevelopment, and encouraging a ... false promise of future prosperity” (p. 203). Esteva and Sachs (1992) concur; for people from the Global South development “is a reminder of what they are not. To escape from it they need to be enslaved to other people’s experiences and dreams” (p. 10). Sachs (2013) adds education is complicit in third world peoples having their hopes pinned “on rich people’s patterns of production and consumption” (p. 23).

Indigenous students, focused on a western education, could neglect vital traditional skills that provide livelihood resilience. Students become livelihood vulnerable should they be unable to find paid employment (Regenvanu, 2009). The realisation that traditional livelihoods have continued to provide food security and resilience in the face of global, economic and financial uncertainty has led to a major rethink of educational priorities by Pacific educators and researchers in the Pacific, and is a focus of Chapter 3.

Western education also adversely affects countries in the Global South with the emigration of newly trained professionals to developed countries (Portes, 1973). High levels of migration affect a country’s ability to carry out intended development initiatives. The people targeted by government through scholarship support are no longer available to assist with the country’s development aspirations. This effect is particularly noticeable for the Cook Islands where there has been a large net loss of people by migration to New Zealand and Australia (Wright-Koteka, 2006). A key factor in aiding this migration is Cook Islanders holding New Zealand citizenship status providing easy access into New Zealand, and consequently Australia (Coxon & Tolley, 2005; Wright-Koteka, 2006).

2.3 Post-development and culture

2.3.1 Early post-development

Post-development arose from a dissatisfaction with the results of development in the 1970s and 1980s. Postmodern (Simon, 2008b), postcolonial (Briggs & Sharp, 2004; McEwan, 2008) and post-development (Escobar, 1995) critique questioned the role of neoliberalism and modernisation in the lives of people from the Global South. Esteva and Sachs (1992) described how the third world and underdevelopment has been invented by the discursive practices of development. The western-labelled, subsistence practices of indigenous people rather than being viewed as normal, logical, sustainable and ecologically viable were, from a development perspective viewed as backward and evidence of underdevelopment. The

discourse of development had denied other cultures an opportunity to define themselves; instead, development became synonymous with economic growth (Esteva & Sachs, 1992; Sachs, 2013; Shiva, 1992).

Post-development critiques exposed developments' role in persistent poverty as measured by the widening income and asset gap between the rich and poor. Increased ecological destruction was also attributed to economic growth and industrialisation demands. Development was also blamed for its belief in the homogenisation of world culture at the expense of a celebration of its diversity (Ziai, 2007b). In summary, post-development writers considered development to be “an Ideology of the West ... a Failed Project ... a Hierarchic and Eurocentric Construct ... as Economization and Dis-valuing ... (and) ... as Legitimation of Domination and Violence” (Ziai, 2015, pp. 840-842). Consequently they considered modernisation development a failure, with post-developmentlists like Escobar (2015) calling for its rejection as a “mono-ontological occupation of the planet” (p. 460).

Sachs (2013) views post-development positively as challenging efforts to “functionalize work, education and the land” (p. 25). He rejects the singular development focus on economic growth; instead, “insisting on the right to act according to values of culture, democracy and justice” (p. 25). Curry (2003) concurs by questioning the assumption that all development must be Eurocentric in ideology.

While initially post-development was viewed positively for its role in highlighting the many failures of development, it was also criticised for offering no constructive alternatives. Moreover, post-development was criticised for its prejudice in overlooking the positive aspects of modernity, science and technology that have led to overall increases in life expectancy and reductions in the number of poor (Escobar, 2015). Early post-development thinking was also criticised for its romanticisation of local communities and their culture (Ziai, 2007a, 2015). Kiely (1999) explains how early post-development, in aiming to achieve a subjective rejection of development, uncritically favoured culture; in effect playing the part of a “patronising tourist” (p. 47).

Post-development had idealised local community development even when localised power imbalances and injustices were evident in what Kiely (1999) terms “Pontius-Pilate-politics” (p. 46). This romanticisation occurs, despite there being no guarantee grassroots development improves the lives of all in the community (Matthews, 2007). Ironically, early post-development was condemned for the very approach that it criticised mainstream

development, namely the imposition of its own external values onto indigenous peoples. In the case of post-development, it was the imposition of anti-Western values and promotion of livelihood practices, often subsistence in nature, onto indigenous peoples. It is perhaps duplicitous for development experts to preach the necessity of idealised livelihoods based on subsistence practices while they themselves engage in comfortable middle class western lifestyles (Ziai, 2007a). Development thinking must move past an “ethics of sufficiency from a paternalist affluent perspective, claiming to know better about the needs of the poor (and their legitimacy) than they themselves” (Ziai, 2015, p. 836). In even stronger terms Janzen (2008) argues post-development must stop “essentializing the portraits of the oppressed” (p. 13). Ziai (2007a) believes by viewing culture as static and the binary opposite to modern civilisation there has been the tendency to view modernisation development as a deviation from a cultures “healthy original state” (p. 121). He argues this thinking has resulted in an unhelpful “reactionary populism” (ibid, p. 121).

2.3.2 Development and culture

The failure of development initiatives that ignored the indigenous culture around them raised awareness of the direct influence culture can have on the success, or not, of development interventions (Radcliffe, 2006a). As far back as 1992, the United Nations (1992) realised:

Indigenous people and their communities and other local communities have a vital role in environment management and development because of their knowledge and traditional practices. States should recognise and duly support their identity, culture and interests and enable their effective participation in the achievement of sustainable development. (p. 11)

While culture was already used as a product in development, for example in tourism and alongside development as an institution, in the belief that “culture appears as a form of organisation that provides structure and stability of society” (Radcliffe, 2006b, p. 235), it did not get to the core of the real relationship between culture and development. Culture was used as a token add-on to achieve western visions of what culturally acceptable development should look like. Radcliffe (2006b) sums it up by stating: “the reduction of culture to cultural difference reinscribes development’s inability to deal with culture as creativity” (p. 237).

In the Pacific, Gegeo and Watson-Gegeo (2001) explain there has been an increasing resistance to western hegemony in development. Pacific peoples are asserting the validity of their own IK. Cultural self-expression has resulted in the promotion of IK by indigenous

peoples themselves, especially in the field of education (Bishop & Glynn, 2003; Pene et al., 2002; Taufe'ulungaki, 2002). Pacific academics and educators are not the only people asserting indigeneity should take development centre stage. Gegeo and Watson-Gegeo (2001) recount discussions with members of the Kwara'ae Solomon Islands Genealogy project, who asserted, "there's nothing wrong with the life we're living based in traditional culture" (p. 80). Radcliffe (2006b) describes the close link that should exist between culture and development:

Culture is not primordial but is reworked and reproduced around and through development, just as development (as political economy and as planned intervention) is embedded in "imaginaries of desirability," material culture and social relations. Treating culture and development as co-producing and recognizing the cultural imperatives to livelihood improvements offers a constructive way forward for development thinking and practice. (p. 237)

Hoselitz (1995) believes IK, culture, values, and traditional livelihoods are vital when alternatives to development and alternative development strategies are considered. Their inclusion is said to be pivotal if successful development outcomes are to be achieved (Landes, 2000).

2.3.3 Towards a definition of Indigenous knowledge

Before comparing and contrasting indigenous knowledge with western knowledge, it is important to describe what is meant by the terms indigenous knowledge, traditional ecological knowledge and western science so that the reader understands their similarities and differences⁹.

Indigenous knowledge

IK is the collective culture, traditions, values, beliefs and worldviews of indigenous people. IK exists because of indigenous peoples' interrelationships with both the local environment and prevailing socio cultural conditions (2009; Dei, 1993; Maurial, 1999; 2004). IK is local and not separated from daily life; it is "peoples' cognitive and wise legacy as a result of their

⁹ In this way, the reader will be better prepared for later discussions on the place of indigenous and western worldviews in conceptions of SD. It is important to state upfront that the terms indigenous, local, western, rational, scientific and modern continue to appear in the literature so will be used in this thesis to allow for consistency. This permits the literature to be interrogated; "these terms remain, however, deeply problematic." (Agrawal, 1995, p. 414).

interaction with nature” (Maurial, 1999, p. 62). Breidlid (2009) describes IK as including worldviews, cultural values, practices and knowledge systems.

The knowledge that emerges is holistic and cannot be separated from being or nature (D. McGregor, 2004). IK reflects an understanding of the natural environment based on observations made over generations (Kawagley, Norris-Tull, & Norris-Tull, 1998). Instead of using the expression IK, Reynar (1999) prefers the use of the term indigenous peoples’ knowledge as it "acknowledges the interconnectedness of people and their knowledge" (p. 300). Crossman and Devisch (2002) prefer the term endogenous knowledge systems. The term reflects the internal origin of the knowledge. Despite the above attempts to define IK in generalised terms, Battiste and Henderson (2000) recognise an exact definition of IK across all indigenous peoples may not be possible. In later chapters, the specifics of Manganian knowledge and epistemology is described by Manganians in Manganian language to retain its legitimacy, and then transcribed into English to help the English reader.

Traditional ecological knowledge

Traditional ecological knowledge¹⁰ (TEK) is a relatively new concept and is effectively IK about the environment (Berkes, Colding, & Folke, 2000). McGregor (2004) believes “TEK can be regarded as a subset of IK” (p. 293). Being of Eurocentric origin, some argue the concept of TEK is problematic and as such, it remains contested. From some indigenous viewpoints, TEK is an attempt by western academics and researchers to control and remove the knowledge from its source (ibid). McGregor suggests:

¹⁰ TEK, like IK, has a number of distinct characteristics when compared to western science:

- TEK is mainly qualitative (as opposed to quantitative);
- TEK has an intuitive component (as opposed to being purely rational);
- TEK is holistic (as opposed to reductionist);
- In TEK, mind and matter are considered together (as opposed to a separation of mind and matter);
- TEK is moral (as opposed to supposedly value-free);
- TEK is spiritual (as opposed to mechanistic);
- TEK is based on empirical observations and accumulation of facts by trial-and-error (as opposed to experimentation and systematic, deliberate accumulation of fact);
- TEK is based on data generated by resource users themselves (as opposed to that by a specialized cadre of researchers); and
- TEK is based on diachronic data, i.e., long time-series on information on one locality (as opposed to synchronic data, i.e., short time-series over a large area). (Berkes, 1993, p. 4)

TEK, as understood by Eurocentric scholars, can only represent a tiny piece of the whole pie; it is a fragment of what Indigenous people know and live. IK is a living, dynamic way of life, while TEK in this context can only represent a snapshot. TEK becomes information to feed into Western modes of environmental and resource management decision-making that are inherently not sustainable. (p. 402)

For discussion purposes, mention of TEK will identify the source of the concept. An indigenous source will differ from a western source in context, purpose and potentially content.

The conflict between IK and western science

Contested viewpoints on the place of IK and western science in development is largely a result of the essential differences in the way the two types of knowledge are constructed, viewed and used by people. IK is holistic, based on empirical observation, developed by trial and error, moral and intuitive and connected to a particular location (Berkes, 1993). Conversely, western science is reductionist, systematic, objective and rational in a belief that a universal truth can be found (Briggs, 2005). This contrasting nature of IK and western science has led to conflict. Briggs (2005) explains that many view western science and IK as separate knowledge systems; part of a binary divide. Western ignorance of IK has resulted in IK being dismissed as irrelevant. Leach and Mearns (1996) state that IK is often considered to be "methodologically weak or unproven ... populist or politically naïve" (p. 467). Oral traditions are open to accusations that meanings behind stories are altered over time (Sveiby, 2009; Sveiby & Skuthorpe, 2006).

Western science seeks universal truths, so when localised knowledge is at odds with a universal explanation it has at times been disregarded. Johannes (1989) observes that "the attitudes of many scientists to traditional knowledge has frequently been dismissive" (p. 5). Western science uses western scientific method to conduct experiments "in situ" where the aim is to isolate single variables responsible for an observation. Conversely, IK is developed "ex situ" where multiple factors are considered. Kawagley, Norris-Tull and Norris-Tull (1998) explain that Yupiaq¹¹ traditional knowledge reflects an understanding of the natural world based on a "massive set of scientific experiments continuing over

¹¹ An indigenous people living in Southwestern Alaska (Kawagley et al., 1998).

generations” (p. 137). Yupiaq scientific knowledge is based on thorough longitudinal studies and observations of the natural surroundings.

Western science tied to western hegemonic forces

Semali and Kincheloe (1999) believe western science is tied to western hegemony, stating the:

Power of western science involves its ability to depict its findings as universal knowledge. Modernist science produces universal histories, defines civilisation, and determines realities; such capabilities legitimate particular ways of seeing and concurrently delegitimate others. Such ability is imperialistic, as it operates to characterise indigenous knowledges as inadequate and inferior. (p. 29)

This vilification of IK oppresses indigenous peoples and prevents them from determining their own development pathways (Reynar, 1999). The power of western science to create universal principles extends into a belief that there exists a set of universal principles for development. Brohman (1995) explains there is a tension between the need to understand the variety of different experiences and potential alternatives for development, in vastly different societies, and development theory’s desire to create universally valid principles and formal models.

Therefore, the debate about the place of IK and western science in development is subjective and invariably political in nature (Deloria Jr, 1988, 1995; D. McGregor, 2004; L. Smith, 1999). Discussions on the merits of IK and western science are often linked to views on how development should proceed; in other words, they are value laden. Those that believe in top down development, using neoliberal approaches that focus on economic growth, generally favour western science over IK. Briggs (2005) describes how thinking imbued with modernistic, imperialistic, colonial and neo-colonial attitudes rejects IK as “closed, parochial, unintellectual, primitive and emotional” (p. 102).

However, there is also counter argument that western science is not universal. Instead, it “is a local knowledge system that denies its locality, seeking to produce not local but translocal knowledge” (Semali & Kincheloe, 1999, p. 28). Even when IK gains some acceptance, it does on western development terms. A limited use of IK has become acceptable but only if it fits with an established western view of development. IK is not classed as real science (Johannes, 1989; Melissa Leach & Mearns, 1996; Sveiby, 2009; Sveiby & Skuthorpe, 2006). The subjugation of IK comes from a variety of sources and for many reasons, as outlined below:

Table 1 Reasons for the criticism of Indigenous Knowledge

Criticism of IK	For example
Soci-political reasons	<ul style="list-style-type: none">• The ability to discredit IK maintains western hegemony (Breidlid, 2009; 1995; Sillitoe, 2000).
Development project reasons	<ul style="list-style-type: none">• Rejection of IK is an underlying attempt at self-preservation from western experts who fear loss of power (Briggs, 2005; Parrish, 1999).
Criticism from within	<ul style="list-style-type: none">• Indoctrination led farmers in Tanzania to believe western backed government agriculture initiatives were superior to their own agricultural methods (Briggs, 2005).• Pacific parents reject IK due to concern about missing out on the benefits of a western education (Teaero, 1999).
Criticism of IK as a tool for sustainability	<ul style="list-style-type: none">• Some believe the benefits of IK have been romanticised (Briggs, 2005; Haountondji, 2002).• Sveiby (2009) hypothesises that the main reason indigenous peoples have had negligible impact on their environments is because of their small populations and lack of destructive technology, rather than inherently sustainable practices.

However, a better awareness and deeper understandings of the livelihoods and culture of indigenous peoples has led to a greater global interest in IK. Nevertheless, Sveiby (2009) views this emerging popularity of IK being at least partially dependent upon prevailing positive views of indigenous peoples and not just the quality of the knowledge.

2.3.4 IK and western science: The Potential for complementary coexistence

In later chapters I will argue that both IK and relevant western knowledge¹² are beneficial to SD. Kincheloe and Steinberg (2008) concur arguing indigenous and western knowledge can complement each other. Students engaging with IK begin to understand that using

¹² Relevant western knowledge that aligns to and strengthens an indigenous culture.

western science is not the only way to view the world (Semali & Kincheloe, 1999). IK offers its own outlook on the world, has its own value systems and its own worth that is not dependent upon western critique (Kawagley et al., 1998; Sveiby, 2009). With reference to SD, Vargas (2000) argues: “sustainability is assured when the knowledge base is multiplied through a proper integration of traditional knowledge with modern technology” (p. 393). Agrawal (1995) points out, attempts “to create distinctions in terms of indigenous and western is potentially ridiculous” (p. 433). Diverse knowledge with different logics can only be beneficial.

Moyo (2009) believes people ultimately do not adopt one knowledge over another simply because of its origin. Drawing on the case of farmers in Malawi, he explains: “farmers see development as progress not only in the adoption of western farming techniques but also in their utilisation of indigenous knowledge that changes their ways of life to make them ‘fuller’ and ‘richer’” (p. 359). Farmers only “discard what has become irrelevant and is/will not be of benefit to them” (p. 358). Moyo claims the argument about which knowledge might be better is irrelevant. Indigenous peoples will use whatever knowledge is useful in their daily lives. All cultures have always evolved and in the process borrowed from other cultures. Indigenous culture, knowledge and epistemologies do not remain static. All cultures are inherently adaptable and evolve over time.

2.3.5 Hybrid Culture

Colonisation placed western culture into the lives of indigenous peoples, a process that continues today with some aspects of western science and technology being beneficial and others harmful. Escobar (1995) describes hybrid culture as maintaining indigenous culture and language but, having survived engagement with modernity, now includes both.

Escobar speculates that cultural differences allowed to flourish will benefit both the first and third worlds in forging new ways of living, eventually leading to the end of the third world. He views this as an alternative development whereby indigenous cultures might incorporate aspects of modernisation and use them to their advantage. Kawagley, Norris-Tull and Norris-Tull (1998) outline how Yupiaq want their children to learn both IK and western knowledge. Yupiaq consider IK vital to village life and traditional livelihoods. Equally, they see western knowledge as important for children’s survival in the outside world. Sillitoe (1998) argues that indigenous people “will incorporate and reinterpret aspects of Western knowledge and practice into their traditions as part of the ongoing

process of globalization” (p. 230). In this context, Escobar (1995) describes hybrid culture as “negotiated realities in contexts shaped by traditions, capitalism and modernity” (p. 220).

However, use of the term hybrid to describe a merger of indigenous and western culture must be treated with caution. For example, hybridity in the economic sense can imply a continuing hegemony viewing capitalism as something pure which when hybridised in the developing world “is less pure because of its contamination with non capitalist economic logics” (Curry, 2003, p. 408). Escobar (1995) is also wary of labelling modern indigenous culture as hybrid; the implication being that indigenous culture must be propped up by western culture to survive in the modern world. Moreover, he warns of the potential for western ideas to dominate this hybrid space. Agrawal (1995) believes when we can move past the sterile, dichotomy between indigenous and western we can recognise multiple domains and types of knowledge, with differing logics and epistemologies. My case study on Manganian SD will explore this idea in the context of hopeful post-development.

2.4 Hopeful post-development

Ziai (2015) contends that while development has negatively impacted on many people and cultures in the Global South, elements of it do actually work. Therefore early post-development’s “unconditional rejection of modernity and ‘development’” (Ziai, 2015, p. 835) should now be superseded by new lines of post-development thinking. By taking a positive stance, early post-development critique can be viewed as a starting point for the transformation of development (Nustad, 2007). Early post-development has acted as a catalyst to move beyond ‘modernisation as development’, with its total focus on a “monoculture of knowledge, linear time¹³, classification¹⁴, the universal and global, and finally capitalist productivity and efficiency” (Gibson-Graham, 2007, pp. 145-146), to consider other development imaginings.

Crucially Bennett (2012) believes post-development has smoothed the way for an “epistemological break with western notions of development and progress” (p. 984). Development thinking is now ready to move “beyond modernity” (Escobar, 2007, p. 29) to a space where multiple development trajectories and states can be imagined.

¹³ In relation to the belief, that development progresses from underdevelopment to modern or developed (Rist, 2002).

¹⁴ In terms of human hierarchies.

Escobar (2015) describes this place as the pluriverse, which is a “world where many worlds fit” (p. 460). He believes post-development is involved in a transition discourse where previously globalisation was viewed as the “universalization of modernity to a view of globality as the struggle to preserve and foster the pluriverse” (ibid, p. 460).

This does not mean aspects of a top down modernisation as development focussed on improving economic growth through neoliberal, capitalist and state run development initiatives have been completely abandoned but are now only one of many development modes operating in the pluriverse. As Ziai (2015) reminds us operationally “ODA is still flowing, and the desire for a Western middle-class lifestyle is still predominant in most of the world” (p. 849). As Marglin (1990) points out:

Whatever one’s reservations may be about the necessity or utility of radios, televisions, motorcycles, and the like, the division between the necessary, the merely useful, and the wastefully luxurious is not ours to make; it is not our place to argue the virtues of simplicity and abstinence to those for whom material abundance is a distant dream’ (p. 27).

Janzen (2008) carrying out an ethnographic study of the Agabagaya Women’s group in rural Uganda¹⁵, found, subject to some stipulations, the women welcomed externally financed development and education initiatives as the “discourse of development was embedded within the women’s own discourse” (p. 25). The provisos were the women controlled the development direction, and the setting of outcomes, holding the power of veto to any unwanted development activity. Moreover operationally there had to be a “true collaboration where relationships are reciprocal” (p. 28).

In a practical sense Cavalcanti (2007) sees traditional communities, in the Global South, as responding to external development pressures and the “imposition of external values” (p. 90) in one of three ways. Either total rejection if it does not fit with local values, culture and/or livelihoods; or alternatively the pragmatic acceptance of a destabilisation of traditional livelihoods and culture for the promise of a better life; or finally partial acceptance while actively resisting those parts that disrupt happy lives. Ultimately Cavalcanti believes, given multiple development options, people will base their decision making on the need for “development versus enjoyment of life” (p. 91).

¹⁵ The Agabagaya Women’s group is a self-formed grassroots development cooperative from Kihande village in rural Uganda (Janzen, 2008).

What Cavalcanti is describing are post-development narratives they offer more hope. Those elements of a modernisation as development agenda that might destroy traditional culture can be rejected. However, Maiava and King (2007) believe elements of western development thinking and practice that supports indigenous led development ideals underpinned by a new “epistemological orientation” (p. 83), can still be used. Development that supports the “agency of indigenous actors as active decision makers” (ibid, p. 87) is welcome. Curry, Koczberski and Connell (2012) describe the formation of these “alternative modernities” (p. 122) as the ability to draw on “multiple processes and logics” (p. 115) from an eclectic mix of ‘indigenous and western’ and ‘local and global’ influences to create new localised development realities. Curry et al. (2012), using the Pacific as an example, believe people have mirrored hopeful post-development standpoints by seizing new development opportunities:

To expand their participation in development while at the same time striving to maintain place-based cultural beliefs, ideologies and moral domains that shape everyday decisions and practices. (p. 122)

They describe this interaction as an encounter to achieve a “compatible modernity” (p. 122).

Maiava and King (2007), extending this hopeful post-development narrative, draw on three contemporary livelihoods examples from the Pacific¹⁶ to describe a tripartite Pacific development model. These three different development modes “articulate, interact and hybridise” (p. 85) to produce multiple development pathways that cannot be described by orthodox, universal development theory. The three development modes are intentional development, including both intentional economic growth and modernisation, and intentional socio-environmental amelioration¹⁷, immanent development¹⁸ and what they

¹⁶ Maiava and King (2007) describe three examples of indigenous culture interacting with the western economy to produce what they term “alternative modernities” (p. 122). They are: The case of money being remitted from Pacific diaspora in western countries to their Pacific families living at home. The case of the cultivation and selling of yaqona (more commonly known as kava, scientific name *Piper methysiticum*) in the Sigatoka Valley in Fiji being variously affected by cultural obligations inherent in yaqona culture. The case of the impact of “traditional Samoan exchange ceremonies (fa’alavelave) within the context of cattle production” (p. 91) in Samoa.

¹⁷ Environmental focussed development projects that aim to repair environmental damage caused by intentional or immanent development.

term a previously hidden indigenous development. In this context indigenous development is “‘what people are doing anyway’ (however unconventional and unofficial)” (ibid, p. 96). After all problem solving occurring as part of traditional livelihoods, whether it be to improve fishing, planting, building or governance practices aimed at making lives better is still development. As Maiava and King conclude Pacific indigenous development is “beyond being people-centred, it is being people-led” (ibid, p. 96). Pacific indigenous development is driven by people simply doing what is best for themselves, their family and their community by drawing on their own culture and traditional livelihoods, western knowledge, technology and participating in the local, and often global, market place. Maiava and King (2007) outline five broad motivating factors that they believe drive indigenous development, those being:

The need to feel good about oneself, the need to belong and feel secure, the need to feel in control of one’s life, the need to be free, active and independent, and the need to support one’s family. (p. 96)

These factors determine the amount of engagement with culture and external intentional development. People balance the material benefits of modernising development against the happiness engendered through culture, family and community. It is always a balancing act as the “the pursuit of material wealth also has significant human costs” (Dinerstein & Deneulin, 2012, p. 586). Dinerstein and Deneulin (2012) researching the Zapatistas in Mexico and an initiative called Live Simply in the UK, argue that hope movements striving for *buen vivir*¹⁹ or ‘good living’ are examples of new alternatives to development. For indigenous peoples ‘buen vivir’ is found when the right balance of primary engagement with culture and secondary engagement with the global economy is struck.

Indigenous development operates in a number of spaces alongside western intentional development. At times it operates within the parameters of active development projects making use of the funding provided, alternatively it may run alongside such projects in a partnership model where IK and western knowledge are both used (Maiava & King, 2007). It can also operate autonomously, employing quite different notions of economy by

¹⁸ “Immanent development is what happens because of economic growth. It is the unconscious outworking of capitalism, at the level beyond what was ever intended or thought about, whether that outcome is positive or negative” (Maiava & King, 2007, p. 85) .

¹⁹ Translated as ‘living well’ or ‘good living’ (Villalba, 2013).

focussing more on non-market transactions, unpaid labour and sociocultural relations (Gibson-Graham, 2007). Indigenous development may also act as a buffer against the impacts of unwanted western development. In this space, people engage in traditional livelihood practices to satisfy food and shelter needs and provide a resilience that is independent of the need to engage in external development. Here they gain a “measure of freedom” (Porter, Allen, & Thompson, 2014, p. 87) from what might be perceived as the controlling influences of external development.

McGregor (2007), researching in Timor-Leste, found the distinctions between what was termed indigenous and western development blurred. He found the implementation of local community owed goals often meant, “pursuing improved water systems, educational opportunities, health services and employment opportunities; things that are common development objectives around the world” (p. 167). Moreover, in contrast to large development projects with pre planned outcomes, McGregor found engagement with smaller “community or institutional partnerships and small grants programmes” (p. 168) provided opportunities for the Timorese to become development actors in their own right. A space where they could build their own development agency. Agency where the Timorese are not “passive recipients or ‘victims’ of development” (p. 168) but experiment with development in ways that are meaningful to them. A place where both indigenous and western knowledge and technology are used to improve lives. In the context of this study, the post-development exploration of Manganian SD, evident in the early parts of chapter 6, considers hope as a motivating force behind development decisions.

2.5 Education: Engaging with post-development

As Gibson-Graham (2005) points out, the “challenge of post-development is not to give up on development ... the challenge is to imagine and practice development differently” (p. 6). A less prescriptive and more open ended permissive curriculum, such as the New Zealand curriculum purports to be (Abbiss, 2011), could provide the forum for students, as future leaders of development, to explore alternatives to development, in addition and alongside mainstream development thinking. Pedagogies that promote contested debate would provide students the opportunity to consider the place and value of their own traditional livelihoods and culture in the context of future development. In such a space, students would also be free to explore the promise of mainstream development and its impact on their, and their communities, lives.

The Cook Islands education system already, in theory, provides such opportunities for its senior secondary students by its adoption of an outcomes based, at least nominally, permissive New Zealand curriculum (Abbiss, 2011). A curriculum that professedly encourages students to "critically analyse values and actions based on them" (New Zealand Ministry of Education, 2007, p. 10) and "ask questions, and challenge the basis of assumptions and perceptions" (ibid, p. 12). However, as Abbiss (2011) warns, the extent to which any educational transformation is realised in practice depends on whether students are given access to, and the chance to debate, the spectrum of different development ideologies that exist in the classroom. This is likely to be very dependent upon the strength of development beliefs of educational leaders, school principals and teachers in the classroom and the flexibility of ideological debate they are competent to, and perhaps more importantly prepared to, deliver in the classroom.

Abbiss (2011), commenting specifically on the New Zealand curriculum that is provided to senior secondary students in the Cook Islands, argues that while the curriculum purports to encourage critical and creative thinking²⁰, this thinking is often only promoted within the bounds of the dominant ideology²¹. Debate that might challenge neoliberalism, is often absent (ibid). As Abbiss (2011) points out:

Teachers, as members of different communities, can be expected to have a range of beliefs about teaching and learning ... Different agendas are likely to be given effect in different schooling contexts and by different teachers. (p. 133)

Abbiss provides an example: a level eight history curriculum objective might promote postmodern viewpoints whereas a level eight economics objective may reinforce accepted neoliberal thinking. In other words, it is possible for different parts of the curriculum to "reflect different ideological positions" (p. 127). For 'alternatives to development' and grassroots, alternative, indigenous development, operating in a more hopeful post-development setting to be considered, it is important that students are not only presented

²⁰ Students will be encouraged to value innovation, inquiry and curiosity, by thinking critically, creatively, and reflectively. Through their learning experiences, students will develop their ability to critically analyse values and actions based on them.(New Zealand Ministry of Education, 2007, p. 10).

²¹ Critical and innovative thinking is encouraged as ways of increasing profits and productivity within business, but not as a way of challenging capitalist and neoliberal fundamentals (Abbiss, 2011).

with narrow, western only development as modernisation viewpoints. Abbiss (2011) sums up by stating:

The actions of the professionals who work in schools will ultimately determine the extent to which changes that are made in social science teaching and learning in the 21st century are cosmetic and maintain the status quo, or are of a more transformative nature. (p. 134)

Abbiss (2011) points out the type of curriculum narrative presented to students can also impact on students' understanding and perception of their own culture. For example, when a "western progress narrative" (p. 129) is repeatedly presented, indigenous students may consider the adoption of western culture necessary; in effect believing it superior to their own. Conversely, within a "social justice narrative" (p. 129), students can build deeper understandings of the importance and value of their own knowledge, language and culture in their own lives. A critical indepth exploration of Cook Islands culture by students in the classroom would allow their own culture to be problematised and not "essentialised"²² (p. 129). Cook Island students, although sharing common cultural values and language, would be able to express and consider the variety of sentiments on topical issues like SD. Such an approach moves past superficial learning that might treat culture as a historical and static relic. Instead, students could view culture as dynamic and having contemporary relevance.

²² This caution by Abbiss (2011) on the use of cultural essentialism sits alongside Burnett's (2007) warning about cultural essentialism in education in sections 3.3.4 and 10.4. It also aligns to my methodological discussion on the need to avoid cultural essentialism when researching, outlined in section 4.6 and the tendency of so-called culturally responsive western pedagogies to employ cultural essentialism, discussed in section 7.8.3. These cautions are underpinned by the following four intended or often unintended consequences of essentialism, described by Phillips (2010):

1. "The attribution of certain characteristics to everyone subsumed within a particular category";
2. "The attribution of those characteristics *to* the category";
3. The presumption of a "homogenised and unified group"; and
4. "The treatment of its supposedly shared characteristics as the defining ones that cannot be questioned or modified without undermining an individual's claim to belong to that group". (p. 47)

Note however, these cautions about the use of essentialism should not be confused with indigenous people's absolute right to draw on the term essentialism when describing the requirement for genealogy to define their indigenous identity. For example, my co-supervisor Huia Jahnke, Professor of Maori and Indigenous Education at Massey University, explained to me that to be New Zealand Maori it is essential you have a whakapapa (genealogy). She made it clear you cannot claim to be Maori without whakapapa. In this sense, the notion of essentialism is viewed positively by Maori.

2.5.1 Challenging normative western development discourse as part of the education process

At the education policy level, in the Global South, it may be that more open debate is required about the normative positioning of Eurocentric development ideology and values being allowed to pervade and dominate classroom learning. Tikly (2004) believes educators and curriculum developers must question the continuing role neoliberal policy and the demand for human capital to support economic growth targets has in influencing current curricula. Tikly (2004) asks, “How can curricula and the way that they are delivered in different learning contexts be used in a way to foster critical thought and social transformation?” (p. 194). Beckmann and Cooper (2004) believe that the ability to think critically is a prerequisite for a democratic, socially just society. Rikowski (2003) argues for a “critical space”²³ (para 7) in education where the current deterministic, binary thinking about what constitutes development might be challenged.

Put into the context of indigenous students’ learning as Sachs (2013) describes it a “decolonization of the imagination” (p. 23), may be required so that the students are able to rethink their place in the world by placing their culture at the centre of their thinking. Escobar (2000) sees this process as a “journey of the imagination” (p. 14) whereby the world is reconstructed from the “perspective of and along with those subaltern groups that continue to enact a cultural politics of difference as they struggle to defend their places, ecologies and cultures” (p. 14). Escobar (2000) argues that the unmaking of the third world is dependent on cultural difference, which is, as he argues, “at the root of postdevelopment” (p. 225). Education has a role in getting students to analyse and potentially challenge normative, modernistic, neoliberal, capitalistic globalising discourses as the dominant and only development ideologies imaginable.

2.5.2 Discussion

Hopeful post-development narratives reveal most people in the Global South do want the ability to take advantage of at least some of the material benefits participation in the global

²³ Critical space consists of those social places and spaces where critique is possible. Critique focussed on how the core processes and phenomena of capitalist society (value, capital, labour, labour-power, value creation and capital accumulation and so on) generate contradictions and tension in ‘everyday life’ – for individuals, groups, classes and societies, and on an international scale (Rikowski, 2003para. 7).

economy provides. People realise pragmatically that this requires some form of income and at least a partial participation in the global capitalist economy becomes necessary. Consequently, education's role in building human capital at both individual²⁴ and government²⁵ levels, to support economic growth objectives, is likely to remain but does not necessarily have to subjugate the curriculum.

Concern that macro-economic development has failed to provide the expected trickle down benefits for all the peoples of the Global South has renewed interest in alternatives to development and grassroots alternative development (Rist, 2002). The ability of indigenous livelihoods and culture to provide food security and some semblance of sustainability in rural communities has been recognised. The ability of traditional livelihoods and culture to build at least some resilience against the whims and downturns in international economic, financial and labour markets has been identified. The increasing awareness of the role culture could play in development has led many, especially those in the Pacific, to call for students to be exposed to more culturally responsive curricula, a theme picked up in chapter 3.

The inclusion of a culturally responsive critical pedagogy in such a curriculum, that allows students to explore hopeful post-development frameworks inclusive of indigenous and western development ideology, warrants further consideration. The provision of a bicultural space, where students learn about both the benefits of participation in global economies and the benefits of their own indigenous livelihoods and cultures in providing livelihood resilience and wellbeing, would seem beneficial. A critical pedagogy that enables students to adopt western ideas and technology that enhances their livelihoods and strengthens their culture, while being able to reject western hegemony that is detrimental would appear helpful. As Escobar (1995) propounds, the “greatest political promise of minority cultures is their potential for resisting and subverting the axiomatics of capitalism and modernity in their hegemonic form” (p. 225) .

Using the Pacific as an example, a culturally responsive pedagogy that allows students to engage with, and make sense of, the interplay of the indigenous, intentional and immanent

²⁴ Individuals want to upskill themselves by obtaining western qualifications to increase their chances in the labour market, to support themselves and their family.

²⁵ Governments see economic growth as a development strategy to improve the lives of their citizens.

development factors that together make up Maiava and King's (2007) concept of a tripartite Pacific development model would be useful. It would support Gegeo's (1998) plea for development that comes from within the Pacific and is not based on western development models. An alternative development²⁶ that is local, small scale, bottom up, participatory and involves civil society.

2.6 Alternative development

Post-development rationale has rightly provided a basis for indigenous peoples to consider alternatives to development within their own culture and local context. However, as hopeful post-development examples have shown²⁷, people also want to engage in western development but on their own terms. They want to make use of the technical expertise and funding, provided in small-scale development projects funded by both government and non-government agencies alike, to help them achieve their own development goals.

Alternative development is variously described as local, small scale, bottom up, grassroots, participatory development that empowers people and local communities (Briggs, 2005; Desai, 2008a, 2008b; Mohan, 2013; Parnwell, 2008). Instead of development coming from the top, controlled by government, big business and external aid agencies there is a space for the conscientisation of local people perceiving problems and developing their own solutions (Parnwell, 2008). People with a greater voice in, and control over, the development process are more empowered²⁸ to lead their own development (Friedmann, 1992).

Chambers (1983) describes how top down approaches to development often overlook rural poverty, ignoring or under perceiving the problems. He argues antithetical development that looked at poverty from the point of view of the poor themselves was more likely to improve lives. Such development would generate a "greater sense of ownership and

²⁶ Described in section 2.4.

²⁷ For example: The case of the women of Agabagaya in Uganda (Janzen, 2008); the case of the Timorese in Timor-Leste (A. McGregor, 2007); the case of the Yupiaq in Alaska (Kawagley et al., 1998); and Maiava and King's (2007) tripartite Pacific development model.

²⁸ Empowerment is a process "through which individuals, households, local groups, communities, regions and national shape their own lives and the kind of society they live" (France, 1997, p. 149).

identity with the process of development, and people are more likely to contribute the enthusiasm, commitment and endeavour that it requires to succeed” (Parnwell, 2008, p. 113). Bottom up development thinking naturally allows indigenous practices and current ways of living to be included in development thinking. In the Pacific, Maiava (2001) describes how conventional western models of development have clashed with customary practice. She believes that such development is unlikely to succeed when it seeks to replace completely one worldview with another. On the other hand, alternative development approaches based on notions of empowerment, participatory practices and sustainability have converged in a belief that IK has a real role to play in development. Agrawal (1995) summed up the situation concisely:

Insofar as the populist rhetoric of indigenous knowledge also emphasizes the capacities of ... the local ...and stresses the need to secure the participation of indigenous and local groups, it fits in admirably with emergent themes in development. (p. 416)

2.6.1 Education: Engaging with alternative development

The problem according to alternative development thinking is that the development process itself “has arrested processes of indigenous development and pre-empted possibilities for alternative development based on greater self reliance” (Brohman, 1995, p. 129) . Education has a key role in reversing power imbalances and empowering indigenous peoples. Students educated in both worlds are better able to determine the necessary mix of indigenous and western knowledge and skills they might draw on to address future livelihoods and development challenges. They will be able to make decisions based on deep understandings of the importance of their own culture in allowing their ancestors to fashion successful livelihoods. They will also develop the ability to ascertain what western thinking, ideas and technology are of benefit to them in the local context, whilst rejecting those that might be detrimental. They will be able to engage on the same level with governments and aid agencies around development strategies, plans and projects in a true participatory process. In effect they are empowered to lead their own development.

2.7 Sustainable development: An evolving concept

Origin of SD

SD evolved out of concern about the long-term effects of economic growth on the environment (World Commission on Environment and Development (WCED), 1987). The concept came to mainstream attention with the publication of the Brundtland

Commission report (1987), *Our Common Future*²⁹, where SD was defined as “development that meets the needs of the present without compromising the ability of the future generations to meet their own needs” (p. 43). It is argued, the definition was drafted to ensure aspirations to develop could coexist alongside increasing concern about environmental degradation (Bonnett, 1999; Carruthers, 2001). SD can be seen as an attempt to drive through economic growth agendas³⁰ in the face of overwhelming evidence that the ongoing demands for resource extraction from the biosphere are no longer sustainable. Bonnett (1999), commenting on the juxtaposition of development and the environment, suggests that the “seductiveness of seeming to marry these two highly desired goals has been matched by a suspicion that ‘SD’ might involve a certain semantic sleight of hand” (p. 314).

Given the political debate that surrounds SD, it is helpful to review the multiplicity of views, values, attitudes, moral positions, belief systems and philosophies that seek to define SD in their own terms.

Anthropocentric - Technocentric views of sustainable development

Anthropocentric - Technocentric views of SD argue that technology and market forces can solve any environmental problem; in other words, economic progress and environmental sustainability are compatible (Adams, 2001). Scientific techniques like Environmental Impact Assessments (EIA) and Cost Benefit Analysis (CBA) are invoked to ensure maximum economic gain for the least possible environmental damage. Scientific research is used to change production methods that reduce pollutant effect on the environment.

Various neoliberal strategies have been invoked as solutions to protect the environment. These new approaches are market environmentalism, ecological modernisation, environmental populism and ecological economic strategies. Market environmentalism predicts market prices will rise as resources become scarce and therefore people must innovate to use resources more efficiently (Adams, 2001; T. L. Anderson & Leal, 2001). A technocentric approach would argue communal land is open to abuse, as people will take

²⁹ The publication of *Our Common Future* set the scene for the 1992 Earth Summit held in Rio and the adoption of Agenda 21 that led to the establishment of the Commission on Sustainable Development (World Commission on Environment and Development (WCED), 1987).

³⁰ Underpinned by neoliberalism and capitalism.

whatever they want, exploiting resources. Technocentrists argue sustainable management of resources is promoted through “private property rights as alternative to the tragedy of the commons e.g. property rights in the form of transferable fishing quotas” (McShane, 1998, p. 24).

Ecological modernisation argues that a productive use of natural resources will occur through enlightened self-interest in the market (Jänicke, 2008). Adams (2001) explains that ecological modernisation in “demanding improved planning, management, regulation and utilisation of the human use of nature” (p. 143) results in better environmental protection. Environmental populism is also technocentric in arguing people have the power to change the way they live to ensure the environment is not damaged and to create a better world. They cite the emergence of the green economy as evidence that economic growth can protect the environment (ibid).

Finally, environmental economics raises the idea that trade-offs between losses to natural capital in one project and gains in another can be promulgated; for example, companies replant and replace ecosystems destroyed by their project. The argument being that by the end of the project no net environmental damage has occurred. Technocentrists believe the market is the most efficient tool in allocating resource and protecting the environment (Adams, 2001).

Ecocentric view of sustainable development

In contrast, ecocentric viewpoints believe “sustainable growth based on the growth orientated assumptions of neo classical economics is illusory” (Rees, 1990, p. 99). Continued exploitation of the environment cannot last; global warming, for example, is threatening the stability of ecosystems. Rees (1990) describes how “the present scale of economic activity may already have exceeded global carrying capacity” (p. 101). Biodiversity is reducing as a direct result of agricultural intensification (Potter, Binns, Smith, & Elliott, 2004). Agriculture is responsible for seventy per cent of world forest loss (FAO, 2001).

Carruthers (2001) insists SD cannot continue to occur in completely deregulated markets. Individuals, companies and countries are unwilling to pay for, or ignore, environmental pollution. He argues; “In the absence of a serious global ecological tax reform or true-cost pricing, the benefits of globalised production will accrue disproportionately to those players most effective at externalizing negative costs” (p. 103). Furthermore, unchecked

competition in the market place, through so-called free trade, rather than leading to equitable resource distribution, has led to wealth for some and poverty for many. Carruthers (2001) declares: “SD may assert distributive equity” (p. 103), but in practice it does not. Although some poor may have benefited from neoliberal policies through agricultural and market reform most have been forced into hardship (Simon, 2008a).

2.7.1 Sustainable development supporting modernisation and neoliberalism

Although conceptions of SD range from those based on ecocentric viewpoints to those based on technocentric viewpoints ecocentrists, argue mainstream notions of SD have increasingly been captured by neoliberalism. This is perhaps not surprising as SD is a western construct that has emerged from western ideological debate. Technocentric thinking, which considers economic growth as the answer to development, has taken centre stage (Irwin & Peters, 2007). Even western conceptions of conservation for aesthetic reasons attempt to prejudice what nature should be. Irwin and Peters (2007) believe the concept of “‘sustainability’ is part of a process of normalising and shrouding the metaphysical assumptions of Neoliberalism” (p. 4). Sachs (1997) argues SD is being used as a tool to justify and intensify economic development measures. He believes “sustainable development calls for the conservation of development, not for the conservation of nature. Alternatives within development are welcome; alternatives to development are anathema. Environmentalism is being reduced to managerialism” (para. 1).

In capturing SD, Irwin and Peters (2007) reason neoliberalism supports a “continuation of the modern consumer culture” (p. 1) while appearing to care for the environment. Pretzer (2009) contends opponents of ecocentricism will always find ways to justify their position by manipulating the meaning of SD. He argues declarations on the benefits of economic development, via trickledown, and the ability of technological innovation to overcome natural resource depletion, hides greed and the protection of privilege.

Recognition of the role culture might play in SD is only beginning. Hettne (1990) notes that people in the field of development have often stressed the importance of non-economic factors such as culture, only to forget about them in practice. Development still predominantly occurs within western frameworks that ignore or have culture put to one side. Even when culture is mentioned, it can be argued it is used only as a politically correct add-on to counter criticism about the Eurocentric nature of SD.

Sustainable development overlooking sustainable livelihoods and culture

The focus on western notions of SD means sustainable livelihoods immersed in culture are often overlooked³¹. Breidlid (2009), commenting on the UNESCO produced ESD training kit³², states “the need to go beyond Western-based knowledge systems or educational discourses for a more sustainable earth” (p. 143), is never addressed. Even when it is, it sits at the periphery. Nurse (2006) argues, “culture is not just a fourth pillar to be integrated into” (p. 36) SD. Culture should not just sit on the periphery of SD thinking as an add-on. The danger is indigenous students could consider technocentric views superior to their own localised, perhaps more ecocentric views of SD. Davis (1993) sums up, stating:

For development to be truly sustainable it must ... take into account and draw upon the values, traditions, and cultures of the people in the countries and societies that it serves. (p. 3).

Nurse (2006) argues this placement, while a beginning, remains problematic. He argues the inclusion of culture in SD needs to go further; culture should not sit to one side of SD. It is integral to it. In this thesis, I will explore SD at two interrelated levels

Firstly, SD that is shaped by indigenous worldviews and local livelihoods, and their relation to local economics reflecting sociocultural values, kinship ties, and people’s relationship with local ecosystems. In effect, SD grounded in culture Secondly, SD that considers the global economy in the context of the multiplicity of ‘isms’³³ and their impact on the biosphere.

Despite problems with a proper recognition of the role traditional sustainable livelihoods and culture might play in shaping SD, I argue SD itself cannot be abandoned in the Global South, in contemporary times, for three reasons. Firstly, using the Pacific as an example, SD, directly or as a crosscutting issue, pervades the government (both multilateral and bilateral) and non-governmental development projects demanded by Pacific peoples

³¹ However, there is hope that the recognition of culture’s impact on notions of SD has started. The Universal Declaration on Cultural Diversity states culture “one of the roots of development understood not simply in terms of economic growth, but also as a means to achieve a more satisfactory intellectual, emotional, moral and spiritual existence” (UNESCO, 2002, p. 13).

³² The ESD training kit is produced by UNESCO to “assist media professionals in their efforts to report on sustainable development issues, help provide relevant information resources and establish a model for media training on this important topic”(UNESCO Media, 2008, p. 1).

³³ Capitalism, Neoliberalism, Socialism and Communism.

(Pacific Islands Forum Secretariat, 2009). A knowledge of SD by Pacific peoples is important if they are to engage on an equal footing in development conversations with both government and aid development organisations. Secondly, Pacific people's increased engagement and dependence upon the global economy through trade, labour, temporary and semi-permanent migration, remittance and aid puts them at risk of being subjugated. A knowledge of western SD thinking and its potential impact on their own livelihoods and culture places indigenous peoples in a stronger position to select modify or reject development proposals. Thirdly, Pacific peoples, by participating in the global economy have their own moral responsibility as global citizens to contribute to biosphere protection as well as protection of their own local ecosystems.

Therefore, instead of the outright rejection of SD because of ties with western forms of development, it is perhaps time to consider a culturally responsive and contextually relevant form of SD from a post-development perspective.

2.7.2 Summary

Taking a hopeful post-development position it can argued all viewpoints, from technocentric to ecocentric, both within and across culture, are important when conceptualising SD. As Fein and Tilbury (2002) explain "interpretations of sustainability are value-laden"(p. 3) and ultimately political in nature. Therefore, decisions about SD by communities should reflect their culture and context having been made by "thoughtful deliberation and collective resolution" (Robinson, 2004, p. 380). As Hopwood, Mellor and O'Brien (2005) argue, "there is no such thing as a single unified philosophy of sustainable development; there is no sustainable development 'ism'"(p. 28).

Given the diversity and fluidity of SD thinking, students cannot just be provided with predetermined western models of SD to learn. Instead, they will need to build the skills and knowledge that allows them to formulate their own culturally responsive and locally relevant conceptions of SD. Here students will need to be able to consider the impacts, both positive and negative, of globalisation on their existing way of life. If students are to be educated in this manner, then the type and quality of ESD they receive will be critical. This emergent theme is a central focus of this research.

2.8 Education for Sustainable Development (ESD)

Education, through ESD programmes, has a key role in supporting students to develop a critical awareness of SD. UNESCO states: “Education is essential to sustainable development. Citizens of the world need to learn their way to sustainability” (UNESCO, 2011b). I now provide a brief history of the emergence of ESD.

2.8.1 Origin of ESD

ESD surfaced following the 1992 United Nations Conference on Environment and Development (UNCED). SD was promoted as the best way forward to ensure economic growth whilst protecting the environment. Agenda 21, the blueprint for SD, agreed to by countries at the Rio summit, viewed education as an essential tool to create awareness of and ultimately achieve SD (Carruthers, 2001). As Hopkins and McKeown (2002) point out, although "ESD was not created by the education community" (p. 14), it must be interpreted and responded to by the education sector.

With the emergence of ESD, the link between education and development has been strengthened. The decade 2005-2014 has been named the United Nations Decade of Education for Sustainable Development³⁴ (DESD) and is an indication of the importance placed by the UN on educating students to be development savvy. The DESD “seeks to integrate the principles, values, and practices of SD into all aspects of education and learning, in order to address the social, economic, cultural and environmental problems we face in the 21st century” (UNESCO, 2010a).

2.8.2 A definition of ESD

ESD intends to give students the knowledge, skills, attitudes and values essential to vision, plan for and begin to “shape a sustainable future” (UNESCO, 2011b). The aim is for students to visualise for themselves holistic futures based on an integration of the economic, social, environmental and cultural dimensions of sustainability (Venkataraman, 2009). UNESCO’s (2013) definition is:

³⁴ In December 2002, the United Nations General Assembly proclaimed 2005 to 2014 as the UN Decade of Education for Sustainable Development and in the process designating UNESCO to implement the Decade (UNESCO, 2010a).

Education for Sustainable Development (ESD) is a learning process based on the ideals and principles that underlie sustainability.

The aim is to:

Foster sustainable human development – learning to know, learning to be, learning to live together, learning to do³⁵ and learning to transform oneself and society³⁶ (ibid).

ESD is not a particular learning area or programme of study (UNESCO, 2011b) to be added to an already congested curriculum (Venkataraman, 2009). Instead, it should be viewed as an overarching framework (UNESCO, 2011b) that considers an evolving meaning of SD (United Nations Economic Commission for Europe, 2009). ESD should be multifaceted, holistic and require the integrated knowledge, skills, viewpoints and values from all learning areas of the curriculum, including the following:

Values, with respect at the centre: respect for others, including those of present and future generations, for difference and diversity, for the environment, for the resources of the planet we inhabit. It is a vision of education that seeks to balance human and economic well-being with cultural traditions and respect for the earth's natural resources. It emphasises aspects of learning that enhance the transition towards sustainability including citizenship education; education for a culture of peace; gender equality and respect for human rights; health education; population education; education for protecting and managing natural resources; and education for sustainable consumption.

(UNESCO Media, 2008)

Under ESD students must be able to engage in higher order thinking and participatory learning processes which will allow them to develop shared visions of sustainability (UNESCO, 2011b).

ESD as defined by UNESCO is descriptive rather than prescriptive (UNESCO, 2011b). This openness to interpretation is fundamental in allowing governments and communities to develop education curricula that expose students to localised knowledge, thinking, ideas

³⁵ The four pillars of learning are taken from the Delors report, *Learning: The treasure within*. Learning to know (learning how to learn and think critically), do (acquiring skills including vocational), live together (learning to understand other peoples, their cultures and how to work together is linked to citizenship and peace education) and be (personal development and self realization) are the four pillars described in the report (Delors, 1996).

³⁶ The increasing importance of *ESD* has suggested the inclusion of a fifth pillar, namely: Learning to transform oneself and society. This fifth pillar promotes “active citizenship, futures thinking, responsible lifestyles, sharing of resources and adaptability” (UNESCO Media, 2008).

and values. It allows an individual country's education sector to tailor an ESD curriculum towards localised interpretations of sustainability that are inclusive of culture.

However, this descriptive nature of ESD, whilst necessary, means it becomes vulnerable to exploitation by interest groups intent on capturing their own version of SD for students to digest. Interpretations of SD are invariably political in nature and therefore education ministries must be careful to allow the diversity of in country views about SD to be available for students to interpret. Particularly important, is the place of IK in shaping thoughts about SD. A pedagogical approach that encourages critical thinking and genuine problem solving would allow students to formulate their own (and their communities) culturally appropriate solutions at the local level. It would also allow students to consider the diversity of international thinking around SD when developing global visions of SD. This thesis will do just this, by examining what a Mangaian ESD might look like in the context of a Mangaian worldview of SD on Mangaia.

2.8.3 Difference between ESD and environmental education

A caution, ESD must not be confused with environmental education. Sterling (2001) views environmental education as a top down transmissive type of education that preaches to students about the dangers and causes of damaging the environment. Learning is often emotive rather than exploratory. The aim being to instil within students a concern for the environment, sometimes by indoctrination. The root cause of the environmental damage, often a result of the prevailing development ideology, might not be challenged or at times even considered. Sterling, reflecting on the role of environmental education in the classroom, discards the rather simplistic assumption that:

If people learnt about environmental issues, their behaviour would change. Not only does it not work, but too much environmental knowledge (particularly relating to the various global crises) can be disempowering, without a deeper and broader learning process taking place. (pp. 18-19).

Bonnett (1999) builds on this argument by suggesting the causes, not symptoms of environmental damage need to be addressed first. In other words, an in-depth understanding of environmental issues will go further than simply understanding the science or biology behind the problem to look at the economic, social and/or political causes.

Sterling (2001) argues ESD is the answer to really understanding what environmental sustainability entails; students using critical pedagogies to debate the environmental

ramifications of particular development initiatives, ultimately learn more deeply about environmental issues. Quality ESD focuses learning on students developing the attitudes, skills and knowledge to make informed decisions about the consequences of development on the environment. ESD also provides students with the capability to implement these decisions (UNESCO, 2010b).

Hopkins and McKeown (2002) believe an education that empowers students to vision sustainable futures and livelihoods “sets ESD apart from other educational movements such as environmental education” (p. 17). ESD encourages the analysis and debate of current livelihood strategies and daily practices by taking a deeper look at the motives, values and the cultural norms behind current practices. ESD also challenges attempts to impose ideas from the outside. New ideas and information are not just accepted but critiqued as to their validity and relevance.

I argue that environmental education can still be helpful by complementing ESD, reminding learners of the importance of the environment. It acts as a countercheck to neoliberal versions of SD. Irwin (2007) explains the move from environmental education to ESD has resulted in a move from ““older greeny and ‘pessimistic’ approaches” to the “more ‘optimistic’ Neoliberal version of ‘education for sustainability.’” (pp. 4-5). The term SD has become an oxymoron, as it ignores concepts popular in environmental education, like limits to growth. Even nature has become commodified as environmental capital; something to be exploited, albeit sustainably (2004). Therefore, while Sterling (2001) argues for students developing a real understanding of sustainability issues in a move to ESD, Irwin cautions that this should not be at the expense of hard hitting, but necessary, environmental messages. UNESCO (2011b) states:

Education for Sustainable Development means including key sustainable development issues into teaching and learning; for example, climate change, disaster risk reduction, biodiversity, poverty reduction, and sustainable consumption. It also requires participatory teaching and learning methods that motivate and empower learners to change their behaviour and take action for sustainable development.

2.9 Summary

Development centred on neoliberalism, and backed by managerialism, has shaped education’s key purpose, which is to increase human capital for economic growth. This same ideology has fostered a view of nature as environmental capital (Adams, 2001; Irwin & Peters, 2007; Pretzer, 2009; Sachs, 1997). A transformative ESD could challenge this

status quo by providing the conditions for more open and diverse thinking where new culturally responsive and contextually relevant notions of SD might emerge. A space where alternatives to development and alternative development strategies could be considered alongside alternative modernities incorporating economic growth targets and technology. A space where indigenous peoples could recognise and then reject the romanticised notions of their culture, generated by outsiders, that generalise and compartmentalise their indigeneity as static and unchanging (Burnett, 2007).

As Robinson (2004) reminds us, “there exist multiple conflicting values, moral positions and belief systems that speak to the issue of sustainability” (p. 382). A transformative ESD backed by a hopeful post-development narrative could provide a way forward for students to make sense of the diversity of thinking that interacts in the Global South SD space. Students could begin to explore issues of sustainability along the SD spectrum and across different worldviews. As Robinson (2004) states, “sustainability is itself the emergent property of a conversation about what kind of world we collectively want to live in now and in the future” (p. 382).

The next chapter expands this thinking by exploring the need for new Pacific conceptions of SD and associated transformative ESD programmes in the context of a strengthening, rethinking Pacific education movement. A place-based Pacific ESD, inclusive of indigenous Pacific pedagogies, could be the catalyst to make students, the future Pacific leaders, aware of the absolute centrality of Pacific livelihoods and culture to future development, in particular SD in the Pacific.

Chapter 3 Rethinking Education and development

3.1 Introduction

The chapter begins by outlining the emergence of the rethinking education movement in the Pacific. Dissatisfaction with the results of mainstream development and education has increased interest in alternative development based on a Pacific worldview. Pacific academics and researchers alike, argue that culture and Pacific knowledge should underpin development in the region and consequentially must feature centrally in educational curricula (Manu, 2009; Pene et al., 2002; Sanga & Thaman, 2009; Thaman, 1992, 2007) . This movement is contrasted with approaches, often government lead, that are focussed on a building human capital approach to education (extensively a western education) to support economic growth.

ESD is explored as an area of the curriculum in which education could be rethought to promote the notion of a Pacific SD. A contemporary Pacific SD that aligns to hopeful post-development thinking. An area of the curriculum where students could learn about the place of their culture, IK, traditional economies and alternative modernities, consisting of western development ideology and technology, in the makeup of a Pacific SD.

Arguments for the implementation of a transformative EasSD, as outlined by Sterling (2001) and supported by Vare and Scott (2007) are made. The potential advantages of EasSD over an ‘education about’ and ‘education for’ approach are outlined in the context of hopeful post-development thinking and the Pacific rethinking education movement’s desire to promote an education that is culturally responsive and environmentally sustainable. Finally, a discussion takes place that looks at the commonalties between the aims of the Pacific rethinking education movement, hopeful post-development and the implementation of a transformational EasSD into Pacific curricula.

3.2 Rethinking education in the Pacific

3.2.1 The momentum

During the 1980s and 1990s, Pacific educators increasingly questioned the values and success of modern western approaches to education and development (Thaman, 1995). Taufe’ulungaki (2002) believed the focus on materialism, the result of a fixation on western driven economic development measures and methods, is problematic in the face of local

and global environmental concerns, dwindling resources, widespread social collapse and political turmoil. Pene, Taufe'ulungaki and Benson (2002) attributed the ineffectiveness of Pacific education to the "increasing incongruence between the values promoted by formal western schooling, the modern media, economic systems and globalisation on the one hand and those held by Pacific communities on the other" (p. 1). These debates resulted in a call to reject educational imperialism and rethink education in the Pacific. The educators expressed their desire to develop Pacific education systems that are based on Pacific values and belief systems (Pene et al., 2002; Puamau, 2005; Sanga & Thaman, 2009).

The symbolic culmination of this dissatisfaction occurred when an assemblage of Pacific educators and academics met at the University of the South Pacific, from April 25-27, 2001, for the aptly named Colloquium on Re-Thinking Pacific Education (Afamasaga, 2007). The collective belief expressed at this meeting was that "extensive reforms in Pacific education and significant investments by national governments and donor agencies had largely failed to provide for the quality human resources needed to achieve developmental goals" (Pene et al., 2002, p. 1). Two key issues were identified: a) the lack of ownership by Pacific people of the formal education process; and b) the lack of a clearly articulated vision for Pacific people which could inform both development and education (ibid, p. 2). The rethinking Pacific education movement had started.

3.2.2 Rethinking education initiatives

New initiatives, aimed at making education more relevant for Pacific³⁷ students, were established as Pacific educators assumed responsibility for rethinking education and development agendas (O'Sullivan, 1999). The key initiatives are the Rethinking Pacific Education Initiative for and by Pacific Peoples (RPEIPP)³⁸ and the Pacific Regional

³⁷ The Pacific refers to the 15 independent countries in the Pacific ... Fiji, Papua New Guinea (PNG), Solomon Islands and Vanuatu; seven not so large nations: Cook Islands, Federated States of Micronesia (FSM), Kiribati, Palau, Republic of Marshall Islands (RMI), Samoa and Tonga; and four small island nations: Niue, Nauru, Tokelau and Tuvalu (Puamau, 2005).

³⁸ The RPEIPP was first named the Rethinking Pacific Education Initiative (RPEI) in 2001. It has since changed its name to reflect the focus on Pacific peoples leading and owning the initiative. For a history of the RPEIPP (or RPEI as it was known then) read *Rethinking Educational Reform: A Pacific Perspective* (Puamau, 2005).

Initiatives for the Delivery of Basic Education (PRIDE)³⁹. The RPEIPP allows Pacific educators to share concerns and develop solutions to improve education in the Pacific. A key strategy of the RPEIPP is “Big picture strategising of Pacific education” (Sanga, 2012, p. 16). The initiative aims to “improve education quality through sustainable use of Pacific people, their values, and knowledge systems” (Thaman, 2007, p. 5). However, as Van Peer (2007) points out, the RPEIPP does not yet speak for all Pacific people. Some Pacific countries are yet to commit fully to the RPEIPP due to time constraints or because they still value western education systems in what Van Peer terms “a ‘return to the dark ages’” (p. 7).

Taufe’ulungaki (2002) believes the demand for a “Pacific way” (Tupouniua, Crocombe, & Slatter, 1975, p. 6) in education is not only a rejection of neoliberal thought but also of a western education system that has failed Pacific students in terms of its relevance and values. Calls to reject western education have occurred elsewhere for similar reasons. For example, in South Africa, Higgs (2003) argued for the development of an African philosophy that empowers Africans to use their own knowledge systems to shape their own educational progress. In a similar vein, Parker (2003) believes African values must reject remaining western colonialism, western inspired globalisation and a continuing “Eurocentric philosophy” (p. 31).

The Pacific educators believe that by working together, across country boundaries, they are able to share common concerns, generate collective action and consequently a collective strength. They have modelled their approach on Hau’foa’s (1993) strength-based view of Oceania as a “‘sea of islands’, rather than ‘islands in the sea’” (p. 7). To many, the belief is that through their shared migratory history they can develop a common “Pacific way” (Tupouniua et al., 1975, p. 6). This approach recognises the processes of self-determination occurring in each of the unique Pacific cultures that make up the member countries of this Pacific group. They argue it is precisely this diversity of Pacific cultures that gives strength to a collective Pacific approach (Pene et al., 2002; Sanga & Thaman, 2009).

³⁹ PRIDE aims to expand opportunities for children and youth to acquire the values, knowledge and skills that will enable them to actively participate in the social, spiritual, economic and cultural development of their communities and to contribute positively to creating sustainable futures (University of the South Pacific, 2004).

Pacific educators and academics are not the only people rethinking education. The Pacific Islands forum, through the Education Ministers of member countries, has developed a high level initiative, The Pacific Education Development Framework (PEDF)⁴⁰ (Pacific Islands Forum Secretariat, 2009). Here though, the focus is more on the “training/employment/economic agenda”(Pacific Islands Forum Secretariat, 2009, p. 3) in line with discussions in section 2.2. Pacific governments seeking to emulate the economic growth strategies of the Global North have also “re-structured and repackaged (education) to conform to the philosophy and perceived needs of the market” (ibid, pp. 12-13).

Burnett (2007) views rethinking education initiatives, predominantly aligned to RPEIPP, as justified for a number of reasons. Firstly, the need to reclaim culture, language and identity in a postcolonial Pacific in the face of continuing “covert cultural domination” (p. 262) and neoliberal economic “overt domination” (p. 262). These actions fit with the desire for self-determination. Cultural essentialism provides strength through unity of purpose, paving the way for political gains (Burnett, 2007). Secondly, there is the concern that continuing poor academic achievement in the Pacific is a direct result of the persistence of a curriculum, and its associated pedagogy, which is foreign in nature to Pacific learners. The belief is that a transformative education that is relevant to students, both contextually and pedagogically, will lead to improved student outcomes (Puamau, 2002, 2005).

3.3 Rethinking Education through ESD in the Pacific

ESD provides a key vehicle for proponents of rethinking education to ensure that future education and consequential development planning takes cognisance of Pacific livelihoods, cultures, beliefs and values, provided the definition of SD adopted is flexible enough to recognise the contribution of Pacific livelihoods and cultures to the development process. An inclusive, culturally aware ESD agenda would challenge the current sole focus on the human capital function of education (the neoliberal approach to education) as being too narrow. With UNESCO (UNESCO, 2006a) emphasizing the “responsibility of

⁴⁰ “The PEDF will coordinate regional activities and provide advocacy and a leadership role in policy dialogue at the regional level. It will support Pacific countries to achieve their commitments to EFA and the MDGs” (Pacific Islands Forum Secretariat, 2009, p. 3).

government” (p. 32) to implement ESD there is the potential to transform education policy and practice in the Pacific leading to the formulation of a unique Pacific ESD.

ESD, as articulated by UNESCO, encourages students to investigate the impact of economic development initiatives on the environment and socio cultural political structures at the local level (UNESCO, 2013). In the Pacific, many of these interactions are indigenous in origin. An educational focus on improving human capital to support economic development need not be rejected within an ESD framework. Instead, it would become just one of many approaches to addressing the development puzzle. My research adds to the body of knowledge about rethinking education in the Pacific through its focus on the exigency of implementing ESD in a school in the Cook Islands. An ESD that might allow students to decide for themselves the specific contributions traditional livelihoods and culture, alongside western ideas and technology, might make to future development on Mangaia.

ESD programmes in the Pacific and Global South should reflect the reality of SD in students own communities and so might ideally incorporate:

- Culture and IK;
- Traditional sustainable livelihoods; and
- Western development thinking and technology.

3.3.1 ESD: Considering culture

The importance of culture and language in education has traditionally been focused on two factors. Firstly recognition of the importance of language and culture in strengthening identity; secondly, a belief in education’s role in supporting the maintenance of the language and culture of a people (Coxon, Anae, Mara, Wendt-Samu, & Finau, 2002). An ESD lens provides an important third reason for culture and IK to sit at the forefront of educational planning, through the realisation that culture and IK can contribute to contemporary SD solutions. In rethinking education in the Pacific, as it relates to SD, there is already a call to focus on Pacific values, beliefs, IK and indigenous epistemologies (Manu'atu, 2009; Manu, 2009; Taufe'ulungaki, 2009; Teairo, 2009). Taufe'ulungaki (2002) believes that by focusing on indigenous knowledge, solutions to sustainability will be strengthened. In line with the RPEIPP, The Pacific Education for Sustainable Development Framework (PESDF) (UNESCO, 2006b), developed as a Pacific response to the DESD, reinforces this approach. The framework places a spotlight on linking

sustainable development to indigenous culture and beliefs. The framework states, “development of local ownership respecting local contexts and culture is an important aspect of implementation of ESD at all levels” (UNESCO, 2006b, p. 3). Though actual implementation of the plan across the Pacific has been piecemeal to date (Hiebert, 2014).

The ability of indigenous peoples to live holistically in harmony economically, socially and environmentally has raised the profile of culture in development thinking (Aikenhead, 1996; Reynar, 1999). Attention to culture has occurred alongside the emergence of bottom up, grassroots, participatory approaches to development and the popularity of postmodern development thinking (Briggs, 2005; Chambers, 1983, 1997, 2008). Interest in empowerment through participatory development has led to increased interest in indigenous people utilising their own IK to solve development dilemmas (Warren, Von Liebenstein, & Slikkerveer, 1993). As Radcliffe (2006a, 2006b) believes, development is most effective within culture and already existing social relations.

3.3.2 ESD: Considering: Indigenous Knowledge

TEK has played a big part in the adaptive management of the environment by indigenous communities. As far back as 1987, the World Commission on Environment and Development report entitled *Our Common Future* (1987) stated, “Tribal and indigenous peoples'... lifestyles can offer modern societies many lessons in the management of resources in complex forest, mountain and dry land ecosystems” (p. 12). The report, commenting on indigenous communities, went on to point out, “These communities are the repositories of vast accumulations of traditional knowledge and experience that link humanity with its ancient origins. Their disappearance is a loss for the larger society, which could learn a great deal from their traditional skills in sustainably managing very complex ecological systems” (ibid, pp. 114-115).

The growing interest in IK and TEK is also a result of major environmental degradation due to excessive logging, mining, fishing and farming. People have begun to rethink the future of the biosphere, realising they need to better understand its inherent complexity. There is already evidence of the link between the world’s ecological disasters and western science (FAO, 2001; Potter et al., 2004; Rees, 1990). People are investigating IK and TEK, realising they may offer an alternative; maybe better understanding of the complexity of biological relationships in localised ecosystems. The focus of TEK is on the local ecosystem with validity based on observation over long periods (Snively & Corsiglia, 2001).

Knudtson and Suzuki (1992) argue that TEK can contribute to ecological issues such as resource management, conservation, development planning and environmental assessment but that the knowledge is complementary to western science, not a substitute for it. The production of IK and TEK usually transpires when exploring solutions to improved subsistence livelihood strategies. After all, most cultivated plant species produced by artificial selection developed without the need for western science (Johannes, 1989). This close dependence and association with surrounding ecosystem resources means TEK is closely focused on sustainability and a concern for the environment (Snively & Corsiglia, 2001). Despite the contribution TEK plays in indigenous conceptions of sustainability, it has yet to feature significantly in most ESD programmes in the Global South (Hiebert, 2014). The exclusion of TEK from ESD programmes is an issue explored in this thesis.

3.3.3 ESD: Considering the traditional economy

Generating jobs and disposable income through economic growth measures is not always the main mechanism for satisfying basic needs for many Pacific people, who value their traditional food gathering lifestyle and the core resilience it provides (Maiava, 2001; O'Meara, 1990; Purdie, 1999; Regenvanu, 2009). As Shiva (2005) asserts, "Livelihoods are the human sources of sustenance, meaning, and purpose; they provide a sense of self and community" (p. 66). For many of these Pacific peoples, natural resources provide primary resilience, in terms of food, while money provides secondary resilience and opportunities to participate in the material culture of the west⁴¹.

This recognition of the importance of traditional livelihoods in SD is becoming increasingly vocal. Speaking as a Ni-Vanuatu, Regenvanu (2009) argues, "we must shift our thinking to consider the traditional economy not as a problem to be solved, but rather as an enormous asset to be utilized" (p. 6). Bazeley and Mullen (2006), in discussing the Vanuatu economy, argue it is the traditional economy which has fed the ninety per cent increase in the population since independence and weathered the global economic crisis. Furthermore they argue, "many of the functions of modern growth – wellbeing, stability,

⁴¹ The World Resources Institute (2005) states that "poor families' total income is derived from at least four different sources: environmental income, income from wage labour, remittances and other transfer payments such as social welfare. Households are able to pursue several different income generating activities at once and diversification becomes the approach to a family buffering itself against the whims of market forces" (p. 34).

equity, social cohesion and sustainable livelihoods for an expanded population - are also well provided for through Vanuatu's strong and deeply held customary values including its custom economy" (p. 3). Regenvanu (2009) goes on to stress the importance of education, in recognising the centrality of Ni-Vanuatu livelihoods in any development. He argues:

It is essential that we transform the structure and syllabus of our basic education system to reflect and address the reality of the central role the traditional economy plays in providing livelihoods, security and sustainable development outcomes to the population. (p. 6)

In a similar vein, Gegeo (1998), outlines the vital importance of local livelihoods and local economics to the development process for the Kwara'ae of Malaita. With reference to the Kwara'ae of Malaita, Gegeo and Watson-Gegeo (2002) state, "indigenous ways of knowing and critiquing are equally effective in solving modern as well as traditional problems and issues" (p. 321). They go on to argue that indigenous knowledge and thinking be integrated into the classroom alongside western knowledge and thinking and be "given equal weight" (ibid, p. 322).

From a western development standpoint, traditional livelihoods have been considered a barrier to development (Latham, 2000; Peet & Hartwick, 1999; Rist, 2002). This must change with the realisation that traditional livelihoods remain central to SD in many parts of the Pacific (Maiava, 2001; O'Meara, 1990; Purdie, 1999). This case study explores this thinking in the context of SD on Mangaia and the implications for ESD programmes on Mangaia.

3.3.4 ESD: Considering western ideas and technology

Traditional livelihoods and culture rightly sit at the core of Pacific notions of sustainability. However, Pacific Islanders having engaged with the global community and economy, willingly or otherwise, should consider the future role of westernisation, if any, in their own conceptions of SD⁴². It follows that western ideas, knowledge and technology should be made available in ESD programmes so that Pacific Island students, through critical examination, can ascertain their value when formulating plans for sustainability. Burnett (2007), in challenging any tendency to rethink education through romanticised notions of

⁴² Individual western ideas, pieces of knowledge or items of technology will either strengthen Pacific notions of sustainability if culturally enhancing or be detrimental and best avoided if at odds with cultural norms.

culture, warns of thinking entirely in what he terms “essentialised notions of culture and identity” (p. 263). Burnett indicates modern Pacific life is increasingly one of “cultural and identic fluidity, heterogeneity and mobility” (p. 263)⁴³. The concern is that an absolute focus on culture may “limit life chances” (ibid, p. 263) and a student’s “right to know” (Willinsky, 1998, p. 252) about the western or global world.

It is feasible within a hopeful post-development framework that western ideas, knowledge and technology contribute to the development of indigenous communities. They would do so through a style of critical modernism, where issues of equity and ethical development⁴⁴ are bound in culture in a radical democracy⁴⁵. Critical modernism believes many aspects of modernisation such as science, technology, medicine, democracy, planning, productivity and machines have been positive in improving lives. Critical modernism suggests that neoliberal and capitalistic key focus on the pursuit of profit via economic growth and the promotion of mass consumption is the problem. Critical modernism focuses more directly on issues of poverty and inequality than modernisation alone, where the benefits of development are assumed to trickle down to everybody over time. Critical modernism has elements of a critical holism it considers human development and factors like hope and happiness as well as technological progress (Pieterse, 1999).

Radical democracy suggests people have control over the resources and institutions that directly affect them. People know best how to live their own lives, what is needed is the ability to control one’s own life (Peet & Hartwick, 1999). Amsler (2015) characterises radical democracy as liberating “possibilities from the imposition of all ‘false necessity’; to maintain an anarchic scepticism towards both truth and power, and to facilitate the practical work that these commitments require” (p. 73). The result could be Pacific self-determination supported by an endogenous development that is able to draw on the ideology and technological benefits of westernisation while remaining focussed on indigenous development values and visions.

⁴³ Refer to the discussion on hybrid culture in section 2.3.5.

⁴⁴ Ethical development asks the question of how best to provide the basic needs to all the world’s poor (Peet & Hartwick, 1999).

⁴⁵ “Radical democracy means democracy in its essential form” (Lummis, 1996, p. 25)

3.4 Education ‘about’, ‘for’ and ‘as’ sustainable development

SD in the Pacific, like elsewhere, requires a simultaneous reconciliation of the social, economic and environmental elements of sustainability (Robinson, 2004). The difference however, is that Pacific island students should not be indoctrinated with Eurocentric versions of SD. Instead, they should ideally have the freedom to immerse themselves in their own IK, and culture, using their own language to formulate contextually sound models of development based on a “uniquely Pacific world view” (Taufe'ulungaki, 2001, p. 5). In this research I will argue that Sterling’s (2001) concept of an ‘Education as’ approach to SD, as distinct from ‘Education about’ or ‘Education for’ SD, when aligned to indigenous knowledge and epistemologies could support the beginnings of a framework in which students are given the chance to do precisely this. It is therefore timely that these three concepts of Sterling’s are now explained and the effect they have on student learning.

3.4.1 Education about SD

Taking an ‘Education about’ SD methodology, dominant development and educational paradigms remain unchallenged. The belief is in an instrumental, technocentric, managerlistic view of education, encouraging a neoliberal mind-set and supporting entry into global labour markets. Environmental issues such as pollution and threats to biodiversity are taught as concerns but in isolation to prevailing ideologies and do not challenge them. Learning about sustainability is adapted to the status quo. Many ESD projects promoted by UNESCO and delivered across the Pacific fit this model. Such projects are often delivered as time bound themed projects with defined budgets and are not integrated into the curriculum. McKeown(2002) believes, “Teaching *about* sustainable development is like teaching the theory behind an abstract concept or teaching the principles of sustainability by rote memorization”(p. 28). Students are only taught models of SD underpinned by western ideology. Students do not get the chance to explore what sustainability might mean to them from their own worldview.

3.4.2 Education for SD

Sterling (2001) views the second educational approach as ‘Education for’ SD. Critical and reflective thinking are encouraged and aspects of the existing paradigm can be questioned but only within bounds. “Espoused or hidden values” (ibid, p. 60), for example, neoliberal ideology and the concept of limitless economic growth are not. Classroom social science units, which investigate social or environmental issues from a problem solving point of

view, fit this model. Detrimental impacts of rapid economic growth on the environment are investigated and temporary fixes sought but long lasting paradigm shifts are not envisioned, as the overriding ideology itself is not challenged.

3.4.3 Moving beyond Education ‘about’ and ‘for’ SD to EasSD

ESD adopted from Global North countries is likely to favour western ideology and overlook cultural or contextual aspirations (Hiebert, 2014). Even the UNESCO media manual (2008) on ESD fails to mention culture. The manual never addresses the “need to go beyond Western-based knowledge systems or educational discourses for a more sustainable earth” (Bredlid, 2009, p. 143). Gegeo and Watson-Gegeo (2001) argue, education in the Global South has tended to mirror western development ideology that progress is best achieved through modernisation at the expense of culture. Students are provided with opinions on what development progress ought to represent (B. Jickling, 2005). The almost exclusive use of western knowledge within SD frameworks promotes anthropocentric and technocentric perspectives over ecocentric and indigenous viewpoints. Nurse (2006) argues SD “is largely informed by Western notions ... (raising) ... concerns about whose agenda is being served” (p. 36). Preparing students for the possibility of traditional, sustainable livelihoods is ignored, as the promotion of western knowledge is “inextricably linked to the spread of colonialism and capitalism and to the dislocation of other epistemologies” (Bredlid, 2013, p. 5).

Galtung (1996) describes how education has long been stuck in a neoliberal paradigm and there is a reluctance, and/or fear to challenge the status quo. Education promotes development as:

(A) Development = Western development = Modernization, and

(B) Development = Growth = Economic growth = GNP growth. (p. 131)

Sterling (2001) explains how Education ‘about’ and ‘for’ SD focuses on environmental degradation and cultural loss concerns in non-critical ways. Strategies to tackle these concerns are only debated within western development ideology. Neoliberalism and limits to economic growth are not in themselves challenged. ESD captured by a western development framework, determines “what we see and how we act in the world” (Nurse, 2006, p. 37).

Western thinking pervades Global South educational policy and practice with education promoted primarily as a tool to increase human capital to support economic growth

strategies (Alexiadou, 2001; C. Cooper, 2002; Ozga & Deem, 2000; Tomlinson, 2001). Supporting this role, the liberal function of education is used to promote individualism and the benefits of competition. Students are encouraged to compete for qualifications and careers that maximise their share of the economic rewards on offer. The westernisation, especially of urban areas of the Global South, a result of pursuing neoliberal and capitalist policies, has resulted in the social function of education emerging to support students who are at risk of becoming victims of lack of opportunity, unemployment and growing societal inequity (Sterling, 2001).

Place-based ESD

Sterling (2001) believes Education ‘about’ or ‘for’ SD by designation, promote western worldviews of SD. The result is a politicised ESD that could be complicit in promoting SD as a “term of political convenience used to mask and/or legitimate vested interests” (p. 318) that are western in origin. Local people would not then be given the opportunity to explore and define their own local, usually indigenous, notions of what SD ought to mean and represent. As Jickling (2005) argues, “it is an anathema to think that education should serve predetermined ends” (p. 252). A place-based ESD could challenge the status quo of Education ‘about’ and ‘for’ approaches to ESD by providing a space for students, as future citizens and leaders, to think about and positively influence the “well-being of the social and ecological places” (Gruenewald, 2003, p. 4), they inhabit. This does not imply ESD would neglect the issues that surround global sustainability and an understanding of the dynamics of the biosphere; it simply means ESD programmes would centre, initially at least, on building local understandings of sustainability and SD. The Rural School and Community Trust (Rural School and Community Trust, 2005) provides the most commonly used definition of Place-based Education (PBE)⁴⁶ as follows:

Learning that is rooted in what is local - the unique history, environment, culture, economy, literature, and art of a particular place. The community provides the context for learning, student work focuses on community needs and interests, and community members serve as resources and partners in every aspect of teaching and learning. (G. A. Smith & Sobel, 2014, p. 23)

⁴⁶ Place-based Education is sometimes also referred to as Place-based Learning.

Smith (2002) provides five key advantages, of a place-based education:

- Students learn about local culture;
- Students learn about nature and the ecosystem dynamics of local environments;
- Students immerse themselves in real world learning by problem solve community issues;
- Students explore local “internships and entrepreneurial opportunities” (p. 590); and
- Students build the skills to contribute to community decision making by inducting themselves into “community processes” (p. 591).

These foci could be invaluable for students exploring localised notions of SD. As Gruenewald, quoting Freire reminds:

Human beings *are* because they are in a situation. And they *will be more* the more they not only critically reflect upon their existence but critically act upon it. (Freire 1970/1995, p90 as quoted in Gruenewald, 2003, p. 4)

Gruenewald (2003) believes place-based education, which would include a place-based ESD, could benefit from a critical pedagogy of place where students “examine the place-specific nexus between environment, culture, and education” (p. 10). As Penetito (2009) points out, any indigenous place-based pedagogy should be based on three key intentions:

- “A sense of place ... (as) ... a fundamental need” (p. 20) for indigenous peoples;
- “An ecological consciousness and the understanding required to maintain sustainable communities” (p. 17); and
- The right of indigenous peoples to explore their own “indigenous ways of knowing and doing” (p. 18).

A PBE approach to ESD would ensure as Penetito describes Alaskan elder Oscar Kawagley’s thinking, an emphasis “on teaching through culture rather than about culture” (p. 18). This approach does not reject the utilisation of western development ideology, knowledge and/or technology when formulating solutions to localised SD. However, western hegemony no longer defines local indigenous notions of sustainability and SD.

A place-based EasSD could broaden students’ perceptions of SD beyond narrow, western, anthropocentric viewpoints that aim simply to justify more economic growth in the face of increasing environmental concerns and loss of culture. Students imbued with a critical pedagogy of place could now draw on ecocentric thinking alongside techno and anthropocentric ideas and importantly, indigenous worldviews, knowledge and epistemologies as well as western knowledge, ideology and technology.

3.5 Education as SD (EasSD)

In Sterling's (2001) third model, he imagines 'Education as' SD. Here, process and the quality of learning are emphasised. Learning is "an essentially creative, reflexive and participative process. Knowing is seen as approximate, relational, provisional, and learning is continual exploration through practice" (p. 61). I argue this model allows space for culture and values alongside both IK and relevant western knowledge to be considered, across the three dimensions of SD, to develop real, holistic SD solutions in a local context. Culture no longer need be a fourth dimension of SD, as described by UNESCO in section 2.7.1, but instead sit at the centre of visions for SD. An EasSD approach could allow students to think about, plan for and carry out their own actions that support SD. EasSD would allow students to consider the complexity and diversity of development thinking. It could provide a vehicle for students to develop their own vision of sustainability at local and global levels.

EasSD is more in tune with the aspirational goal of Pacific Island governments, expressed, through the Pacific Education for Sustainable Development Framework (UNESCO, 2006b), which aims to:

Empower Pacific peoples, through all forms of locally relevant and culturally appropriate education ... to make decisions and take actions to meet current and future social, cultural, environmental and economic needs and aspirations.
(p. 3)

It is important to note that Sterling's description of differing types of ESD is not exclusive with other researchers presenting similar models. Vare and Scott (2007) describe an ESD 1 and 2⁴⁷. ESD 1 is similar to Sterling's education 'about' and 'for', promoting "learning for sustainable development" (p. 193). They argue ESD 1 "fits with the received view of

⁴⁷ In a different iteration of the types of ESD possible Vare and Scott (2007) describe two types of ESD:

ESD 1	Promoting/facilitating changes in what we do.
	Promoting behaviours and ways of thinking, where the need for this is clearly identified and agreed. (p. 193).
ESD 2	Building capacity to think critically about what experts say and to test sustainable development ideas
	Exploring the contradictions inherent in sustainable living. (p. 194)

sustainable development as being expert knowledge-driven, where the role of the non expert is to do as guided” (ibid, p. 193). Vare and Scott’s ESD 2 is analogous to Sterling’s (2001) EasSD promoting “learning as sustainable development” (Vare & Scott, 2007, p. 194). Vare and Scott (2007) add to the ESD debate by arguing ESD 2 complements ESD 1 by making “it meaningful, because our long-term future will depend less on our compliance in being trained to do the ‘right’ thing now, and more on our capability to analyse, to question alternatives and negotiate our decisions” (p. 194). They see ESD 1 and 2 as complementing each other in a “Yin-Yang perspective” (p. 196) with ESD 1 building necessary SD knowledge and skills which can then be interrogated in ESD 2. In a similar vein, I argue education ‘about’ and ‘for’, although inadequate on their own, do have a role in building foundational knowledge on which conceptions of SD can be debated in an EasSD mode.

A further iteration of EasSD is the notion of post-SD thinking put forward by Morse (2008) amongst others. Morse describes post-SD thinking as a partnership of both local and external expertise. He argues, “Acting locally needs to be combined with thinking globally and it is here that the external expert can play a major role. Thus post-SD would be a process of discourse, from grassroots to expert and from expert to grassroots” (p. 349). Asara, Otero, Demaria, and Corbera (2015) describe how mainstream SD embraced the Our Common Future definition of SD, described in section 2.7, describing it as a “thin sustainability concept” (p. 381) or narrowly focussed on rationalising environmental concerns in the face of increased growth targets. They argue a post-SD world would engage in deeper debate to produce “thick sustainability” (ibid, p. 381) concepts which are broader and draw on all viewpoints, ecocentric to technocentric and inclusive of different worldviews.

In addition to the inclusion of culture they even go as far to argue open politicised SD debate could include new concepts like happiness and de-growth leading to redefined visions of what SD represents. The openness of Sterling’s EasSD to all SD viewpoints and worldviews means any ideas on sustainability that emerge from the “thick sustainability of post-SD thinking are a welcome part of EasSD.

For the purposes of this research, I will now draw on a culturally embedded variant⁴⁸ of Sterling's EasSD and contrast it with Sterling's idea of 'Education for' and 'Education about' approaches to SD as the basis on which to explore SD and ESD on Manguia.

3.6 Discussion: Hopeful post-development and rethinking education through EasSD.

Morse (2008) outlines how early post-development critiques exposed the problems of using SD ostensibly as a tool to reconcile demand for increased economic growth, in the face of mounting concern for the environment. However, he believes such reframing often overplayed the role of the 'local' and 'indigenous' in thinking about SD. In this section, I draw on hopeful post-development thinking to consider reframing SD in terms of a dynamic mix of local worldviews and western technology and expertise. A type of critical modernism that incorporates a culturally "compatible modernity" (Curry et al., 2012, p. 122), underpinned by a radical democracy that is local, participatory and indigenous in origin. Morse (2008) believes early post-development over emphasised "grassroots nexus and 'endogenous discourse'" (p. 349), subsequently ignoring the need of people to consider scaled up global SD. As discussed in section 2.4, people, while wanting to protect and strengthen their cultural identity and communities also want their share of the benefits of modernisation and the capitalist economy. It is helpful to engage in, and understand, global environmental issues like climate change and resource depletion, as their impact causes sustainability concerns at local levels. Moreover, solutions to SD, found in new environmentally friendly technology in the West, may also be helpful at local levels in the Global South.

A transformative, culturally responsive EasSD, inclusive of a critical pedagogy that draws on multiple ontologies (Springett, 2015), can explore all avenues in the SD debate. The pedagogy can challenge resistant manageristic agendas of SD head on, with what Springett terms a "healthy scepticism" (p. 115). In this scenario, hopeful post-development notions of what sustainability might entail could be built around culture, while alternative modernities that maximise the benefits of engagement with global economic markets and

⁴⁸ In chapters 7 and 8, I expand on Sterling's idea of EasSD to incorporate Manguian worldviews, knowledge, culture and epistemology.

technologies are formed. By adopting a transformative EasSD, as described by Sterling (2001), students would be put in a position where they could augment their ability to debate, evaluate and judge for themselves the relative merits of contesting positions and worldviews along the SD continuum . Students could begin to address the causes of environmental problems rather than the symptoms, in their own, and their communities, lives and locations (Bonnett, 1999).

Sterling (2014) views education ‘about’ as requiring cognition – where students learn new knowledge whether it be indigenous, western, ecocentric or technocentric. He views education ‘for’ as requiring meta-cognition – where students engage in the “critical questioning” (p. 98) of development alternatives, using a process of reflexivity to understand their own and other people’s motives for their sustainability thinking. Both important skills when contemplating issues of sustainability. However, cognition and meta-cognition are not enough when “epistemic change” (p. 98) is required to imagine future sustainability, framed around and within hopeful post-development narratives, and consisting of a radical democracy grounded in culture and open to “alternative modernities” (Curry et al., 2012, p. 122). Here Sterling (2014) concludes EasSD is needed, where there is emphasis on:

Capacity building, empowerment and action competence, stressing the ability to engage creatively, to manage successfully in conditions of uncertainty, complexity and ambiguity, to reflect critically and learn iteratively over time from engaging with real world experience. This may involve ‘third order learning’ where a change of mind-set occurs towards one which is more holistic, connected, agile and open in outlook. (p. 98)

In this space, students from the Pacific, and wider Global South, might be better prepared to consider sustainable livelihoods and a sustainable future for themselves and their communities.

Pacific rethinking education initiatives have challenged mainstream accepted pathways of education and development because of their concern about the modest impact they have had in improving the lives of Pacific Islanders (Pene et al., 2002; Sanga, 2009). A transformative EasSD curriculum and pedagogy would support this process by providing the space for students to explore hopeful post-development frameworks. Education that allows students to engage with their own ontologies and epistemologies by exploring culturally grounded alternatives to development, grassroots alternative development, and alternative or compatible modernities. Spaces that would allow the norms of technological

determinism, globalisation, neoliberalism and capitalism to be critically evaluated rather than blindly accepted.

This is in line with Jaramillo and McLaren's (2008) belief that "alternatives to capitalism should be explored through education" (p. 200). However, as Carmen (1996) reminds us, we must use the word 'alternative' carefully. Semantically, it implies western models of development sit in a central dominant position and so called cultural alternatives to development sit at the margins and need to be "recaptured and reclaimed" (p. 209). This situation has arisen because of the effect of colonialism and continuing neocolonialism. In a hopeful post-development world, this is not the case. As described in section 2.4, people from the Global South are forging their own modernities that are compatible and are underpinned by culture and radical democracy. In this scenario, the adoption of an EasSD style pedagogy may be a real advantage. Thinking can move beyond cognition and meta-cognition that result in simple critiques of an 'old normal' and where culture is 'fitted' into existing development models.

EasSD starts with the premise that all development pathways are open to scrutiny and even the term 'alternative development' becomes open for debate. A culturally responsive EasSD would promote epistemic change and align to hopeful post-development thinking where anything might be possible. Regenvanu (2009) and Gegeo's (1998) appeal for Pacific culture and livelihoods to sit at the centre of SD thinking can be accommodated.

A culturally responsive EasSD style ESD could support Pacific students to understand contemporary Pacific worldviews and livelihoods, underpinned by Pacific knowledge, epistemologies, culture and language but influenced by modernities (Gegeo & Watson-Gegeo, 2002; Sanga & Thaman, 2009). As Burnett (2007) concludes:

All educational ideas need to be submitted to critical inquiry including those based on cultural difference ... to clear a space for a more inclusive rethinking process, one that resists reductive culturalism, instead taking into account the nuances, fluidity, multiplicity and dynamism of contemporary Pacific lives and realities. (p. 271)

Using EasSD to rethink education allows the diversity of development narratives operating in the Pacific, from indigenous to lingering neocolonial, to be compared and contrasted so that Pacific peoples seek out their own models of sustainability. Models that allow people to access the benefits of economic engagement but are culturally, socially and environmentally sustainable. Models that allow students to pursue a contemporary "Pacific way" (Tupouniua, Crocombe, & Slatter, 1976, p. 6).

My research adopts a case study approach to rethinking education on Mangaia by exploring the need for a culturally responsive EasSD style ESD on Mangaia. An ESD that reflects Mangaian conceptions of SD. Chapters 5 and 6, begin by describing the uniqueness of SD on Mangaia, an eclectic mix of traditional livelihoods, culture and alternative modernities. In chapters 7, 8 and 9, I propose possible components of a place-based Mangaian EasSD curriculum and pedagogy. Elements that would provide students with the skills, knowledge, deep understanding and action competence to explore the complexity, diversity and dynamic nature of SD on Mangaia. Before I begin this process, the methodology is outlined.

Chapter 4 Methodology

4.1 Introduction

The chapter begins by outlining why a qualitative methodology was chosen and why it was necessary to draw on a critical framework to ensure the research was able to capture all of the diverse viewpoints and worldviews on what SD and ESD are and ought to be. In the next section I outline the moral stance and values I brought to the research. These included a description of my positionality, reflexivity, ethics employed and the importance I placed on research relationships.

The research methods are outlined, with the reasoning behind the adoption of a case study approach and the various data collection methods provided. The interview techniques employed are explained and finally some of the research restrictions which I faced are discussed.

4.2 Methodological framework

Methodology is important because it “frames the questions being asked, determines the set of instruments and methods to be employed and shapes the analysis” (L. Smith, 1999, p. 143). The methodology chosen for this thesis must be sufficiently robust to capture the multiplicity of viewpoints on SD that exist on Mangaia. Diverse, often antithetical, perspectives that range from ecocentricism to anthropocentricism, both within and across culture, must be scrutinised and ultimately captured (Veramu, 2010). Viewpoints that are dependent on an eclectic mix of Mangaian traditional livelihood strategies, culture and values and western thinking in the form of both government policy and aid agency planning and project work. Dialectic tensions that emerge at the interface of these differing worldviews must be resolved by a consideration of the “multiple cultural contexts within which knowledge is produced” (Māhina & Nabobo-Baba, 2004, p. 203). Western viewpoints of SD, underpinned by globalisation and neoliberalism that may clash with Pacific interpretations of SD based on Pacific culture and values, must be interpreted and resolved (Pene et al., 2002; Sanga & Thaman, 2009).

It is therefore vital the methodology chosen does not favour western over indigenous thinking and any tendency, to compartmentalise and /or romanticise culture, must be rejected. As Smith (1999) reminds, research methods must reject cultural essentialism, instead being open to changing, complex, diverse and opposing ideas found under the

umbrella of an indigenous worldview. The methodology will therefore seek out all viewpoints on SD and ESD across Manganian and western origins but importantly, also within Manganian thinking, culture and values, no matter how disparate.

4.2.1 Qualitative methodology

I employed a qualitative methodology, as it allowed me to capture the diversity of SD conceptualisation, across and within Manganian culture, as well as the diversity of Manganians' opinions about the place and role of ESD at Mangaia School. Denzin and Lincoln (2011) define the strength of qualitative research as “a situated activity that locates the observer in the world. It consists of a set of interpretive, material practices that make the world visible” (p. 3).

Qualitative research changes the emphasis from a positivist approach, where grand theories are sought, to a social constructive approach where the research is holistic and process and context are important (Kincheloe & McLaren, 2002). Realities are wholes rather than broken down into discrete variables, meaning it was possible to capture the diversity of thought (Glesne, 2006). Adoption of a qualitative research method makes sense for four best-fit reasons:

- Firstly, qualitative research allowed me to explore Manganians' lived experiences in the context of SD and ESD (Denzin & Lincoln, 2000).
- Secondly, qualitative research permitted me to capture the diverse meanings that exist in relation to SD, sustainable livelihoods and ESD. Without any attempt to generalise the findings in a statistical sense (D. C. Phillips & Burbules, 2000). There exist multiple realities and knowledge that originate from often contrasting Manganian, Cook Island, Pacific and western worldviews.
- Thirdly, as Sanga (2004) outlines, a qualitative approach allows me to capture ontological truths where “‘reality’ is subjective to the context and people” (p. 44); epistemological truths where “knowledge is relativist and inseparable from the context and social realities of Pacific peoples” (p. 45); and axiological truths where “the social world and research of that world is value bound” (p. 47). Truths that

exist in relation to SD and ESD on Mangaia and emerged as I engaged with Mangaians in a research partnership.

- Finally, qualitative research has allowed me to capture Mangaian SD thinking as it evolves over time. As Borofsky (1987), in his anthropological study of Pukapuka⁴⁹, reminds, IK changes through time as it retains its “meaningfulness to the living rather than precise accuracy to the past”⁵⁰ (p. 145). The interpretation of a culture, even by those people to whom the culture belongs, is not static. The same might be true on Mangaia, as Mangaians grapple with development ideas that originate from multiple knowledge sources, including past and present Mangaian culture.

Qualitative research is best suited to capturing the diversity of opinion on what Mangaian SD and ESD are and ought to be. For key aims of the research, see section 1.3.

4.2.2 Critical approach to research

In adopting a critical approach to my research, I could remain open to all viewpoints, indigenous and western and those that sit within a hopeful post-development framework that is accepting of indigenous development and radical democracies alongside a critical modernism. I was able to reject the entrenched assumptions of modernisation and neoliberalism as the best, or only viable, development modes. Consequently, I was wary of development thinking that only argues for economic determinism and demands technical rationality. I was cautious of development thinking that became more interested in method and efficiency than the development goals of Mangaians. I also remained mindful of linguistic and discursive powers whilst researching, being aware of the relationship between culture and power (Kincheloe & McLaren, 2002).

My approach was qualitative research that adopts the “empowering values of critical pedagogy”, (Denzin & Lincoln, 2008, p. 5), and is able to remain “localised, grounded in the specific meanings, traditions, customs and community relations that operate in each cultural setting” (ibid, p. 6). With this in mind, I engaged in the Mangaian livelihood

⁴⁹ An island in the Northern Cook Islands

⁵⁰ Borofsky (1987) points out, “perhaps Pukapukans preserve a past that never was but they preserve it in a way that is meaningful to present day audiences” (p. 144).

tradition of *uriuri manako*⁵¹ (deep reflective thinking, often as part of a group, to problem solve and find a way forward). With *uriuri manako* central to Māngaia livelihoods and culture, participation in them is a prerequisite to gaining insight into Māngaian conceptions of SD and the role ESD should play in education on Māngaia. Participation in *uriuri manako* had the added benefit of building better research partnerships.

In summary, in adopting a critical research framework, I have taken the position the researcher must remain open to all viewpoints and worldviews, being careful not to essentialise indigenous thinking or western development practice. The inclusion of a hopeful post-development lens that is open to all development thinking offers this chance.

4.3 Research morals and values

I consider it important that my “research conducted among indigenous peoples should be framed within basic principles of collaborative participatory research, a research process that seeks as a final outcome the empowerment of these communities through their own knowledge” (M. Battiste, 2008, p. 508). With this in mind, a key aim of the thesis is to determine how education on Māngaia, through ESD, might empower Māngaian students with the knowledge and skills to lead their own SD. In taking this moral stance, a key intention of my research is the building of research partnerships with Māngaian educators and community members that will ultimately benefit them and the overall Māngaian community, rather than just the extraction of information. This approach aligns with Taufe‘ulungaki’s (2001) argument that Pacific research should support the ideal of a:

uniquely Pacific world view, that is underpinned by Pacific values, belief systems, and ways of structuring knowledge, which will become the core values and ideologies driving the development process in the region as well as the education system, the key instrument in its promotion. (p. 5)

In my attempts to decolonise my research methods and build a true partnership model with Māngaians, I adopted Taufe‘ulungaki’s thinking as a moral imperative for the duration of my own research. My methods therefore, set out to overcome the strategic silencing of Pacific voices. Nabobo-Baba (2004), a Pacific researcher, correctly warns against research

⁵¹ It is analogous to *talanoa*, an increasingly common Pacific research tool, used to obtain Pacific viewpoints in qualitative research (Latu, 2010; Vaoleti, 2006). *Uriuri manako* and *talanoa* are described in detail in section 4.3.4. *Uriuri manako* as a thinking tool is described more fully in section 8.3.

that plans to “disregard and oppress our knowledge, epistemologies and consequently our indigeneity” (p. 20). With this in mind, I have sought to decolonise the epistemologies, pedagogies and methodologies I used in this study.

4.3.1 Acknowledging positionality

In aiming to take a moral position and decolonise my research, I sought to acknowledge and reflect on my positionality as suggested by Scheyvens and Story (2003). My adoption of a critical research method wisely reminds me of my obligations to become aware of my own biases and their potential to influence my findings. As Taufe'ulungaki (2001) reminds, “while outside researchers bring valued different perspectives, they also bring their own cultural baggage and they see Pacific societies, cultures, structures and institutions largely through the ‘lenses’ of their own socialisation” (p. 8).

I am a New Zealand educator with a background in teaching and principalship. I have some valuable insight into Pacific cultural and teaching values, beliefs and practices, having taught in Vanuatu, Niue and the Cook Islands for a total of eight years. I am married to a Pukapukan/Mangaian woman and have three Cook Islands children. Living on Pukapuka, in the Northern Cook Islands for two and a half years, I became fluent in Pukapukan and learnt the skills and knowledge required to contribute to traditional livelihoods. I am therefore respected by Pukapukans as:

Ko ana i loa te au yanga a te Pukapuka ma a latou tala tupuna

A person who is knowledgeable about the culture, traditions, and way of life of the Pukapukan people.

I believe my Pukapukan background allowed me to settle into life on Mangaia more quickly. It provided me with useful reference points in terms of being aware of many of the social obligations, economic exchange methods, environmental interactions and the necessary life skills of planting, fishing and cooking used by all Cook Islanders.

Nevertheless, it was important that I did not approach the research with preconceived ideas of cultural norms based on my time living on Pukapuka in the 1990s. I was researching in a different culture and time.

Perhaps more importantly for Mangaians themselves, my positionality on Mangaia is defined by my family connections through my wife. My wife has close relatives in two of the three villages on Mangaia and I stayed with these families during all three research visits. My relationship, through my Mangaian wife, initially defined all of my relationships:

E tamaiti aia naku. E tamaiti aia to matou kopu tangata

He is our nephew. He is our son; part of our family.

These family ties resulted in privileged access to participants and social events on Mangaia. It is important to note, it also bestows kinship obligations that I have carried out respectfully and dutifully. The advantage of family ties, and my previous experience of living on Pukapuka, is that Mangaians willingly accepted me into the community and were prepared to openly discuss SD in the context of their traditional livelihoods with me. During my visits, I received excellent feedback about my willingness to listen and actively participate in daily life, which helped me gain acceptance and a respect for my research objectives. At the end of my first stay on Mangaia, the Island Secretary provided the following positive feedback to the *aronga mana*⁵² (traditional leaders) and me, which encouraged me in my research:

I toku manako, kua tano te akaaraveinga a Paul, i to tatou i te tangata i Mangaia. Laku uorai, kua marama katoa aia i tetai au peu no tatou i te Pa enua, no te ra pa'a kua nooana aia ki PukaPuka e rua mataiti i topa ake nei. Kare reira te tangata e eikoko i te komakoma atu ki iaia no te mea e maru tana akamaramaanga e pera e tu maru rai tona katakata ua tona mata. Mama ua i te marama atu i tana tara papa'a.

Paul's research engagement with Mangaians is culturally appropriate and has meant he has built excellent and personable relationships with all the Mangaians he engaged with. I think the two years Paul spent living on Pukapuka has assisted him to understand Cook Islands culture. The feedback I have received is that people like Paul and are comfortable discussing their lives and hopes. He is easy to relate to. He is easy to understand whether holding conversations in Mangaian or English.

Helen Henry
Mangaia Island Secretary 2012

4.3.2 Reflexivity

Given my status as an outsider, adoption of a culturally responsive moral position is a positive step forward but not enough. It is therefore vital I continually and consciously reflect on my performance, both in thought and action, at all stages and at all levels of the research. Taufe'ulungaki (2001) suggests researchers ask themselves questions, not only at the design and analysis stage of the research but also throughout the research, to ensure they are not captured by any one view. I used a series of questions posed by Smith (1999) to challenge my methodology and fieldwork methods. They are:

⁵² Group or persons of power comprising Mangaia's traditional leaders (Reilly, 2009, p. 287)

- Who defined the problem?
- For whom is this study worthy and relevant?
- Who says so?
- What knowledge will the community gain from this study?
- What knowledge will the researcher gain from this study?
- What are some likely positive outcomes from this study?
- What are some possible negative outcomes?
- How can the negative outcomes be eliminated?
- To who is the researcher accountable?
- What processes are in place to support the research, the researched and the researcher? (p. 173)

Use of these questions in a self-reflexive fashion helped me to constantly analyse, then reanalyse my own research philosophies, and practice over the course of the study. Self-reflexivity reduced the chances of misinterpretation and misunderstanding when undertaking cross cultural research (Glesne, 2006).

As a non-indigenous researcher, spending a relatively short time on Mangaia, I did not have an insider's view of Manganian knowledge and culture. My strength has been to give voice to Manganians, past and present, in terms of how they view and conceptualise SD and future aspirations related to ESD. Throughout this process, I have at all times been "sensitive to contemporary Pacific contexts ... capable of embracing existing Pacific notions of collective ownership ... (and) ... capable of embracing collective authoritarian structures" (Anae, Coxon, Mara, Wendt-Samu, & Finau, 2001, p. 28).

This approach supports Taufe'ulungaki's (2001) call for reflexivity when interviewing in the Pacific where different values, knowledge and epistemologies exist. The approach was not to impose my own views but adopt Chambers (1983) mantra of "sit down, listen and learn" (p. 101); then adopt a number of reflective strategies. Namely, constantly seeking clarification to answers, rephrasing questions in Manganian where necessary and constantly checking and rechecking my interviewing approach with my advisory group.

When analysing interviews and writing about Manganian people and their culture, I was mindful to heed Smith's (1999) warning of not falling into the essentialist trap of thinking:

Indigenous cultures cannot change, cannot recreate themselves and still claim to be indigenous. Nor can they be complicated, internally diverse or contradictory. (p. 74).

Instead, through a critical approach to my research, I remained open to capturing the heterogeneity of Manganians views on SD and ESD, views that often change over time.

4.3.3 Ethics

Before beginning my research I gained ethical approval at Massey University, see appendix 1. The process was valuable in preparing me to undertake my research with integrity and with respect for Manganian culture. My methodology and methods were critiqued to ensure they adhered to the highest possible ethical standards. Ethical questions throughout the Massey University Human Ethics Committee process helped focus my research on the issues of harm, privacy, consent and confidentiality of data in terms of how they might adversely affect humans (Massey University, 2015) . I followed the advice of Scheyvens & Storey (2003) who suggest researchers consider their role carefully, being cautious not to be exploitive. A key aim of my research then became to “do no harm” (p. 114). I also obtained ethical approval from The National Research Committee in the Cook Islands, see appendix 2. This process assisted in ensuring my methods aligned to the cultural expectations of the Cook Islands.

Ethical research “is about building mutually beneficial relationships ... and about acting in a sensitive and respectful manner” (Scheyvens, Nowak, & Scheyvens, 2003, p. 139). It follows that informed and voluntary consent from all participants is necessary. Informed consent indicates participants are capable, independent, involved voluntarily, aware of the right to discontinue, not misled, and not forced to take part (O'Leary, 2004). All Manganians I approached were keen to be involved in the research and consented to participate. Once word spread about my research, I had many Manganians wanting to become involved. With students, I took extra precautions in seeking active consent; checking with parents and senior school management. Berg (2001) describes active student consent as “formal written permission by an informed parent or legal guardian that allows a child to participate in a research project” (p. 50).

Robbins (2006) argues that ethical research requires a critical examination of the role of power in the production of knowledge. In incorporating Robbins's thinking, I allowed particular research questions, during interviews, to be modified and/or rejected. The aim was to guarantee the knowledge that is produced has been mutually agreed to. I took

Robbins's position that "anything less is theft" (p. 322). Furthermore, to ensure the participants' right to privacy is protected, confidentiality was assured as much as possible. A few participants requested confidentiality but many more did not. Anonymity cannot be offered, as the research took place in an interview situation and anonymous survey forms were not used. However, the chances of guaranteeing absolute anonymity were outlined to all participants before they gave informed consent and immediately before they were interviewed. This is the reason I have numbered all interviews from one to one hundred and five and then broken them down into the embedded units. Where participants want anonymity the participant is given an interview number and then classified as either student, teacher or community member. Many more participants asked to be named as they felt their opinions should be known. Participants representing public office, or other institutions, were also named when their answers to questions represented their organisations viewpoint rather than their own personal viewpoint.

In treating my data ethically, I strived to remain aware of my own subjectivity and the potential negative impact it could have on my research. Subjectivity does not need to be banned, as it "makes you who you are as a person and as a researcher, equipping you with the perspectives and insights that shape all that you do as a researcher" (Glesne, 2006, p. 123). Subjectivity allowed me to "construct a narrative but it must be imaginable by others, and it must be verifiable by others" (ibid, p. 124). In addressing subjectivity, I continually questioned my research processes and own biases and perspectives. I inquired into the decisions driving my research. I inquired into my methods, the data collected and my analysis of the data. Some reflective questions I posed as an outsider were; Are my interpretations based only on western ideology? "Are my interpretation paternalistic in any way? Does it romanticize?" (ibid, p. 125).

Moreover, as Smith (1999) suggests, I asked my informants on Mangaia to provide feedback so that I could modify any methods deemed to be culturally inappropriate. I adopted Plummer's (1983) approach, which suggests ethical guidelines are followed but with room for personal, ethical choice, as ethical dilemmas cannot be prescribed absolutely. Glesne (2006), sensibly advocates operating between the "ethical absolutist and the situational relativist" (p. 145). Ethical principles guide your behaviour but interactions and feedback from your research informants ultimately define your ethical behaviour. Interestingly, the development of a research partnership with informants reinforces ethical behaviour. An understanding of, and respect for informants cultural positions, ensured I

took a stance whereby the “research methodology needs to be constantly negotiated with research participants” (p. 130). Positive relationships meant informants were happy to provide me with feedback on my methods.

In taking steps to implement my own cross-cultural behavioural guide, I took cognisance of Smith’s (1999) kaupapa Maori list of valuable research practice guidelines and adopted these to the Mangaian setting. They are as follows:

- Aroha ki te tangata (a respect for people);
- Kanohi kitea (the seen face, that is present yourself to people face to face);
- Titiro, whakarongo ... korero (look, listen ... speak)⁵³;
- Manaaki ki te tangata (share and host people, be generous);
- Kia tupato (be cautious);
- Kaua e takahia te mana o te tangata (do not trample over the mana of people); and
- Kaua e mahaki (don’t flaunt your knowledge). (p. 120)

Finally, it is important to act ethically and respectfully, not only in interacting with individual Mangaian but also with their culture⁵⁴. To act ethically is to resist the temptation to impose my views on what culture was and is. Swadener and Mutua (2008) point out, “Colonization occurs in a wide range of settings and contexts and is pervasive in educational research” (p. 41). I was therefore extremely careful to distinguish between a “celebration of indigenous knowledge and an appropriation” (Semali & Kincheloe, 1999, p. 20). Remaining open to the diversity of viewpoints and worldviews, my role was as a facilitator, not director, in a process that produces knowledge for, rather than about, the people of Mangaia, the Cook Islands and the wider Pacific.

⁵³ Analogous to Chambers (1983) research mantra described in 4.3.2

⁵⁴ I am mindful of Albert Henry, first premier of the Cook Islands, whose words on respecting culture are quoted in Jonassen (2005):

Mea 'utu'utu meitaki 'ia te peu tupuna i tona 'akamata'anga, ka tu to tatou upoko ki runga e ka ngakau parau tatou, 'I te 'akaariari 'aere 'anga i to tatou to tikai. 'Ina ra, mei te mea e, kia vai'o 'ua ia kia 'aere ponuia'au 'ua, ka 'apai mai te reira i te tumu rangi 'akama ki runga ia tatou.
If nurtured at birth (culture) could bring us recognition and pride in showing what we really are. But if allowed to wonder aimlessly, it could bring humiliation upon us all. Culture is what we were, what we are and what we could become. (p. 45)

4.3.4 Building research relationships

Taufe'ulungaki (2001) argues it is important when undertaking Pacific research to consult early and then throughout the project so that a research partnership is developed. Before I started my research, I contacted Sue Ngatokorua, the Principal of Mangaia School to get permission from the Mangaia School committee, school staff and students to research at the school. My letter of support is listed as appendix 3. The building of a partnership that involved Mangaians in the research has had considerable benefits for the quality of research ultimately achieved. Face to face meetings built positive relationships, and my credibility, by allowing potential research informants to gain a sense of my commitment to the relationship before the interview started (Anae et al., 2001). The result was a richer flow of information from informants to myself.

During interviewing, it was important to be non-directive, so I did not fall into the trap of inadvertently persuading informants to agree with my point of view. I patiently probed, giving recognition to the complexity of the questions I was asking. I became aware people do make contradictory statements as they think through their position in relation to complex topics such as SD, so I had to give them time to reach their final position (Glesne, 2006). I was also careful not to put burdens on informants by encroaching on too much of their time (Smith 1999). I focused on, as Chambers suggests, embracing cultural and epistemological pluralism that is “based on principles and values and expressed in behaviours, attitudes and mind-sets. These can include mutual respect, humility, listening, sensitivity, courage, awareness, integrity, curiosity, playfulness, humour, originality, critical reflection” (Chambers, 2008, pp. 176-177).

A key behaviour I adopted was participation in *uriuri manako*, which are critical discussions by Mangaians. In the context of this case study, those discussions were about SD and ESD. Debate is characterised by deep reflective thinking, is often contested and aims to find development solutions that benefit all whilst respecting cultural norms and nature. *Uriuri manako* are analogous to *talanoa*, which have become a popular research tool in the Pacific. Latu (2010) defines *talanoa*, as “a communal act of social, political and critical dialogue for a purpose” (Latu, 2010, p. i). Vaioleti (2006) describes *talanoa* as “a personal encounter where people story their realities and aspirations” (Vaioleti, 2006, p. 21). Vaioleti (2006) explains how *talanoa* add value to interviewing in the Pacific by allowing “people to engage in social conversation, which may lead to critical discussions or knowledge creation that allows rich contextual and interrelated information to surface as co-constructed stories” (p. 25).

Talanoa, in the research sense, can be described as discussions of significance⁵⁵. By adopting aspects of *Talanoa* (or *uriuri manako* on Mangaia), thicker and more accurate explanations of indigenous phenomena are obtained.

Adopting *uriuri manako*, as a research tool, has two key advantages. Firstly, it ensures the research method is cultural responsive. Secondly as Gegeo and Watson-Gegeo (2001) argue, when an “indigenous critical praxis”⁵⁶ (p. 58), is placed at the centre of development discussions culturally sound development thinking will emerge. Recognising this, indigenous thinking modes were encouraged in the interviewing process. Discussion during the interview phase always followed a process of *Kimi ravenga e te titan i te kaiti peu karape* (thinking deeply about the issues then using cultural knowledge and wisdom to propose solutions). The debate, although often contested, was characterised by a desire to find solutions that reflect and respect culture.

In adopting *uriuri manako*, coupled with *akatamanako* (thinking) and *kimi ravenga* (problem solving) as my preferred method of interviewing, I was able to co-construct and co-produce tentative SD frameworks with Mangaian knowledge experts, alongside opinion on the place of ESD in Mangaian schooling. As Mahina (2004) puts it, we were able to make “merry in the ecstasy of critical thinking” (p. 187). This commitment to, and respect for, Mangaian culture through participation in *uriuri manako* is an essential response to culturally responsive research on Mangaia. As Kincheloe and McLaren (2002) so eloquently warn outside researchers, like myself:

insurgent researchers as maieutic agents must not confuse their research efforts with the textual suavities of an avant-garde academic posturing in which they are awarded the sinecure of representation. (p. 124)

Inclusion in a participatory research framework that reveals Mangaian thinking, ideas on and knowledge about what SD on Mangaia entails, generates significant responsibility. As Vaioleti (2006) states:

The reciprocity embedded in *Talanoa* will raise the expectations that researchers and participants have of each other promoting mutual

⁵⁵ “In a good *Talanoa* encounter, *noa* creates the space and the conditions. *Tala* holistically intermingles researchers’ and participants’ emotions, knowing and experiences. The synergy leads to an energizing and uplifting of the spirits and to a positive state of connectedness and enlightenment” (Vaioleti, 2006, p. 24).

⁵⁶ Explained in detail in section 8.4.

accountability, which adds to the trustworthiness and quality of the research. The effect of reciprocity is such that when people give kaloa (in this case time and knowledge) they will expect it to be respected, honoured, and used well. (p. 26)

It is a commitment I have made to my own Manganian family, Manganian friends and the Manganian people as a whole, some of who are shown in plate 1 and 2 below.

Plate 1: Assembly of God church community



Plate 2: Kopu tangata (family) from Ivirua



4.4 Method

I conducted three periods of research on Mangaia⁵⁷. The first period was from August to September 2011, the second period was from May to June 2012. The third and final visit was during August 2014 and was used primarily to check the accuracy of my interpretations of indigenous viewpoints and language translations.

4.4.1 Case study as a research method

I employed a case study approach, as it is best suited to capturing the diversity of thinking that exists around SD and the need for ESD on Mangaia. Case study allowed complex social phenomena, set within localised areas, to be unravelled (2009). Local people and local solutions are at the core of sustainability and therefore the research needs to capture people's thoughts and reflections at the local level (Veramu, 2010). The case study I have carried out, using qualitative methods of data collection in the main, avoids statistical generalisations. Instead, in capturing diverse viewpoints, I have looked to make analytic generalisations where theory is compared to the actual empirical data collected (Yin, 2009). O'Leary (2004) explains that although the findings of qualitative research may be idiographic the lessons learned may be applicable in other contexts. The findings provide insights into SD on Mangaia and the consequent need for a place-based Mangaian EasSD. These findings, whilst focused on Mangaia, will be beneficial in providing examples and comparative frameworks for future SD and ESD thinking and planning that could be used throughout the Cook Islands, the Pacific and the wider Global South.

4.4.2 Data collection

The different aspects of the case study were explored, using embedded units of analysis that sit within the case study as a whole. The embedded units of analysis adopted within the schooling system were students, ex-students, teachers, parents, Ministry of Education officials and aid agencies. The embedded units of analysis adopted within the community were the *aronga mana* (traditional leaders), individual *puna* (districts) and/or *tapere* (sub districts) members, Island Council members, church groups, women's groups and Members of Parliament. The single case study approach used ensures that the focus

⁵⁷ Mangaia is my mother-in-law's home island.

remained on the key overarching questions and, as such, the data collected from the units of analysis was analysed in a holistic way. Analysis of the data was carried out using qualitative data analysis software named HyperRESEARCH 3.0 (Researchware Inc, 2014).

While data collection was focused on interviewing as the main source of evidence, the collection of other relevant information allowed the data to be triangulated, thereby strengthening validity. Quantitative data showing population and school enrolment levels, student qualification results, and ex-student migration patterns were all valuable in building an overall picture of education on Mangaia.

Data validity and reliability is essential to obtain quality data. To ensure the data can stand up to scrutiny, I employed a number of tactics as suggested by Yin (2009). These tactics are outlined in Table 2.

Table 2: Case Study tactics for four design tests

Tests	Case study tactic
Construct validity	<ul style="list-style-type: none"> • Use multiple sources of evidence. • Establish chain of evidence. • Have key informants review draft case study report.
Internal validity	<ul style="list-style-type: none"> • Do pattern matching. • Do explanation building. • Address rival explanations. • Use logic models.
External validity	<ul style="list-style-type: none"> • Link theory to case study.
Reliability	<ul style="list-style-type: none"> • Use case study protocol. • Develop case study database.

Source: (Yin, 2009, p. 41)

To ensure rich data was obtained, the multiple sources of evidence collected were triangulated to ensure accuracy (Burton, Brundrett, & Jones, 2008). A chain of evidence was produced that allows external checkers to follow the evidence flow, starting from the

raw research data right through to conclusions. All taped interviews, transcripts and translations, where necessary, have been stored securely, increasing the validity of the data as conclusions reached can be verified externally. The internal validity of the data has been checked by comparing interviews to look for patterns. Similar views and opposing views were grouped using the HyperRESEARCH 3.0 software. Logic models were developed to clarify complexity of opinion. Drafts of tentative explanatory frameworks and Manganian language interviews and quotes have all been reviewed by the key informants for accuracy. Reviews of these drafts, started during visit two, were carried out with Manganians during visit three.

The external validity of the data was checked by comparing and contrasting the case study data with the wide range of Pacific educational literature focused on development and SD, in particular the emerging literature focused on rethinking education across the Pacific. There is no single Pacific response to SD and ESD but similar themes, issues and challenges face all Pacific countries as they address the interconnectedness of education, development and issues of Pacific culture and indigeneity (Sanga, 2004).

Finally, case study protocols, as suggested by Yin (2009), were developed to ensure reliability and validity of the data collected. Protocols include a schedule of overarching questions, see appendix 4, field procedures, which include a method for approaching potential informants and selecting informants, cultural protocols, the formation of an advisory group, translator protocols, interview questions, ethical procedures, information sheets and data collection procedures.

4.4.3 Triangulating data to ensure culturally responsive research

One way of dealing with potential biases was to engage in data collection methods that were culturally responsive. On my first visit to Mangaia, I set up a cultural advisory group⁵⁸. At the first meeting, I presented my research information sheet in Manganian, see appendix 5, which had also been translated into English, see appendix 6, helping members to understand my background in the Cook Islands and Pacific and strong links to Mangaia. This group provided the protocols to follow when interviewing members of the *aronga*

⁵⁸ The cultural advisory group consisted of the Principal of Mangaia School, senior school leaders, parents and *ta'unga* (knowledge people) in the villages of Oneroa and Ivirua.

mana and the wider Manganian community. The intentions of the research were also shared with key members of the community: the *aronga mana, puna, tapere*, Members of Parliament, Island Council, religious elders and other important island groups before I started researching, a good practice suggested by, Anae et al. (2001). This preparation was vital in assisting my ability to form and maintain good research relationships. Along with my willingness to adopt the Pacific values of respect, reciprocity and service (ibid), it improved the credibility of my research as informants were prepared to engage in interviews providing honest, open feedback.

Throughout the process, I remained open to lines of inquiry and methods, suggested by Manganians themselves, on how best to respectfully obtain informants' views and thoughts on SD and ESD on Mangaia. Respect and a willingness to learn about Manganian livelihoods and culture held me in good stead as I researched.

When interviewing students, an important part of my research, I was careful not to elicit answers that might shame a family or community. In Pacific communities, the rights of students are often framed more in the extended family rather than the individual. Knowledge is owned collectively and respect for elders' wishes is paramount. I respected these cultural norms avoiding any "potential for shame" (Suaalii & Mavoa, 2001, p. 5).

By recording IK and cultural practice, I am aware of having an effect on Manganian culture. I am cognisant of Borofsky's (1987) warnings, in the Pukapukan context, alerting researchers to the impact they can have on culture in the Cook Islands. He states, "In helping to preserve the atolls traditions western anthropologists have also, in a sense, altered them. In writing them down for posterity, they have depicted Pukapukan traditions as more uniform and static than they really are" (p. 142). Moreover, there is the potential to interfere with knowledge, which to date has been passed down by oral tradition. Borofsky's warnings led me to mitigate such dangers, as much as possible by focussing on a co-construction of knowledge with participants to ensure the essence of their views was retained. Nevertheless, in a positive sense, Borofsky's caution does not negate the potential importance of recording IK. Borofsky quotes a key informant, "I am very grateful ... (to have someone) ... come to Pukapuka and write a permanent record of our disappearing ... tradition" (p. 155).

To maintain the integrity of Manganian knowledge, I had a number of Manganians, including those to be considered *ta'unga* (Manganian cultural experts), check my annotations for

accuracy. The major reason for my third and final trip in August 2014 was to check translations and, more importantly, interpret the meanings behind participant discussion. In addition, the draft frameworks put forward, although co-constructed with Mंगाians and ultimately validated by Mंगाians remain provisional. As Escobar (1995) unambiguously reminds outside researchers, it is important to think carefully about the “agency of people from the Global South and how I shouldn’t “appropriate and “consume”” (p. 224) Mंगाian viewpoints for my own research needs.

The frameworks provide a scaffolding on which ideas can be debated and on which Mंगाians themselves can build a body of knowledge. In accepting Smith’s (1999) idea of avoiding any tendency to move towards essentialism, I regard the SD frameworks provided as a valuable, interpretative synthesis of how a group of Mंगाians perceive SD from their worldview. They are helpful frameworks for further discussion on what constitutes SD for Mंगाians, and are not an attempt to delineate Mंगाians’ relationship with SD.

4.5 Interviewing

Critical research demands I am aware, as an outsider, of the power of western discourse to subjugate indigenous viewpoints through the influence to define (L. Smith, 1999). This potential trap is a key reason I decided to co-construct my ideas with informants. Even then, informants may feel obligated to provide answers that fit prevailing western development theory. For example, informants may assume economic growth answers are expected because “capitalism has been naturalized as commonsense reality” (Kincheloe & McLaren, 2002, p. 125). I countered this tendency by reminding myself not to put my own views, or mainstream views, at the centre of discussions instead having an absolute focus on drawing out their views. I achieved this by demonstrating a genuine interest in Mंगाian culture; this process alerted informants to my respect for their culture. Facilitation of a culturally positive interview environment made it possible for Mंगाians to express Mंगाian thinking, ideas and knowledge about SD and ESD.

Data was collected predominantly by use of one on one semi-structured interviews as it encourages informants to share their views, beliefs, insights, hopes and values. It is possible to delve into ‘why’ without offending or being overly demanding. The advantage of semi-structured interviews over surveys is that it was possible to draw out thick descriptions of ideologies, hidden or emerging, that have been masked by the prevailing hegemony. Reflexivity fits neatly with the use of semi-structured interviews, as follow up questions are

rephrased to take account of unexpected initial responses, allowing the researcher to probe deeper into the views and issues at hand (Bell, 2005).

Focus group interviews were also used in some cases to obtain information that is socially constructed rather than individually constructed (Berg, 2001). One on one semi-structured interviews complemented focus group interviews. If focus group interviews alone were used to collect data, some individual views may have been subjugated by the prevailing dominant political or social ethos of the group. One on one interviews mitigated this possibility by allowing personal values and views to be presented in relative privacy. In effect, measures were taken to seek out the voice of those whose ideas, opinions and values may not ordinarily be expressed; this is an example of how Chambers (1983) describes “putting the last first” (p. 168). By comparing and contrasting the results of one on one and group interviews, the data was triangulated to ensure data validity.

4.5.1 Numbers of interviews and sampling strategy

To ensure validity, sufficient data must be collected within each embedded unit of a case study (Berg, 2001; Tomal, 2005). Initial sampling across the embedded units of analysis was based on an empirical strategy where people were selected for their representativeness (Schwandt, 2001). The embedded units of analysis formed part of a matrix to ensure views were heard from all sectors of the community.

The actual number of interviews were as follows:

- Teachers 10;
- Students 12;
- Parents 15; and
- Community 30

Of the community interviews, a few were very brief, aimed at obtaining historical information rather than thinking about SD and ESD. Some of the community interviews were not used in the final write up as they articulated viewpoints already expressed by other informants. Actual interviews were numbered in sequential order from one to one hundred and fifteen. Many interview participants were interviewed more than once so were assigned two to three interview numbers. This technique assisted in providing further anonymity where it was requested. Participants requesting anonymity were labelled in one of four categories only; those being teacher, student, parent or community member. The number

of interviews was sufficient to establish any patterned responses that might emerge, as well as providing the scope for diverse views to be revealed.

Previous informants referred new participants with similar or opposing views in a technique called snowballing, or networking, whereby informants put me in touch with other significant contacts (Schneider, Elliott, LoBiondo-Wood, & Haber, 2003). People were often referred to by previous informants because of the particular views or knowledge they hold, a selection process Schwandt (2001) regarded as sensible. I was directed towards the *aronga mana* (traditional leaders), *ta'unga* (wise people) or the *tumu korero* (oral tradition specialist) in deference to their *mana* as holders of specialised Manganian knowledge. Glesne (2006) argues that selecting informants purposefully helps uncover both patterned responses and diverse views.

In undertaking further measures to overcome bias, I went and lived in two of the three villages and visited the third village whenever possible. I made sure I interviewed Manganians who spoke little English by having a translator accompany me. I interviewed women, where perhaps it may be perceived socially inappropriate to interview them one on one, by having my wife accompany me to the interviews during my second research period. Matrix selection of informants ensured wide ranges of views were canvassed. In summary, these varied methods coalesced in an attempt to overcome Chambers (1983) description of 6 potential research biases, those being spatial, operational, personal, diplomatic and professional, the aim being as Chambers describes it “putting the last first” (p. 168).

4.5.2 Interviewing techniques

Brockington and Sullivan (2003) state that qualitative research “seeks to understand the world through interacting with, empathising with, and interpreting the actions and perceptions of its actors” (p. 57). Before and during interviews, I focused on building credibility, trust, and developing a rapport with research participants as Glesne (2006) believes these factors generate quality information. I achieved this by co-constructing data, being a good listener and remaining adaptive and flexible. Interviews were indepth without being threatening. Questions focused on the how, rather than the why to begin with, were less accusatory (Anae et al., 2001). Research participants were given a copy of my research information sheet in either Cook Islands Maori, see appendix 5, or English, see appendix 6. Participants were also given a Participant Consent Form, see appendix 7 and the option to

opt out of the interview. Interestingly nobody opted out, with everyone keen to offer their opinions on SD, ESD and schooling on Mangaia.

I decided to retain the integrity of the Mangaian worldviews by using Mangaian language quotes accompanied by English translations in the final thesis. This highlights the co-constructed nature of my findings and the overarching partnership approach to my study as it has “the effect of retaining the cultural nuances and integrity of the views expressed” (Anae et al., 2001, p. 43). Informants were, where possible, encouraged to review final notes and quotes to ensure accuracy, especially of translated material. Key informants were asked to review pertinent draft chapters as suggested by Yin (Yin, 2009). Cross-cultural review of findings was a focus of my third and final visit in August 2014.

4.5.3 Interviewing students

Critical research demands all stakeholder viewpoints are canvassed so we can view the world anew (Kincheloe & McLaren, 2002). Students are important stakeholders in their own education. Inclusion of student voice in the case study ensures the research is truly participatory and ultimately empowering for students as the intended beneficiaries of current ESD practice and, importantly, any future transformative change.

From a procedural point of view, I followed the guidelines set down by Massey University for student interviews. Students were first asked if they wanted to participate in an interview and given the option to decline. If agreeable, students were asked to sign the consent form, see appendix 8. The Principal suggested some students who might be shy were better to be interviewed in small groups, which was arranged. Before the interviews took place, parents were asked to give their consent, see appendix 9. I then went beyond these minimum requirements, drawing upon my nine years teaching in the Pacific and twenty-two years teaching experience to build productive working relationships with the students. Finally, as Loveridge (2010) suggests when interviewing students I listened carefully to my advisory group and the senior management at Mangaia School to learn about, and determine, the specific cultural protocols I needed to follow when interviewing students on Mangaia.

4.6 Research restrictions

The research has two key limitations. Firstly, I am an outsider without an intrinsic understanding of *oraanga Mangaia*. Despite numerous strategies being invoked to overcome

this disadvantage, outlined in 4.3, descriptions of *oraanga Mangaia* may be tainted with the rudiments of hegemonic thinking that emanate from a western worldview. However, the intent was never to attempt to provide a definitive, homogenised view of Manganian SD but rather the beginnings of a framework for discussion. Culture should not be essentialised and Manganians themselves will have heterogeneous views on what SD ought to be, including the relative mix of eco and techno-centric focus on sustainability and the extent to which western ideas and technology should influence an evolving Manganian culture.

There were also limitations in the participants I could access. I strived to overcome the six barriers to gaining access to wide ranging representative participant selection⁵⁹ described by Chambers (1983) and outlined in 4.5.2. I had greater access to participants from the villages of Oneroa and Ivirua as I lived in both of these villages during my three research stays. I did interview people from Tamarua village but as I did not live in that village, participant relationships were more difficult to form.

I interviewed more women by having my wife accompany me to interviews on my second visit however the percentage of women interviewed overall was still only 37%. This percentage also reflects the greater number of men in traditional and government leadership positions.

As this research focussed, only on the Island of Mangaia in the Southern Cook Islands generalisations made about SD and ESD in the Pacific and wider Global South must be carefully interpreted and validated by further research in different locations. However, inferences about the state of SD and ESD in the Global South can be made even where it is only to recognise that ESD programmes must be tailored to the particularities of SD in localised communities across the Global South.

4.7 Summary

In summary, I have applied a critical framework to the collection of participant viewpoints and worldviews. A critical methodology does not assume mainstream development dogma is paramount. It values thinking, based on alternatives to development and alternative development strategies, as much as viewpoints that might argue for partial participation in

⁵⁹ Namely spatial, operational, personal, diplomatic and professional biases (Chambers, 1983).

mainstream, neoliberal development approaches. In other words, the methodology seeks out all viewpoints on SD and ESD, emerging from Māngaian and western origins, no matter how disparate and unconventional. The use of culturally responsive, semi-structured interviews encourages the diversity of SD viewpoints and worldviews to be drawn out from participants.

A number of strategies have been invoked to ensure the methodology does not favour hegemonic western thinking over indigenous thinking. I have acknowledged my positionality, being purposefully reflexive about my methodologies employed to overcome this barrier. I have encouraged Māngaian feedback about the cultural appropriateness of my research methodology and the quality of my cultural findings and insights. I have strived to reject cultural essentialism and any tendency to compartmentalise and /or romanticise culture. Consequently, I have worked hard to remain open to changing, complex, diverse and opposing ideas found under the umbrella of an indigenous worldview. In effect, I have chosen to decolonise my research methods as much as possible by listening, engaging in *uriuri manako* and building a research partnership with Māngaians. Finally, throughout my research I have strived to follow the advice of Scheyvens & Storey (2003) by doing my utmost “to do good” (p. 114).

Chapter 5 Mangaia: Development and education influences

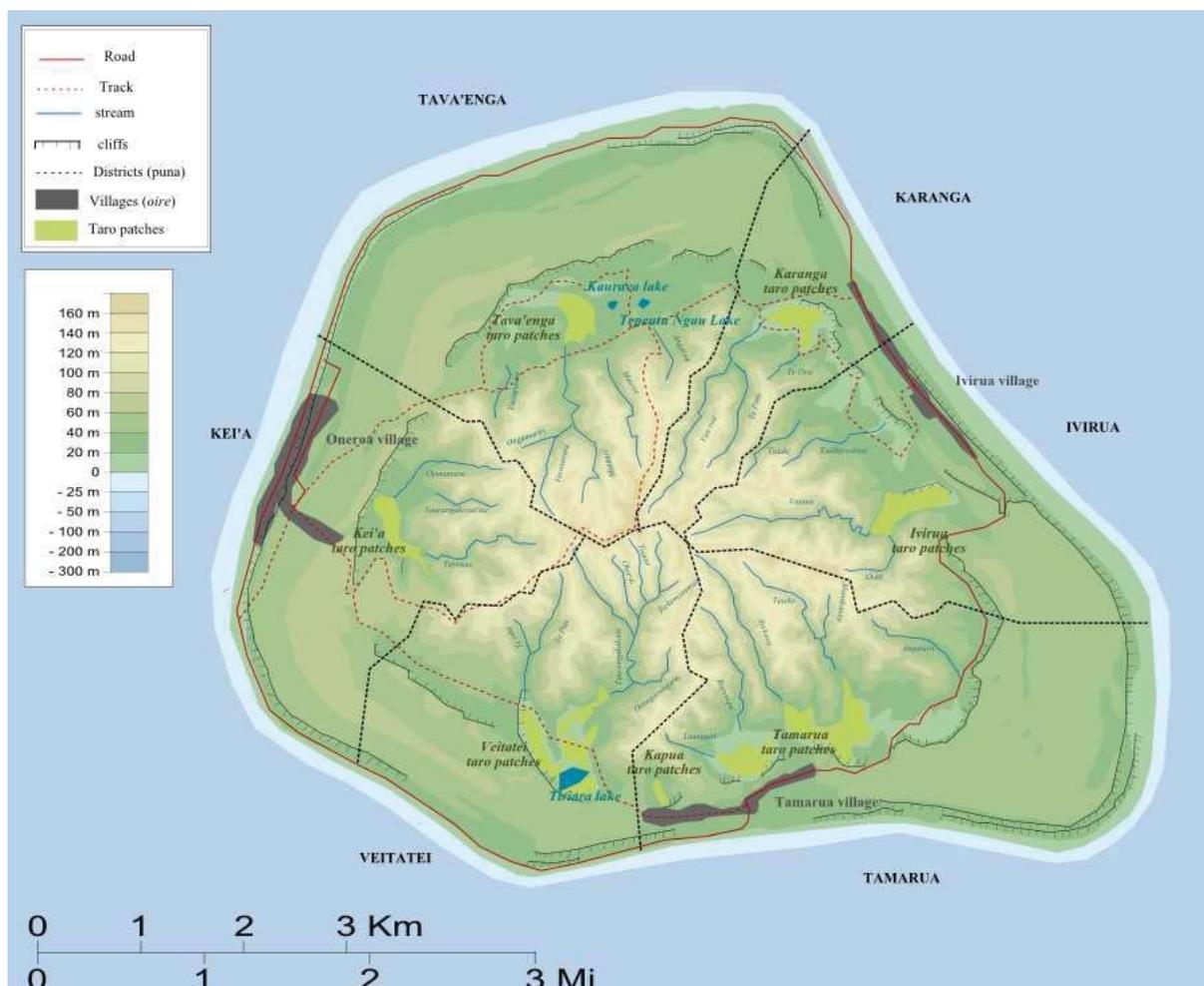


Figure 1: Map of Mangaia

(Source: Wikimedia Commons, 2015)

5.1 Introduction

What follows is a brief introduction to Mangaia. I situate Mangaia in the context of the history of the Cook Islands. Then I describe Mangaian origins from recorded oral history and genealogical accounts, followed by a description of the coming of colonisation. The social and political organisation on Mangaia is touched on. Then the historical relationship between Mangaians and their environment is described. The issue of an accelerating migration, challenging Mangaia's viability, is briefly discussed.

I introduce Mangaia's development and education histories providing an insight into the interrelationships between the two as a way of setting the scene for my study. I expose the tensions in the Cook Islands education curriculum that arise because of the different, often

competing, development trajectories espoused by stakeholders. To finish, I briefly introduce the idea of ESD at Mangaia School as a tool to upskill students to think about and participate in future development on Mangaia that is economically, environmentally, socially and importantly, culturally sustainable.

5.2 Mangaia part of the Cook Islands

Mangaia is the southern most of the fifteen islands that make up the Cook Islands. It is also the second largest after Rarotonga with an area of 51 square kilometres. Mangaia is a raised coral atoll, which is reflected in the original name, '*Auaa Enua*', meaning terraced.

Plate 3: Oneroa village from the air



Plate 4: Airstrip



Photograph 3 and 4 courtesy of Daniel Ngatokorua

Plate 5: Tuaatu reef



In contrast, Rarotonga, the main island⁶⁰, is a volcanic island while many of the islands in the north are coral atolls. It is believed the Cook Islands in the 13th century were settled by migration from Samoa and the islands that now make up French Polynesia (AhChing, 2013). Onward migration to New Zealand also occurred with oral history recounting seven *vaka* (canoes) leaving Avana Harbour, on Rarotonga, in 1350 southward bound (King, 2003).

In 1881, the Rarotongan *ariki* (King) sought British protection over the southern islands then known as the Hervey Islands. On 27 September 1900, the New Zealand Parliament approved the annexation of the Hervey Islands to New Zealand. In 1901, the boundaries were extended to include all of the current Northern Cook Islands and the country renamed the Cook Islands after Captain James Cook who sailed through many of the islands between 1773 and 1777 (Gilson, 1980).

On 26 July 1965, New Zealand passed the Cook Islands Constitution Amendment Act and the Cook Islands became a State in free association with New Zealand. This agreement is pivotal to Cook Islands' development. Practically, the free association agreement means:

⁶⁰ Avarua the capital of the Cook Islands is located there.

- The Cook Islands Government has full executive powers;
- The Cook Islands can make its own laws and New Zealand cannot make laws for the country unless authorised by government;
- Cook Islanders keep New Zealand citizenship; and
- The Cook Islands remains part of the Realm of New Zealand and Queen Elizabeth II is Head of State of the Cook Islands. (Cook Islands Government Online, 2012)

This close historical relationship between the Cook islands and New Zealand was further strengthened in 2011 with the signing of the JCfD⁶¹, which commits \$83 million of New Zealand development assistance over three years, including \$57 million of direct bilateral funding (New Zealand Ministry of Foreign Affairs and Trade, 2011)⁶².

5.3 Mangaia: Origins

Accounts of the origins of Mangaian are inconclusive. Nevertheless, oral histories have significant commonalities with accounts from Gill⁶³ (1876), Buck (1934) and Reilly (2003, 2009). Moekapiti Tangatakino, a *ta'unga*, explained Mangaia's origins to me:

Haere mai matou mei Hawaiki Nui, Hawaiki Roa, Hawaiki Pamamabo, mei te hononga o nga wai e rua

We come from a big *Avaiki*⁶⁴ (a large land that is too big to walk across), a long *avaiki* (a land that you cannot walk from end to end), a far far away *avaiki*, a place where two waters are separated

Moekapiti Tangatakino (Ta'unga)

In figure 2 taken from Buck's (1934) ethnography the four *vaerua* (spiritual beings) who inhabit *Hawaiki* are *Te Aka-ia-roe*, *Te Tangaengae*, *Te Manavaroa* and, and *Vari-ma-te-takere*, often shortened to *Vari* (Buck, 1934, p. 23). *Vari* is considered the "nearest to the world of human beings" (Monberg, 1956, p. 254). The first six human beings grew out of *Vari*. The first man was *Vatea*; his wife was *Papa* who came from the underworld. . They had six

⁶¹ Joint Commitment for Development.

⁶² The Cook Islands uses the New Zealand dollar as its currency

⁶³ Based on Mamoe testimony. Mamoe was a Mangaian informant used by Gill to obtain Mangaian oral histories and cultural knowledge (Gill, 1876; Reilly, 2009)

⁶⁴ Note: *Avaiki* in Polynesian history is often used interchangeably with *Hawaiki* (Monberg, 1956).

children the most important of which are *Tangaroa* and *Rongo* (ibid). *Rongo's* wife bore a daughter named *Tavake*. *Tavake* gave birth to *Rangi*. *Rangi* pulled up Mangaia from the underworld, and became the first king of the island. His wife's name is *Te-po-tatango*. (Tregear, 1891).

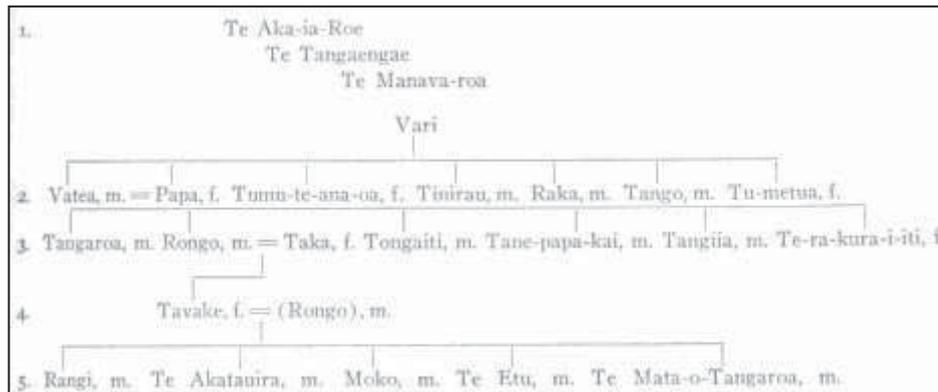


Figure 2: Mythological Origin of the People of Mangaia (Buck, 1934, p. 10)

Detailed descriptions of Mangaian origins are provided by Gill (1876), in ‘Myths and Songs from the South Pacific’, Buck (1934) in the ethnography ‘Mangaian Society’ and Reilly (2009) who has transcribed Mangaia’s ancestral voices to make them “more comprehensible to modern audiences” (p. vii).

Christianity changes social organisation

In pre-Christian times warrior chiefs fought for political, economic and social dominance over Mangaia. Successful combatants held the title *Mangaia*⁶⁵ until defeated by another warrior chief. The arrival of Christianity in the 1820s⁶⁶ resulted in an end to warrior conflict and the beginnings of the *aronga mana*, who still govern today. Christianity was a catalyst for the movement of people from inland areas, where the taro gardens were, to the drier

⁶⁵ Title of pre-Christian high chief of Mangaia who also held the office of a *pava* ... and dominated the island with the help of other leaders whom he put in charge of *puna* and *tapere*, also called the warrior chief, temporal chief or lord (Reilly, 2009, p. 287).

⁶⁶ The last important ‘*etene*’ (Heathen, non-Christian) leader, *Arikikaka*, did not convert until 1865 (Reilly, 2007).

coastal areas where the current villages are located. The missionaries wanted Mangaiaans living away from inland *marae* where they had worshipped their own gods (Reilly, 2007).

In 1824, *Nūmangātini*, the presiding chief, welcomed the first missionaries to Mangaia. With Mangaia's conversion to Christianity he became the *ariki*, in effect, the "titular leader of Mangaia's Christian society" (Reilly, 2007, p. 39). In recognition of *Nūmangātini's* pivotal importance to changing the direction of Mangaia towards a Christian society, the Mangaiaan people have bestowed the name *Nūmangātini* on all subsequent kings and queens until the present. Even with the arrival of significant western, hegemonic influences alongside Christianity, continuing strong traditional roots have meant, "indigenous language, the older leadership patterns and local control and use of land have continued under the umbrella of an indigenised Christianity" (Reilly, 2009, p. 285). However, with bible instruction predominantly being in Cook Islands Maori there has been a significant loss of Mangaiaan dialect, especially among the youth.

Along with oral history, Mangaiaans rely heavily on ethnographic writing, from two sources, for their genealogical and cultural histories. Firstly, they depend upon William Gill, a London Missionary Society missionary, who wrote about Mangaiaan life with the assistance of his local co-pastor and informant Mamoe, from 1850 to 1870. Secondly, they depend upon Te Rangi Hiroa, resident agent and anthropologist, who lived on Mangaia in 1929 and 1930 and wrote extensively about Mangaia livelihoods and culture (Reilly, 2003). These written accounts of Mangaia's history remain a rich source of historical information for Mangaiaans today.

5.4 Mangaia: Traditional governance

The traditional social and political organisation on Mangaia revolves around the six *puna*⁶⁷ (districts), which radiate out from the centre of the island in the form of wedges, see figure 1. Each *puna* is headed by a *kavana*⁶⁸ or *pava*. Within each *puna* are *tapere*⁶⁹ that are headed by a *rangatira* or *kairanganuku*⁷⁰. The traditional council of chiefs called the *aronga mana* is made

⁶⁷ "District, one of six major wedge-shaped land divisions in Mangaia" (Reilly, 2009, p. 288).

⁶⁸ Governor (transliteration), post-mission term for a chief of a *puna* (Reilly, 2009, p. 287).

⁶⁹ Sub-district, a lesser land division within a *puna* (Reilly, 2009, p. 288).

⁷⁰ Old name for *rangatira* leaders of ... *kopu* selected by a Mangaia to rule a *tapere*. They would live there with their own kin ... keeping the peace and consuming the land's resources ... literally ... group eating together (Reilly, 2009, p. 287).

up of the six *kavana* and some of the *rangatira*. The key responsibilities of the *aronga mana* are the upholding of Mangaian custom and culture, including the protocols associated with land distribution. The *aronga mana* manages and oversees the allocation of all the land and sea resources, including the commons⁷¹. For example, a newly married couples seeking land from their respective *rangatira*, if unhappy with their allocation, can refer their request to the *aronga mana* to make a final decision. The land court, used extensively in Rarotonga to determine legal title to land, has no jurisdiction on Mangaia. Any land disputes are resolved in a traditional manner by the *aronga mana* (James, 1986).

5.5 Mangaia: Modern governance

In addition to the traditional social structures, separate political organisation contributes to governance on Mangaia. An island⁷² council, made up of two elected members per village, oversees core public services and government funded development projects on the island. A major task is the formulation of strategic directions for development. Specific development projects are implemented, monitored and evaluated by the island council (Te au Puna o Mangaia, 2014). At the national level, Mangaia contributes three Members of Parliament to the Cook Islands Parliament, representing the constituencies of Ivirua, Tamarua and Oneroa. As well as contributing to national policy, Members of Parliament advocate for the provision of specific development projects that will improve the lives of the people in their respective villages, and Mangaians as a whole.

Christianity and the various churches have significance influence on daily life on Mangaia. As well as attending to the spiritual needs of Mangaians, the churches contribute greatly to social cohesion and the social needs of all Mangaians. Many of the functions, which bring Mangaians together, are church inspired and managed. Currently, a representative of the Religious Advisory Council is invited to sit in at Island Council meetings, exemplifying the wider importance of the church in decision making on Mangaia.

In summary, three major governance entities influence life on Mangaia and the direction development initiatives take. They are the *aronga mana* who are custodians of traditional

⁷¹ Areas of land or shoreline owned by the whole island.

⁷² The island council was established in 1965 after independence. Before independence, each Island in the Cook Islands had a resident agent appointed by the colonial administration. The colonial period lasted from 1901 until 1965 when the Cook Islands gained independence (Gilson, 1980).

social organisation, the Religious Advisory Council who advise, from an indigenised Christianity perspective and the Cook Islands government, acting through the auspices of the elected Island Council, Members of Parliament and Mangaia Island Administration (MIA). With representatives from the aronga mana and Religious Advisory Council sitting on the Island Council in a consultative capacity, there is a strong working relationship between the three entities. Ngametua College, the Executive officer for the MIA, wants an even closer relationship, believing in “collectivism rather than individualism as a doable solution for Mangaia”(Cook Islands News, 2012a). Quoting Mangaia’s ancestors, College stated “*to te Ture, to te Enua e to te Evangelia*” (ibid) meaning the three governance bodies must work in unison for the good of the island.

5.6 Mangaia and the environment

Mangaians have lived successfully on Mangaia for hundreds of years by developing and retaining strong ecocentric customs and practices (Allen, 1969; Mark, 1976). In taking a holistic approach to the environment, Mangaians have in general been able to live harmoniously with the environment, although there is evidence of some past flora and fauna damage because of environmental mismanagement, exacerbated by population pressures (Kirch, 1996, 1997, 2007; Steadman & Kirch, 1990). In recent times, environmental damage has mainly resulted from externally driven commercial agriculture ventures, for example, the pineapple industry resulted in severe erosion (Allen, 1969). With Mangaians looking to accelerate development on Mangaia with new commercial agriculture ventures, niche tourism and small-scale business ventures (Te au Puna o Mangaia, 2014) careful management of the ecologically fragile small island environment will be required.

5.7 Mangaia: Migration

Accelerating migration, starting from the 1970s, has long been a development concern with the small numbers of people adversely affecting domestic demand for local business and the ability to provide the labour necessary for the maintenance of essential infrastructural and social services. Mangaia’s population has decreased from a peak of 2081 in 1971 to 572 in 2011, see figure 3 reflecting the national population picture in which the Cook Islands overall population has declined from 21322 in 1971 to 17794 in 2011, (Ministry of Finance and Economic Management, 2011, 2012).

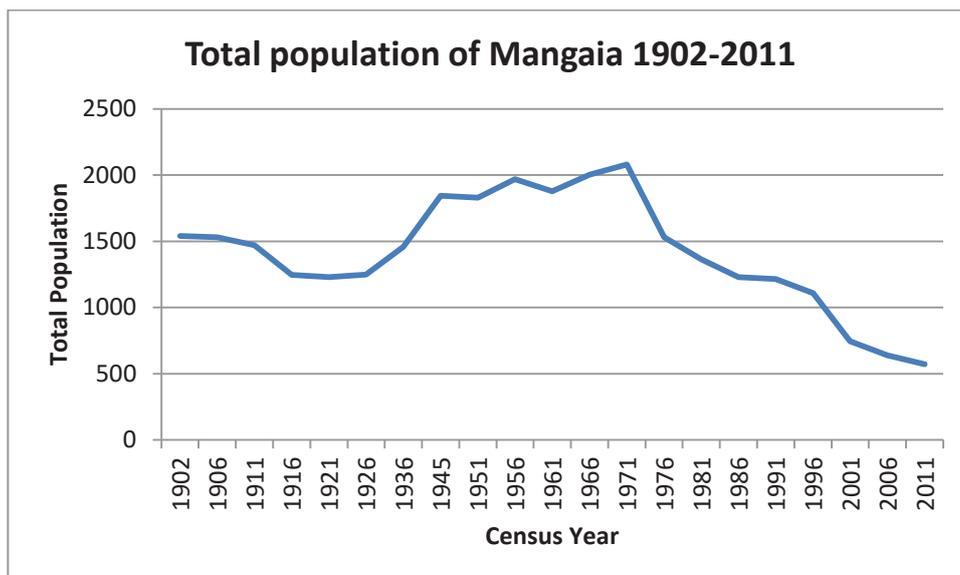


Figure 3: Total population of Mangaia 1902-2011

Data taken from (Table 1.1 - Total Population and Land Area by Island, 1902-2011 Cook Islands Government Statistics Office, 2012, p. 39)

Wright-Koteka (2006) considers Cook islands migration is the result of “diverse motivations” (p. 181). Economic opportunity and education in New Zealand are important factors but family ties and simply adventure are amongst others. Wright-Koteka argues Cook islanders see “migration as an expected part of life” (ibid, p. 182). Although partial return migration occurs there has been an overall fall in population (ibid). This population drop is of considerable concern to the Cook Islands government, although migration and remittances are a development strategy, as continued population loss would put proposed development initiatives requiring labour, both skilled and unskilled in jeopardy as well as challenge the viability of communities. Consequently, plans to repopulate *pa enau* (the outer islands, of which Mangaia is one) are included in the NSDP. (Government of the Cook Islands, 2011a).

At a more personal, student level, population loss also causes concern as described by a student below:

It was great when we had the Manea⁷³ games; we had enough people to play all sorts of sports and it was fun to meet new people. That’s one thing I don’t

⁷³ A biennial sports games played amongst teams from the Southern islands in the Cook Islands and hosted by Mangaia in 2011.

like about living on Mangaia. There is not enough people our own age on the island to make friends with and do things with.

Participant 7: Student

Later, I will argue the introduction of EasSD into school curricula would support the government's goal of repopulating *pa enua* (the outer islands) over time, by educating students to expand their thinking away from the current narrow view where migration is considered inevitable into a changed mind-set whereby students seriously consider livelihood opportunities on Mangaia should they wish. This process will necessitate building students' skills and knowledge so they are able to forge productive lifestyles that utilise local economic opportunities and recognise cultural advantage.

5.8 Mangaia: A development history

British rule, the Christian mission and subsequently the New Zealand administration, were all influential in the commercialisation of agriculture, which effectively became the beginnings of economic development on Mangaia. The mission promoted commercialisation as a means to get the church faithful to contribute to mission funds. The colonial rulers also believed Mangaians should be taught that primary agricultural production⁷⁴, leading to participation in the global economy, and a move away from a reliance on traditional livelihoods was necessary to ensure progress and development on Mangaia (Allen, 1969).

This establishment of the New Zealand administration on Mangaia, in the early twentieth century, “resulted in the creation of an occupational elite (school teachers, medical officers, and administrators) and a subsequent loss of status by ascribed elite” (Allen, 1969, p. 154). In other words, status began to move away from those with traditional, chiefly titles to those with economic means. Moreover, contact with New Zealand led to expectations for higher living standards. With traditional occupations unable to provide money, entrepreneurial activity became increasingly acceptable.

Today, the desire for material goods and services that cost money makes it necessary to procure some means of income. Tea, coffee, sugar, flour, tinned meat, tinned fish, bread, doughnuts and butter are considered basic food items supplementing an island diet of *ika*

⁷⁴ Through production of copra, oranges and pineapples.

(fish), *akari* (coconuts) and *mamio* (taro). Furthermore, most families consider a telephone, cooking gas and electricity for lighting and television more or less essential. House construction is dependent upon the importation of at least some western materials, for example, roofing iron and aluminium windows. Motor bikes require petrol and parents must buy school uniforms.

Agriculture and economic development

From the 1850s to 1900, cotton, coffee, oranges, pineapples, copra and bananas were exported successfully. From 1900 to 1945, oranges became a key export. From 1945 to 1967, pineapple exporting was reintroduced alongside tomatoes (Allen, 1969). Close ties with New Zealand meant the Cook Islands was able to export citrus fruits, pineapples, papaya, avocados, tomatoes, beans, capsicums and eggplant to New Zealand under protectionism policies during the fifties, sixties and seventies (Fleming, 1996). Agricultural success, in these early days, was heavily dependent on market protection, market subsidies and technological support, in the main, provided by New Zealand (Fleming, 1996; Syed & Mataio, 1993). This ability to export fresh produce was helped by the provision of infrastructure from the New Zealand and Cook Islands governments (Fleming, 1996; Syed & Mataio, 1993).

The demand for agricultural products on Mangaia received a temporary boost with the setting up of a factory in Rarotonga to process oranges and pineapples. Market protection encouraged New Zealand investment in agricultural processing facilities. A subsidiary of W. Gregg and Co set up a pineapple and citrus processing plant in Rarotonga in 1961 which gave a boost to agricultural production (Fleming, 1996; Syed & Mataio, 1993). Pineapples harvested in the summer were a natural complement to oranges harvested in the winter, ensuring the factory was able to operate all year round. This meant a temporary reprieve for the pineapple industry on Mangaia and production was intensified (Syed & Mataio, 1993). The reprieve was short-lived, due to breakdowns and processing problems at the Gregg's canning factory in Rarotonga. The necessary upgrade of the Gregg's factory proved to be cost prohibitive, resulting in the closure of the factory with the consequent loss of market for Mangaian pineapples. The result was a dramatic drop in export earnings for Mangaians (Fairbairn, 1985). From the mid-seventies to 1989 Mangaian agricultural

exports like oranges, pineapples, bananas and copra continued to fall as they became uneconomic on world markets⁷⁵.

Attempts to produce dehydrated pineapples and a pineapple liquor on Mangaia started in the early eighties (Gauss, 1983), but were also short-lived as they proved uneconomic. Market failures and transport problems in getting produce to markets resulted in disillusionment for growers on Mangaia, as an informant explains:

Seeing rotting pineapples sitting on the wharf in Mangaia was the final frustration for us and signaled the end of the pineapple industry on Mangaia

Participant 30: Community member

In summary, the agricultural economy on Mangaia has followed the pattern of many other Pacific Islands states, being characterised by a “boom-bust syndrome” (Fleming, 1996, p. 131).

Tourism and economic development

Tourism on Mangaia has struggled to gain traction. The vibrant and highly successful national tourism industry is focused only on the islands of Rarotonga and Aitutaki. In 2011, Mangaia had approximately 400 tourists a year compared to the 102,528 visiting the rest of the Cook Islands (Ministry of Finance and Economic Management, 2011). Mangaia is dramatically different from the image used to portray Rarotonga and Aitutaki, the main tourist destinations in the Cook Islands. There are few white sandy beaches, lagoons for snorkelling and diving, resorts, or vibrant nightlife full of bars and restaurants. Yet there exist many opportunities to offer a complementary cultural experience to the one tourists get in Rarotonga and Aitutaki. These opportunities will be discussed in chapter 6.

Small business and economic development

Business focussed on selling Mangaian craft is a small but diverse industry. Most businesses evolved out of making craft as a hobby or for cultural events rather than primarily for

⁷⁵ The deregulation of New Zealand’s economy after the election of the 1984 Labour government brought to an end protected markets for Cook Islands agricultural exports into New Zealand (Johnston & Frengley, 1991).

business reasons. Current and new ventures and their potential for expansion will also be explored in chapter 6.

MIRAB and economic development

Mangaian economic development is not complete without consideration of MIRAB⁷⁶. In the past MIRAB, when analysed from a conventional western economic viewpoint, has attracted condemnation, being blamed for the economic regression experienced in the Cook Islands after independence⁷⁷ (I. G. Bertram & Watters, 1986). Criticism focused on Cook Islanders' dependence on remittances from overseas family and on aid financed non-productive, bureaucratic jobs that increased after independence. MIRAB was blamed for turning the “islands from resources based into rent based economics⁷⁸ and skewing occupational structures towards bureaucracy and non- agricultural activities” (ibid, p. 57). In chapter 6, I draw on Bertram and Watters (1985), positive, constructive perspective of MIRAB, to describe how MIRAB can stimulate future economic development on Mangaia.

Sustainable Development on Mangaia: Shaped by government thinking

SD as a concept has been embraced by the Cook Islands government, sitting at the centre of its development vision for the Cook Islands, since its inception in in 2007⁷⁹ (Government of the Cook Islands, 2007b, 2011a). The 2011 release of phase two of the NSDP (Government of the Cook Islands, 2011a) signalled a shift towards more holistic development thinking. Economic development and the supporting human capital approach to education continue to be major foci (Cook Islands Ministry of Education, 2007). However, the updated plan widened the focus to consider the impact of economic growth

⁷⁶ Poirine (1998) defines MIRAB as “a development process where remittances and foreign aid are the main economic resources of the local economy” (Poirine, 1998). MIRAB is an acronym for Migration, Remittances, Aid and Bureaucracy sources of income which many Pacific islanders depend upon (I. G. Bertram & Watters, 1986).

⁷⁷ As measured by a fall in agricultural exports (Fleming, 1996).

⁷⁸ “By rent income we mean the combination of remittances, budgetary aid, philatelic revenue and dividend incomes to governments – income flows, in other words, which accrue to the island communities by virtue of their identity and location rather than as a result of the sale of local products” (G. Bertram & Watters, 1985).

⁷⁹ The 2007 -2010 NSDP vision states: “To enjoy the highest quality of life consistent with the aspirations of our people and in harmony with our culture and environment” (Cook Islands Ministry of Education, 2007, p. 7)

on the social, cultural and environmental dimensions of SD. Priority area four, of the 2011 NSDP (Government of the Cook Islands, 2011a) sets out a vision for social development:

Cook Islands where all people ... can enjoy opportunities to fulfill their potential, prosper and participate in the social, economic, political and cultural life of our communities and nation. (p. 16)

Priority area six, set out a vision for ecological sustainability; “A Cook Islands where we sustain our ecosystems and use our natural resources efficiently” (ibid, p. 16). An environmental vision where technocentric solutions are encouraged, for example: “The use of all our natural resources are managed well to ensure their sustainability” (ibid, p. 18); and where ecocentric solutions are also promoted, for example: “Irreversible loss and degradation of biodiversity (marine, terrestrial, aquatic ecosystems) is avoided” (ibid, p. 18). The plan makes a commitment to development that is both sustainable and culturally inclusive:

We recognise that economic, social and environmental problems and solutions are inter-connected and that an integrated approach to address these issues, underpinned by good governance and fundamental cultural values to address these issues will ensure that our development is sustainable. (ibid, p. 14).

Where recognition of culture and the environment is tied to economic success:

A Cook islands where ingenuity and connection to our culture and environment underpins the ability of our people to build business and enterprise to contribute to national economic growth. (ibid, p. 16)

With SD sitting at the core of government vision and policy across the private and public sectors, ESD has begun to appear in education planning and curricula (Cook Islands Ministry of Education, 2011b; Cook Islands National Capacity Self-Assessment Project Management Unit, 2007). The place and increasing importance of ESD in the Cook Islands curriculum is a focus of this research.

Mangaiaans also recognise the part their culture has played in development. Mangaiaans acknowledge the proud history of their ancestors in forging successful livelihoods on Mangaia over a long period. In 2014, recognising the strength of their culture, they affirmed their desire for development on Mangaia to be led by Mangaiaans. They outlined their aspirations in *Ta'i Ake Puku Kana e Kai ei te Atea: Mangaia Island and Puna plans 2014-2018* (Te au Puna o Mangaia, 2014).

5.9 Cook Islands education: Shaped by shifting development priorities

5.9.1 Education: pre and post-independence

The history of education in the Cook Islands has been shaped mainly by economic, cultural and political forces. Pre independence education in the Cook Islands focused on building human capital to support the colonial belief that modernisation as a development strategy was necessary.

Policy varied between a focus on educating all students to a New Zealand western standard, to a belief in a practical trade type education for some students, especially those in the outer islands. However, the main driver of educational policy was educating students to fill the many public service positions in the colonial government (Cook Islands Task Force on Education, 1989).

The independent period after 1965 continued the focus on universal education standards with the attainment of high academic achievement for all Cook Islands students to a level compatible with New Zealand students (Cook Islands Task Force on Education, 1989). Both the newly independent government and aid programmes from New Zealand, which started in 1960, focussed on modernisation through education, as the key to economic success for the independent Cook Islands (Coxon & Tolley, 2005). Running parallel to this was New Zealand's expanding industrial sector which demanded and benefited from a relatively "cheap and convenient" (ibid, p. 39), generally skilled, Pacific Island labour force. With Cook Islanders, holding New Zealand citizenship migration to New Zealand for work was easy.

Job availability in New Zealand fitted in with Cook Islanders' increasing aspirations for higher wage paying opportunities that could not be satisfied in the low wage economy of the Cook Islands. These jobs, along with improved transport access to New Zealand, resulted in a rapid migration of Cook Islanders to New Zealand in the 1960s and 1970s (Coxon & Tolley, 2005; Wright-Koteka, 2006). Coxon et al. (2002) argue the labour shortfall in forestry, meat works and factories back in New Zealand reinforced New Zealand's colonial and postcolonial support for an education which produced western educated Cook Islanders who were proficient in English and ready to learn trades.

In addition to continued enthusiasm for a western education, demands for educational programmes relevant to Cook Islands life and culture began to emerge (Cook Islands Task Force on Education, 1989). These themes evolved against a background of fluctuating political change and ever evolving development thinking. Sissons (1999) argues during the period from 1965 to 1974, under Albert Henry, the then Prime Minister, the Cook Islands went through a phase of national identity formation, exemplified through cultural dance and singing. Expressions of Cook Islands culture and dancing embodied Cook Islands new independence and unity. From 1974 to 1978, this objectification of culture, as something of value to be handed down to future generations, extended into a commodification of culture for tourism. Tourism was seen as a key to economic independence.

From 1978 to 1988, the so-called Davis⁸⁰ years, there was a wider economic focus, with the intensification of the human capital approach, in the belief that an educated population would modernise the Cook Islands economy through, not only tourism but also through the industrial and finance sectors. In 1989, there was a renewed focus on traditionalisation, through culture, along with continued efforts to improve economic growth (Sissons, 1999). These twin emerging desires of being modern and economically successful while striving to strengthen the identity of the population as Cook islanders influenced education. Education had a dual focus, academic success via a western style education combined with the teaching of Cook Island culture and language to strengthen students' identity as Cook Islanders (Gadd & Puati, 2007).

5.9.2 Education: The continuing New Zealand connection

In the 1990s, government structural adjustment programmes were introduced after pressure from the Asian development bank and the New Zealand government under the guise of New Zealand Aid⁸¹ (Alexeyeff, 2008). The premise was that Cook Islands economic and financial problems would be solved by “the privatisation of government assets and services and the development of free-market principles” (ibid, p. 136). The result

⁸⁰ Named after the Prime Minister of the time Sir Tom Davis.

⁸¹ “In 1995, the Cook Islands faced severe recession and stringent economic reforms were implemented on the recommendation of the Asian Development Bank (ADB) and New Zealand Overseas Development Aid (NZODA, now New Zealand Agency for International Development or NZAID). International aid was suspended until the Cook Islands adopted a structural adjustment program” (Alexeyeff, 2008, p. 137).

was that half of all public service jobs were cut, which equated to hundreds of jobs being lost. A third of the working population migrated, mainly to New Zealand, in less than ten years (ibid). There was an intensification of the human capital approach to education, in the belief that educated Cook Islanders were needed to effectively participate in the global free market economy and ensure the Cook Islands could pay its own way. With money tight, the education budget for the social and cultural aspects of the curriculum was cut and redirected towards programmes that aimed to improve both the quality and quantity of western qualifications in the overall student population (Coxon & Tolley, 2005).

In colonial times, the Cook Islands' curriculum was dictated from New Zealand. In postcolonial times, the Cook Islands' curriculum continues to be influenced by western thinking, with many expatriate New Zealand educators holding key administrative and advisory positions in the Ministry of Education⁸². At the senior secondary level, the connection is even more direct. Students, in Years 11 to 13, undertake the New Zealand curriculum and enrol in qualifications on the New Zealand Qualifications Framework (NZQF)⁸³. Teacher training, professional development and curriculum support is invariably provided by New Zealand educational experts employed by the Ministry of Education on contract. Furthermore, much of the curriculum material used in classrooms in the senior school originates from New Zealand (Cook Islands Ministry of Education, 2005, 2006a, 2006b, 2006c).

5.9.3 Education wedded to NZ aid objectives

New Zealand commitment to education in the Cook Islands has endured over a long period and shows no signs of waning. A report by Scott (2012) outlines the continued support:

MFAT's commitments to a Cook Islands Education Sector Wide Approach (SWAP) were consolidated in 2008 in a Partnership Arrangement that ends on 1 October 2012. Sector support aligns to the Cook Islands National Sustainable Development Plan 2011-2015, NZ Aid Programme policy and budget priorities. Education sector support also features in the Joint

⁸² For example, the Secretary of Education position and some of the Advisory positions at the Ministry of Education.

⁸³ Students in Years eleven to thirteen undertake the National Certificate of Educational Achievement at Levels One, Two and Three (New Zealand Qualifications Authority: Mana Tohu Matauranga O Aotearoa, 2013).

Commitment for Development (JCfD) signed in July 2011, which commits extended support from NZ to 2015. (p. 67)

Funding to support the Education Master Plan (EMP)⁸⁴ (Cook Islands Ministry of Education, 2007) is provided via a harmonised aid programme in which New Zealand manages Australia's contribution through a delegated co-operation arrangement. The funding is delivered via a sector modality named "investing in people" (New Zealand Ministry of Foreign Affairs and Trade, 2011). The strong and close aid relationship the Cook Islands has with New Zealand sits in the context of the close relationship and history the two countries share⁸⁵. This funding effectively commits the Cook Islands to an educational pathway agreed between the two countries.

The EMP's key focus on improving literacy, numeracy and qualifications to provide "educated employees" (Cook Islands Ministry of Education, 2007, p. 8) for business, aligns with the New Zealand aid programme's key educational strategy of, "improved student achievement; ... increased tertiary trained workforce, ... (and) ... building leadership skills for economic development" (New Zealand Ministry of Foreign Affairs and Trade, 2012, p. 7)⁸⁶. In summary, increasing the number of educated graduates in the Cook Islands remains a priority for aid coming from New Zealand (New Zealand Ministry of Foreign Affairs and Trade, 2011).

It can also be argued the Cook Islands desire to improve human capital attainment through improved student achievement results (Cook Islands Ministry of Education, 2010), aligns nicely with the New Zealand aid programme priority of "transformed Pacific economies that are on a path towards sustainable economic growth and self-reliance" (New Zealand Ministry of Foreign Affairs and Trade, 2012, p. 4). The JCfD has committed both the Cook

⁸⁴ The EMP is the business plan that drives educational reform and improvement in the Cook Islands for the next fifteen years.

⁸⁵ The Cook Islands constitution recognises self-government in free association with New Zealand, meaning Cook Islanders hold New Zealand citizenship and carry a New Zealand passport. The relationship will continue to be significant as the Cook Islands seeks to form a treaty relationship with New Zealand (Government of the Cook Islands, 2007b).

⁸⁶ New Zealand Aid programme success in supporting Cook Islands education is measured using indicators such as "Children meeting national test levels at age 10 for literacy and numeracy ... People that complete vocational training ... People that complete tertiary scholarships" (New Zealand Ministry of Foreign Affairs and Trade, 2012, p. 7).

Islands, as aid recipient, and New Zealand, as aid donor, to a human capital approach to education. The focus is unequivocally on producing an “educated and skilled Cook Islands population” (Governments of the Cook Islands and New Zealand, 2011, p. 2), through education sector budget support, to achieve Cook Islands “economic development objectives” (ibid, p. 1). I argue that the Cook Islands government and education ministry has been drawn into, perhaps willingly, following New Zealand aid programme’s core policy focus on “sustainable economic development”⁸⁷ (ibid, p. 3).

Although the education focus is firmly on improving human capital, there is scope for educational aid to contribute to success in other areas. The New Zealand Aid programme Cook Island factsheet outlines the need to improve livelihoods. Therefore, a role remains for New Zealand to support the non-economic development of the Cook Islands (New Zealand Ministry of Foreign Affairs and Trade, 2011). Nevertheless, Coxon and Tolley (2005) argue that despite New Zealand’s aid relationship becoming more participatory with its Pacific neighbours, the modernisation and neoliberalism agendas still dominate aid partnerships in the Pacific. Van Peer (2012) sums it up by stating there is a concern that a continuing “bypassing of cultural values and processes, in favour of donor priorities” (p. 39) compromises educational progress in the Pacific.

While education in the Cook Islands may be influenced by New Zealand hegemony, rightly or wrongly, the Cook Islands, in line with the principles of the Paris Declaration and Accra Agenda for Action on ownership (Organisation for Economic Co-operation and Development, 2008) retains the power to set their own educational policy. It follows that support for a western education is perhaps something that has been welcomed by many in the Cook Islands.

5.9.4 Education: Committed to MDGs, EFA and PEDF goals

Education in the Cook Islands is also committed to multilateral initiatives originating outside the country. In recent times, the EMP has been aligned to the applicable

⁸⁷ The New Zealand Ministry of Foreign Affairs (2010) states, “an increasing proportion of funding will be allocated towards economic-growth focused activities in the Pacific” (p. 1) . In the Cook Islands, there will be “scaling up assistance for economic development in Rarotonga and Aitutaki” (New Zealand Ministry of Foreign Affairs and Trade, 2011, p. 2).

Millennium Development Goals (MDGs)⁸⁸, Education For All (EFA)⁸⁹ and Pacific Education Development Framework goals (PEDF)⁹⁰ (Scott & Newport, 2012). When it was clear universal primary education, goal two of the MDGs, was close to being achieved the focus moved to addressing “equitable access to quality education through enhancing the quality of programme delivery and teaching approaches, producing appropriate culturally sensitive and gender balanced resources and supporting inclusive education environments” (Government of the Cook Islands, 2010, p. 22).

Good progress was also evident against the key goals of EFA (UNESCO, 2011a). Free, compulsory education was achieved for all with equitable access. The focus then moved to “Improving all aspects of the quality and excellence of education” (Cook Islands Ministry of Education, 2011b, p. 8), with a key focus on literacy, numeracy and life skills, particularly for pa enua students. Good progress was also made against the PEDF in terms of access to education, equity issues and improving the quality of education (Scott & Newport, 2012). These external goals provided valuable benchmarking for Cook Islands education stakeholders to track their progress against the performance of other similar countries.

5.9.5 Education: Tied to government plans for economic development

The 2007 -2010 Cook Islands National Sustainable Development Plan (NSDP) (2007b) states an intention to address the four dimensions of SD⁹¹ as outlined in the national vision:

*Te oraanga tu rangatira kia tau ki te anoano o te iti tangata, e kia tau ki ta tatou peu
Maori e te aotini taporoporoia o te basileia*

To enjoy the highest quality of life consistent with the aspirations of our people, and in harmony with our culture and environment.

(Government of the Cook Islands, 2007b, p. 7)

However, the clear focus of the first NSDP iteration was economic development (Government of the Cook Islands, 2007b, 2011a) and education’s role in supporting this is explicitly set out in the EMP (2007). Clear links were made between education and economic development, as illustrated by the following goal, in the education plan: “businesses in the Cook Islands will be able to draw on a pool of educated employees”

⁸⁸ MDGs (United Nations, 2000).

⁸⁹ EFA (UNESCO, 2011a).

⁹⁰ PEDF (Pacific Islands Forum Secretariat, 2009).

⁹¹ The economic, environmental, social and cultural dimensions of SD.

(Cook Islands Ministry of Education, 2007, p. 8). Gould (1993) argues a country's educational policy is developed in response to the dominant political, social and ideological views of the day. In the Cook Islands' case, economic development measures are very important.

The NSDP's goal of improving economic development performance underpins the EMP targets (2007) to improve the number of qualified students⁹² at secondary level⁹³ as illustrated by the following goal:

Ensuring 75% of students entering NCEA L1 for the first time at year 11 will achieve the qualification. (p. 5).

Two 2007 reviews of the Education Sector Policy Framework (Gadd & Puati, 2007; Government of the Cook Islands, 2007a) and a 2012 review of education recommended this focus on raising student academic achievement continue unabated.

Later, I will argue that the introduction of a transformative, place-based, culturally responsive EasSD, rather than deflecting from the goal of improved student achievement, actually supports it. In chapters 8 and 9 I explain how educational research from Aitken (2005), Aitken and Sinnema (2006) and Quiroz (1999) demonstrates that culturally responsive teaching and learning experiences inclusive of students' first language, culture, epistemology and knowledge improve students' engagement leading to better academic outcomes.

5.9.6 Education: Tied to government commitment to cultural identity and safeguarding

The EMP's (2007) focus on improving human capital does not negate its other key focus which is commitment to students' language, culture and ultimately identity as Cook Islanders:

Taku Ipukarea Kia Rangatira is intended to strengthen a learner's identity as a Cook Islander. It is grounded in the language, culture, thinking, visions and aspirations of the people and has a sense of belonging and pride. It is for a future that is vibrant and fulfilling. (p. 5)

⁹² The Ministry of Education's Statement of Intent 2010 also focuses on improving student literacy, numeracy and qualification success (Cook Islands Ministry of Education, 2010).

⁹³ Through success in the New Zealand owned National Certificate of Educational Achievement (NCEA) results.

A key focus is to improve Cook Islands language skills to strengthen a students' identity as Cook Islanders and assist them to better understand their own culture (Cook Islands Ministry of Education, 2007, 2010), as evidenced in the following EMP (2007) goal:

Ensuring 90% of all learners are reading at their chronological age at the end of Year 8 in both English and Cook Islands Maori. (p. 5)

Sisson(1999) notes that the interplay of education supporting economic development and a reassertion of indigenous culture is a recurrent theme in the Cook Islands. The commodification of culture to support tourism occurred alongside the traditionalisation of culture. Sisson argues, “the teaching of culture in schools had in fact a two-fold purpose: to prepare students for a tourist economy and to balance a curriculum designed to produce cultured New Zealand citizens with material designed to produce cultured Cook Islanders” (p. 83). Sisson (1999) notes

As ‘tradition’ becomes increasingly commodified (and for some de-authenticated) by governments and tourist interests, others reclaim it, seeking local autonomy and greater authenticity in the face of western cultural dominance. In other words, the South Pacific postmodern is a contradictory pastiche of cultural shallowness or gloss and a rediscovering of cultural roots; spectres of inauthenticity haunt and impel a reclaiming of authentic tradition; centralized cultural planning comes up against and encourages local cultural ‘invention’ (p. 97).

Recognition of the importance of culture in education is gaining momentum and can be illustrated by the conceptualisation of Te Ava, Airini and Rubie-Davis’s (2011) *tivaevae* model of a culturally responsive pedagogy for teaching in Cook Islands secondary schools, developed particularly around the Ora’anga ë te Tupu’anga Meitaki (Health and Physical Well-being) curriculum. The model includes the need to engage with the following:

Te reo Maori Kuki Airani (Cook Islands Maori language), peu ui tupuna (cultural traditions), peu inangaro (cultural beliefs), tu inangaro (relationships), peu puapinga (cultural values), akaputuputu taokotai (collaboration), peu angaanga (cultural activity), and peu oire tangata (cultural community). (p. 122)

As Te Ava et al. (2011) suggest, “education becomes more than qualifications alone. Rather, the curriculum is how our children come to understand the value and essence of culture and being” (p. 125).

5.10 Discussion: The tensions in Cook Islands education

Cook Islands educational policy currently promotes dual foci (Scott & Newport, 2012). Firstly, a human capital approach demanding improved literacy, numeracy and qualifications aimed at preparing students for the workforce to support economic

development. Secondly, a focus on *Taku Ipukarea Kia Rangatira*, aimed at strengthening students' identity as Cook Islanders through the teaching of culture and language (Cook Islands Ministry of Education, 2007, 2010). I call this mix of western and indigenous curricula a dual curriculum as they are usually separated with a western education consisting of the core subjects (English, Mathematics, Science and Social Studies) dominating and the subject Maori sitting to the side teaching culture and language (Cook Islands Ministry of Education, 2002). The standing of each foci varies, depending upon education stakeholder influence. In schools it will fluctuate, dependent on leadership direction and more directly teacher preferences in the classroom. (Abbiss, 2011). Teaero (1999) argues the indoctrination of teachers (even indigenous ones), with stylised western models of teacher training, can steer teaching programmes away from local culture. Moreover the demand by parents for a western education, in the belief that this is the best approach, to prepare their children for future jobs and careers is also a powerful force skewing curricula (Ogbu, 1982).

Neocolonial forces also continue to pervade classroom programmes to ensure a dominant western ideology pervades students thinking in what Sterling (2001) terms the hidden curriculum. A simple example will illustrate the point. Resilience can be defined in western economic terms as it is through the New Zealand Aid Programme (IDG) strategic plan (2012):

Events including the global economic crisis and abrupt changes in international energy and food prices, together with the likely impacts of climate change, have contributed to significant volatility in recent years. Such volatility underlines the importance of all countries investing in their future economic performance and increasing their resilience to such shocks. (p. 5)

In this scenario economic growth and the ability to improve GDP and people's individual wages are used to define resilience in the Pacific. In contrast, many Pacific Islanders define resilience through traditional livelihoods and their ability to fish, take care of livestock and grow crops. Here a Pacific worldview defines core resilience through people's ability to live off the land and the sea. Money is often seen as providing a secondary resilience (Gegeo, 1998; Maiava, 2001; O'Meara, 1990; Purdie, 1999; Regenvanu, 2009), While Pacific resilience may be more adversely affected by extreme weather events, which affect their ability to grow crops or catch fish, for example, it may be less affected by global economic and financial turndowns. If only a western education is provided students will tend to link resilience only to economic growth. However if a culturally responsive curriculum is

provided students, especially those on *pa enua*, will be better able to decide for themselves the importance of both types of livelihood resilience.

A change in focus from macro, top down, neoliberal development models to more hopeful post-development models could have flow on ramifications for the type of Cook Islands curriculum desired by stakeholders and provided to students. A number of questions would arise. *Should Maori as a subject sit alone inside a larger western education system?* Its key purpose being to teach students language and culture to strengthen identity and preserve culture. *Alternatively, should IK and culture be recognised in the curriculum alongside western knowledge and technology as contributing at least equally to future Cook Islands notions of SD and sustainable livelihoods?* It may be that a move away from a dual curriculum to a more integrated and inclusive curriculum is needed.

This research explores ESD as a vehicle through which hopeful post-development notions of SD might be explored. In the cross-cultural interpretation of resilience described above, a culturally responsive EasSD style ESD, as proposed by Sterling (2001), could be used to create a thinking space whereby students explore and decide for themselves what constitutes resilience. Students can compare the relative importance of money, jobs, careers and financial capital against the food security that traditional livelihoods bound in custom and culture can provide. It may be that resilience is enhanced by a combination of the two. More generally, an EasSD approach might allow students the flexibility to think critically about the multitude of viewpoints on SD from technocentric to ecocentric that exist within and across cultures.

5.11 Summary

Development on Mangaia has largely focused on externally initiated, driven and funded economic development projects focused on agriculture, tourism and small business, many of which eventually fail. MIRAB has filled the gap providing valuable earnings for people and bolstering the domestic economy. Education has generally followed dual goals: a western education to upskill students for jobs, and to support the country's economic growth objectives, and the teaching of Maori culture and language to strengthen students' identity as Cook Islanders.

Mangaians frustrated with a falling population, which they believe is due to a lack of economic opportunity on the island, have made the call to lead their own development as

their ancestors did. The call is for development on Mangaia to be led by Manganians for Manganians (Te au Puna o Mangaia, 2014).

I explore this close relationship between development and education more fully in the context of life and schooling on Mangaia. In chapter 6, I describe Manganians vision for SD. In chapter 7, I review how the current curriculum on Mangaia prepares, or does not prepare, students to vision and strive to achieve this particular Manganian vision of SD. I go on to propose, in detail, the parts of an EasSD curriculum that might be necessary to reflect hopeful post-development realities on Mangaia. In chapter 8, I offer a tentative EasSD pedagogy that could assist students in building an understanding of, and action competence in, SD to lead their own and their communities' future sustainable development that is both culturally responsive and contextually relevant.

Chapter 6 Sustainable Development on Mangaia

Kia maru e vara e kai ei koe I te inuunu o Mangaia

Be gentle my friends so that you may eat the fat of Mangaia.

Be gentle and kind so that others may be friendly and helpful to you

Sir Apenera Short (Jonassen, 2005, p. 121)

6.1 Introduction

This chapter addresses the following research question: *how do Mंगाians conceptualise SD and what skills and knowledge do they consider are important for endogenous SD and sustainable lives?* The chapter begins, in section 6.2, by outlining Mंगाians' evolving responses to externally driven top down development modes, sustainable or otherwise, that are provided via either budgetary support or government and NGO inspired development projects. The chapter then moves on to describe *oraanga Mangaia* (life on Mangaia), the essence of SD from a Mंगाian worldview in sections 6.3, 6.4 and 6.5. *Oraanga Mangaia's* role in providing ongoing livelihood resilience and its place at the core of future SD thinking and activity is then described. *Oraanga Mangaia* is expressed in terms of its position as an 'alternative to development' bound in culture, and its place as an alternative development mode facilitating grassroots, bottom-up, participatory development thinking.

Mंगाian SD is ultimately a dynamic synergistic response to top down external forces, backed by technology and funding, and bottom up grassroots thinking originating in a strong and vibrant culture and expressed as *oraanga Mangaia*. Sections 6.6 through to and including 6.10 variously describe the dimensions of SD namely economy, environment and society as embedded in Mंगाian culture but responding contextually to Mangaia as a small, ecologically fragile and isolated island.

Next, the risks of adopting western models of development at the expense of *oraanga Mangaia* and a consideration of Mंगाian culture are explained in terms of the resultant unbalanced development that might occur. A discussion on the importance of holistic development in culture is presented. The chapter finishes by describing Mंगाians aspirations for self-determination through the formation of participatory development partnerships with the Cook Islands government and aid agencies

6.2 Mainstream government development on Mangaia

Government development assistance on Mangaia is channelled through the provision of government services, backed by budgetary support, and development projects, carried out by the Mangaian Island Administration as outlined in their plans⁹⁴ (2009a, 2010). The plan is devised by central government after discussion with Mangaians. The plan outlines the economic and social development initiatives that aim to improve the lives of Mangaians. In 2009, the plan had six key outputs:

- Facilitate agricultural production of crops and livestock for local supply and export;
- Strengthen tourism industry and nurture cultural values and activities;
- Promote the development of women, youth and sport;
- Improved infrastructure to support Social and Economic priorities for example, harbour, airport, roading and water supply;
- Maintain quality power supply to the Mangaian Community whilst developing renewable energy sources; and
- Strengthen Governance across the island by actively motivating the Community, Private Sector and other Non-Government Organizations.

(Mangaia Island Administration, 2009a)

However, Mangaians were concerned about the ongoing lack of positive development outcomes resulting from government lead development initiatives on Mangaia. In 2009 at a development planning meeting, the following observations were made:

- We must provide more income earning opportunities through tourism, small business and agriculture to retain our children on Mangaia;
- We have a depopulation problem, so we must retain people and also attract overseas Mangaians back;
- Development is needed, but we must prevent the 'bad' that might emerge with the 'good';
- We must recognise the changing perceptions of what is good for the island. The views of the young, educated, business thinking group often contrasts with the elderly, traditional thinking grouping.

(Mangaia Island Administration, 2009b)

Mangaians realise development must consist of the right mix of traditional livelihoods, culture and western thinking and technology, stating:

- We have plentiful resources on the land and in the sea;
- Any development should be based on the strength of our existing culture and livelihoods;

⁹⁴ The plan is evidence of governments focus on outer island development as expressed in the NSDP (Government of the Cook Islands, 2007b, 2011a).

- We need to change but let us do it carefully by working together; (and)
- We are a hardworking, quietly spoken people who support each other to achieve.

(Mangaia Island Administration, 2009b)

Mangaiaans desire to assume control of their own development accelerated with the launch of the *Ta'i Ake Puku Kana e Kai ei te Atea*: Mangaia Island and Puna plans 2014 -2018 (Te au Puna o Mangaia, 2014). The plan produced by Mangaiaans aims to put them in control of their own development planning on Mangaia. The plan has been a response to growing dissatisfaction with development progress on Mangaia (Samoglou, 2014). The plan argues large scale government development projects have been “consistently flawed in implementation and largely failed to deliver the expected outcomes” (Te au Puna o Mangaia, 2014, p. 7). This call by Mangaiaans for greater self-determination coincided with government plans to devolve development decision making to the outer islands (Government of the Cook Islands, 2011a). Teremoana Atariki, the Mayor of Mangaia, explains the changing role of the Island Council:

The government appointed Island Secretary historically held more decision making power than the Island Council. Currently the government is facilitating devolvement of this power to Island Councils so that Mangaiaans are in a position to lead their own development on the island. This is an exciting step forward but one with significant extra responsibility for council members. We will have to upskill ourselves significantly in areas like planning and budgeting.

Teremoana Atariki
Mayor of Mangaia

Mangaiaans taking more control of government budgeted, western style, development planning is advantageous in ensuring development projects better reflect local needs, but still only form part of the overall development picture on Mangaia⁹⁵. Such planning does not describe the Mangaian worldview of SD framed around traditional livelihoods or *oraanga Mangaia*. This task is difficult, for an outsider, but necessary as it lies at the heart of SD on Mangaia inextricably tying culture to development. The next section looks to conceptualise *oraanga Mangaia* and commences with a narrative from my fieldwork journal.

⁹⁵ Development plans and projects, although necessary to access external project funding, are western constructs and do not frame SD around culture and traditional livelihoods.

6.3 Conceptualising Sustainable Development on Mangaia

Plate 6: Tanutanu mamio (planting taro)



To help the reader develop a sense of *oraanga Mangaia* I describe my initial immersion into Manganian life, over a three-day period, where I was immersed in Manganian livelihood practices and culture. Manganian livelihoods parallel Pacific traditional livelihoods providing livelihood (Regenvanu, 2009), social cohesion (Bazeley & Mullen, 2006), and illustrating the special relationship ecosystem people have with their environment (Dasmann, 1998).

On the first Friday morning of my 2011 visit to Mangaia, I went fishing on the reef with my wife's cousins. We caught *tiotio*⁹⁶ with our bamboo rods. In the afternoon, I followed my uncle to the *kainga* (taro area) to plant some *mamio* (taro) shoots a neighbour had given him. While there, we harvested enough *mamio* for both the evening meal and for his expected contribution to a *pakoti rouru* (haircutting ceremony⁹⁷) the following day. Back at

⁹⁶ A small reef fish.

⁹⁷ The haircutting ceremony is a rite of passage for boys.

the house Aerenga Matapo, the police officer, arrived with a tuna in act of *aroha taeake kai* (sharing of food amongst extended family members). My uncle told me Tuainekore, a 12-year-old boy, was his *tamaiti angai* (feeding child) and was Aerenga's son⁹⁸. In recognition of the relationship, Aerenga always provided fish for my uncle's family. Early that evening, I helped the younger children collect *tipene* (flowers) for my aunt who was making *leis* (necklaces) for a *pakoti rouru* to be held the next day. Later that evening, I went with my uncle to deliver a carton of chicken and some *mamio* (*taro*), our food contribution for the haircutting feast, to the men who would cook the food overnight in an *umu* (underground cooking oven).

Early Saturday, I went with my uncle to help with the *puna* (village) taro plot clearing project. Later that morning, we attended a meeting of the newly formed vanilla cooperative where I gained an insight into *uriuri manako* (Mangaian consensus decision making). The following rules were agreed to:

- Families would retain ownership of their own vanilla plants but cooperative members would work together when pollinating and drying the vanilla;
- The men would work together to make shared drying racks;
- The men would work together to collect the wild vanilla shoots from the bush and then share them;
- The *aronga mana* granted permission for the collection of vanilla shoots from communally owned land;
- The *aronga mana* decreed no export of vanilla shoots to family members and friends on Rarotonga was allowed, to ensure enough shoots were available locally for all.

After attending the *pakoti rouru*, where we ate and then received a share of leftover food we went home to prepare for Sunday. The children fed the pigs and chickens, picked *niu* (coconuts) and pawpaw, collected firewood and cut banana leaves for the umu. I helped the men prepare the umu while the women prepared the fish and *mamio*. On Sunday, it was church and rest.

With over 30% of Mangaiaans not receiving an income and being “reliant on subsistence production and living” (Mangaia Island Administration, 2009b, p. 5), traditional livelihoods should be central to any discussion about SD on Mangaia. For employed Mangaiaans, jobs and traditional livelihood practices are viewed as complementary. Traditional livelihood

⁹⁸ My wife, a feeding child for two different families herself, explained to me that the practice of *tamaiti angai* was common in the Cook Islands. It involved bringing up the child of a family member without usually without going through any formal adoption. The child viewed the caregivers as parents alongside the birth parents. It served to bind extended family together in reciprocal relationships of respect.

practices allow Mangaiaians to live their culture while cash income allows them to purchase the goods and services, which enhance their extended families' lifestyle.

6.3.1 Shared framework for SD on Mangaia

In trying to gain a deep understanding of SD immersed in culture on Mangaia, I sought to engage in an iterative process with Mangaiaians. The beginnings of a shared framework for SD on Mangaia emerged⁹⁹. I stress the framework is not an attempt to define or homogenise SD on Mangaia. However, the framework presented does provide useful scaffolding and reference points upon which future *uriuri manako* can be held as conceptualisations of SD evolve. The framework could also serve as a useful starting point to engage Mangaiaian students in discussion and *uriuri manako* (debate) about SD on Mangaia. The framework is illustrated in Figure 4 below.

⁹⁹ People were eager to participate in *uriuri manako* and provide their perspective on development on Mangaia including the importance of culture. In discussing the framework with Mangaiaians, there was extensive debate about which Mangaiaian words might be used. Words that were considered Cook Islands Maori were rejected in favour of Mangaiaian words. Frequently, participants would track me down days later to tell me they had further new ideas and yet another *uriuri manako* would start. Everybody I spoke to was interested in the framework. There was an openness to discuss and a humbleness to defer to others with specific knowledge. People who made major contributions to the framework are mentioned in the acknowledgments.

The framework is now described in general and then in more detail throughout sections 6.4 to 6.10.

Oraanga Mangaia, sitting at the centre, means life on Mangaia and Mangaian livelihoods bound in cultural practice. *Oraanga Mangaia* consists of three dimensions that parallel the economic, environmental and social dimensions of SD. These three dimensions, interacting holistically, provide traditional resilience, described more fully in in section 6.5, have allowed Mangaians to survive successfully on a small, ecologically fragile island for hundreds of years. They are the essence of Mangaian sustainability and are described briefly below.

- ***Akonoanga enua***, described more fully in 6.4.1, captures Mangaians relationship with the environment through their sustainable utilisation of resources from the land and sea for food and shelter.
- ***Aroa taeake***, described more fully in 6.4.2, captures economic exchange methods through the gifting and sharing of resources amongst family, *tapere, puna*, and the Mangaian community. It sits alongside local, national and global economic markets.
- ***Te ipukarea ia rangarangatu***, described more fully in 6.4.3, incorporates societal interactions and values. It is the essence, pride, knowledge and wisdom of Mangaians in terms of their belief systems, epistemologies, traditions, customs, culture and language.

The ***maro-itiki***, a key art form for Mangaians¹⁰⁰, is used to delineate the interplay of indigenous and western knowledge, ideology and technology in a hopeful post-development framework. The *maro-itiki* depicts the strength of two historical Mangaian warrior brothers who fought against their enemies tied back to back with rope. The analogy used is; Mangaians are constantly thinking critically, both internally and externally, to improve their lives. Internally to draw on the strength of their culture. Externally to evaluate the worthiness of western ideology and technology when put up against Mangaian values and *oraanga Mangaia*. Decisions on what western knowledge and technology should be assimilated, modified or rejected are then made. A more detailed explanation of the theory behind what Aikenhead (1997) terms “cultural border crossings” (p. 217) are made in 8.5 in the context of an EasSD pedagogy.

¹⁰⁰ The maro-itiki is used extensively in art works and tattoos and is widely recognised across the Cook Islands as a Mangaian design.

In the context of Mangaia SD figure 4 illustrates examples of where these border crossings occur at the nexus between indigenous and western culture, across the different dimensions of sustainability. Dimensions that interact holistically to create a unique Mangaian conceptualisation of SD.

For example, the bottom left side of the diagram illustrates the relationship between *akonoanga enua* and the **environmental dimension of SD**. The *Te Toki Purepure a Mangaia* (Mangaian adze) represents Mangaians grappling with the changing nature of their relationship with the environment through both indigenous and western lenses and at both local ecosystem and global biosphere levels. This relationship between *akonoanga enua* and the environment is described more fully in section 6.10.

The top of the diagram illustrates the relationship between *taeake aroa* and the **economic dimension of SD**. The *Te Toki Purepure a Mangaia* represents Mangaians, embedded and secure in the resilience of *oraanga Mangaia*, reaching outwards to explore economic development options that arise via tourism, agriculture, small business, MIRAB, a strong domestic economy, contact with diaspora and export markets. This relationship between *aroa taeake* and the economy is described more fully in section 6.6, 6.7, 6.8 and 6.9.

The bottom right side of the diagram illustrates the relationship between *Te ipukarea ia rangaranga* and the **social dimension of SD**. The *Te Toki Purepure a Mangaia* illustrates Mangaians making sense of changing social relationships and patterns the result of westernisation. Government services now sit alongside traditional societal support networks. Health and education policy affects Mangaian livelihoods, health and well-being. Gender equity issues challenge societal norms. Mangaian diaspora participate in and influence *Te ipukarea ia rangaranga* from a distance, as technology allows a virtual Mangaia to emerge on social media. Threats to Mangaian culture through individualism, hyperreality, materialism, the myths of modernity, income inequality and talk of land titling all challenge existing Mangaian values.

Three of the goals of Mangaian SD, illustrated on the diagram, that contribute to holistic sustainability are:

Oraanga tau ua. The need to ensure economic development initiatives and activities are environmentally sensible.

Oraanga tano. The need to ensure people’s activities enhance, not harm, the environment and lead to a state of liveability.

Oraanga tika. The need to ensure people’s economic activity results in income equity.

The various aspects of Manganian SD are now explained in detail.

6.4 ***Oraanga Mangania: The heart of SD on Mangania***

The following two Manganian quote given to me by Inangaro Papatua, a *ta’unga*, provide insight into why *oraanga Mangania* sits at the heart of SD for Manganians:

Kimi i te oraanga meitaki/matutu/rangarangatu no te Mangania

Inangaro Papatua

Kimi i te oraanga means the desire to seek out and live a happy, contented, socially just life, in harmony with nature. *Meitaki* refers to a balanced, satisfying lifestyle. *Matutu* means rich in resources¹⁰¹. *Rangarangatu*¹⁰² means commanding respect and loyalty through knowledge and wisdom. People with *rangarangatu* are recognised as good citizens thinking of others before themselves. Their loving family reflects their efforts. They are renowned for their ability to contribute to the work of the village, *puna*, church and Manganian community overall.

People exhibiting *rangarangatu* in meeting their own needs would consider the impact of their actions on other Manganians, the environment and culture, now and in the future. In Manganian, this is referred to as:

Akono akaperepere ma te taporoporo i te ipukarea.

Tom Te-oi Webb, a Manganian living in Wanganui, explained it to me like this:

Akono (look after) *akaperepere* (carefully the way Jesus looks after us) *ma te taporoporo* (don’t abuse it, preserve it, take just what you need) *i te ipukarea* (your customs including religion, culture, language, ways of living, sharing obligations, land tenure rules and surrounding nature).

Tom Te-oi Webb

¹⁰¹ Resources refer to food and materials gathered or harvested from the enua (land and sea). Today money is also considered a resource.

¹⁰²The term is analogous to the Maori New Zealand term *mana*. In terms of Roman culture, it has rudiments of gravitas, pietas, dignitas and virtus.

The aim being to live in harmony with people and nature, sharing so that everybody has enough resources. Adams (2001) and Sachs (1997) both describe how many indigenous peoples view environmental resources not as capital to be exploited but part of nature to be shared, preserved and respected. In addition, culture and cultural practices, passed down through generations and containing the wisdom of ancestors should be respected and preserved.

6.4.1 Akonoanga enua

*Akonoanga enua*¹⁰³ refers to the skills and knowledge of utilising land and sea resources to provide food and shelter¹⁰⁴. It requires the wisdom to apply the correct skills and knowledge to achieve specific goals but also an ability to reshape old knowledge into new knowledge in response to new challenges. Moekapiti, a *ta'unga* and the Maori teacher at Mangaia School, explains:

Kia akatanotano ia rai e kia ravera te kite o to tatou ui tupuna kia riro rai ei apiuanga ia tatou i teia ra. Kia taangaanga ia tei reira kite taito.

Old indigenous knowledge can be reshaped and synthesised so it can be made use of today.

Moekapiti Tangatakino

Akonoanga enua remains the core livelihood strategy for most Mangaiaans and in the process strengthens Mangaian culture and identity. *Rau* are used to support *akonoanga enua*. *Rau* are sets of rules, decided upon each year by the *aronga mana*, that restrict food harvesting in designated land, reef or sea areas for specific periods of time; the strategy being to ensure continuity of food supply on an island with limited resources.

¹⁰³ Hereafter referred to as *akonoanga enua* only.

¹⁰⁴ Multiple skills are required:

- *Tanutanu* (planting) *mamio* (taro), *manioto* (arrowroot), and koka (bananas);
- Pui puaka e te kimi uga (hunting wild pigs and land crabs);
- Kakaro I te puaka i te puanio I te moa (tending pigs, goats and chickens);
- Takoekoe I runga I te akau (fishing);
- Kimi akari (collecting and husking coconuts);
- Tunamanga (cooking) including preparing an *umu*;
- *Ropa* are (building houses, cooking houses, shelters, fences and pigpens) to provide shelter;
- *Ropa kete* (making baskets), *tuitui* (sewing), *toitoi toki* (carving adzes), *Ropa tia ko'atu* (making stone necklaces), *ropa ei* (making ei), *ropa pare* (making hats).

6.4.2 Aroa taeake

Aroa taeake includes both non-monetary and monetary family and community sharing and gifting and exists as a Manganian alternative to the market economy. Here I use *aroa taeake* as an overarching term, describing both formal and non-formal sharing and gifting. At its purest, it includes the concept of giving with love without any expectation of something in return. Nina Webb, a Manganian living in Whanganui, described it to me as:

Aroa taeake e te oranga atu ki tetai apinga tuke tuke ki tetai tangata uatu ma te ngakau tae.

Giving with all your heart and soul with no expectation of return.

Nina Tangitamaine Webb

A person who exhibits these characteristics is highly respected and described as:

Tangata meitaki e te aroa/oraanga ma te ngakau tae.

A loving giving person.

Nina Tangitamaine Webb

Akonoanga kopu tangata (meeting family obligations) through both non-monetary and monetary gifting and sharing is part of *aroa taeake*. Commonly, fish, *mamio* and other foodstuffs are gifted along with craft such as hats and *ei's*. Labour may also be provided free for building projects or helping in the *kainga* (taro garden). Alternatively, money, to pay for food, study, airfares or buying clothes and other necessities is gifted to extended family members with no expectation of repayment.

Bartering and exchange act as intermediaries between *aroa taeake* and the market economy. No money changes hands but some obligation in terms of an immediate exchange, or more usually, an expected return in the future, occurs. For example, taro is given to a family with some anticipation that fish are provided the next time someone goes out fishing. A utility vehicle is borrowed and some taro given with its return. Labour is provided to help with a building project on the understanding that the reverse will apply when required.

In addition, *aroa taeake* provides a mechanism for those with money and those without to contribute equally to a village project. When preparing a taro patch for planting, the income earner buys the petrol for the truck and weed eater while other extended family members carry out the labour. For church functions, income earners provide the money to buy corned beef, while non-income earners provide taro from their gardens. Each person

contributes what he or she can to the task. Unlike economic markets, *aroa taeake* ensures distributive equity or a net movement of resources to the less well off.

Although market and non-market economic systems usually complement each other, tensions can arise. A participant explains:

Sometimes it frustrates me when my husband gives all the fish he has caught away. We pay for petrol to go trawling so not only do we not have fish but we're also out of pocket due to paying for the petrol. I console myself by remembering it is the Manganian way and the bible says it is better to give than receive.

Participant 28: Community member

Tangimokopuna, a *rangatira*, explains how he distinguishes between *aroa taeake* and the business of selling mamio:

I could easily sell taro on Mangaia but I do not. I have my own rule that I will not accept any money from Manganians for taro. It goes against our culture. However I do sell some taro overseas. On Mangaia it gives me great satisfaction to give taro away and it is the right thing to do.

Tangimokopuna George

6.4.3 Te Ipukarea ia rangarangatū

Te ipukarea ia rangarangatū is analogous to the Cook Islands term *Te Ipukarea Kia Rangatira*, which is described by Herrmann, Pate, Raea, Terangi & Cochrane (2010) as the “belief systems, epistemologies, traditions, customs, culture and language” (p. 155) of the Cook Islands. It consists of many parts. *Akapapaanga* (genealogy) provides Manganians with the connection to their ancestors and the past and to extended *kopu tangata* (family) links. *Akarongo kirititiano* (Christianity) provides Manganian people with their faith but also serves to unite people through a common purpose. Many of the social events bringing Manganians together are church based. *Te au peū enua* (culture) in the form of dance, singing, storytelling and craft making reinforces Manganian knowledge and traditions. The combination of *Te au peū enua* and *reo Mangaia* (Manganian language) strengthens identity and social cohesion.

Social structures on Mangaia are integral to the strength and maintenance of *Te Ipukarea ia rangarangatū*. Community decision making and sharing of food and land resources are done through the *aronga mana*, *kavana* (*pava*) and *ui rangatira*. *Tapere* and *puna* ensure a division of

land and resources that is fair and equitable. Traditionally the *takurua mataiti*¹⁰⁵, held in January, allowed the *kavana* and *ni rangatira* to check whether each family produced sufficient food to support itself and be able to discharge obligations to *tapere* and *puna* events. Nowadays, the event is more ceremonial and participation from some families has waned. Taoi Nooroa, a *rangatira*, argues the *takurua mataiti* is of continuing relevance, reinforcing the importance of traditional livelihoods in providing resilience.

6.4.4 Summary

What has been described in 6.4 is a traditional Manganian response to SD:

Kimi i te oraanga meitaki /matutu/ rangarangatu no te Mangaia e te akono akaperepere ma te taporoporo i te ipukarea.

From this point on in the thesis the overarching term *oraanga Mangaia* will be used to describe Manganian traditional livelihoods that are the foundation of SD on Mangaia. When envisioning *oraanga Mangaia* throughout the remainder of the thesis it is important to visualise livelihoods that are a holistic combination of *akonoanga enua* and *aroa taeake* embedded in *te ipukarea ia rangarangatu*, refer back to 6.4 if necessary.

6.5 Oraanga Mangaia: The foundation of Manganian resilience

Manganians still consider *akonoanga enua* the key to resilience and fundamental to ongoing sustainable livelihoods. Ngametua explains how a lack of income is overcome by a return to traditional ways:

We teach our children to go inland (to plant) and fish so if they do not have work then they can still live well.

He describes the process:

Kua akameitaki ia te turanga kia matutu akaou ma te kore e kaimoumou ia te pakari o te kite puapinga.

You are able to return to the old (Manganian) ways using the knowledge and wisdom of the ancestors.

Rauka ia koe i te rave noou rai ma te kore tetai i tauturu ia koe.

You are able to survive without any help.

¹⁰⁵ Village feast.

Ngametua Toko (Ta'unga)

Akonoanga enua links and combines with *aroa taeake*, staying embedded in *Te ipukarea ia rangarangatu*; it provides the foundation for Mंगाians' resilience, creating a buffer against challenging global economic and financial conditions. This pursuit of traditional livelihoods not only provides resilience but also engenders happiness; it is a key reason many Mंगाians stay on Mंगाia and an increasing number of expatriate Mंगाians are returning home, as noted below:

On Mंगाia I am my own boss. I decide what I do each day, go fishing or planting or helping people in the village. It is satisfying growing your own food rather than working from 9a.m. to 5.30p.m in Auckland with an hour's travel each way on the bus only to end up with little money saved after paying all the bills.

Ngametua Toko

Again, another Mंगाian explains:

I worked in a factory in Auckland but spent most of my money on rent, food and the bus fare to work. For a while, I wasted money on smoking and drinking too. I'm actually better off here. I only need enough money to pay the telephone, power and petrol for my bike. Life here is happier, less stressful and more rewarding.

Participant 26: Community member

Mंगाians admire and respect those who engage in *oraanga Mंगाia* and stay true to Mंगाian values and culture. Such people use problem solving skills and demonstrate a stubbornness to survive which sits at the core of Mंगाian resilience. Ngametua Toko, a *ta'unga*, explained by jokingly using my name:

Tangata maroiroi a Paul i te angaanga i te kimi ravenga anga ia ora aia e tona kopu tangata

Paul is a hardworking (physically strong and mentally tough) man, finding ways (thinking and problem solving) to support his family, *tapere* and *puna*.

Ngametua Toko

Ngametua then described the three key characteristics of resilient people. They possess:

Maroiroi = display physical and mental strength and the determination and perseverance to ensure tasks are completed.

Kimi ravenga = problem solving, by thinking critically, to survive.

Akatamanako = possessing the necessary knowledge and skills to survive.

Ngametua Toko

Peter Ngatokorua, a *ta'unga* of Oneroa, explains:

To live on an unforgiving rocky island, like Mangaia, you have to be knowledgeable, skillful and tough. Our Mangaian ancestors were always thinking, hardworking and resourceful in developing solutions to survive and the Mangaians of today still value these attributes.

Peter Ngatokorua

In proposing a Mangaian ESD pedagogy, in chapter 8, I draw on this discussion about *kimi ravenga*. Problem solving and critical thinking are fundamental to *oraanga Mangaia*, and a key reason why Mangaians remain resilient in the face of economically, and financially challenging times.

6.6 The economy and sustainable development

6.6.1 Introduction

Today, Mangaians desire some form of income to complement *akonoanga enua*. Collapsed export markets in the eighties¹⁰⁶, public service cuts in the nineties, and the availability of relatively well paid jobs in NZ have resulted in a declining population, as Mangaians go overseas to secure an income (see figure 3).

Mangaians believe agriculture, tourism and small business based on craft, are the key to Mangaian economic development, and halting migration, on Mangaia (Te au Puna o Mangaia, 2014). Teremoana Atariki, Mayor of Mangaia explains:

The best hope for economic development on Mangaia is some combination of agriculture, tourism and small craft type business. These areas would support each other. Agriculture can help feed the tourists. Mangaian craft and culture helps make tourist experiences real and memorable. Tourism in turn can provide a market for agricultural produce and local craft.

Teremoana Atariki

Mangaians realise that youth currently lack the opportunity, skills and confidence to develop their own businesses on Mangaia and so a focus of the 2014 Mangaian development plan, produced by Mangaians is to upskill the youth to be in a position to take advantage of these economic opportunities (Te au Puna o Mangaia, 2014).

¹⁰⁶ Most significantly the collapse of the pineapple market.

6.6.2 Agriculture on Mangaia

As described in section 5.8, early economic development on Mangaia was dominated by agricultural export. However, with New Zealand's decision to deregulate in 1984, previously protected markets for pineapple, oranges and vegetables collapsed (Fleming, 1996; Johnston & Frengley, 1991). Other ventures failed to establish, including coffee, vanilla, nonu juice and forestry. Even ostrich farming and taro export have fallen away (Mangaia Island Administration, 2009b). Diseconomies of scale, prohibitive transportation costs to markets, and low wage competition in South East Asia and South America have worked against agricultural export on Mangaia (Fleming, 1996)¹⁰⁷.

Despite these barriers, the low cost of planting and the availability of zero capital cost, family owned land, makes agriculture seem attractive to some. Many Mangaians though, remain suspicious of government and aid agency commitment to revive agriculture.

Ideas for agricultural projects from outsiders come and go here; there is usually a lot of talk that leads to nothing. Foreigners have no commitment to Mangaia.

Participant 30: Community member

The 2010 government proposed a \$3.5 million *Te One Kura* agriculture revival project for the southern islands, including Mangaia, is a case in point. The intention was to supply Rarotonga with fresh fruit and vegetables. The planned benefits were to be strengthened export economies on *pa enua* and an improved balance of payments for the Cook Islands as a result of encouraging import substitution (Greig, 2010). The project never even started¹⁰⁸.

¹⁰⁷ Fleming (1996) states that both production and marketing factors need addressing if agricultural export is to be successful in the Pacific Islands. Production factors include technical and physical factors, quality control, costs of production, modes of production, land tenure and related social factors. Marketing factors include market access and quarantine regulations, product attributes, product-cycle management, product range and new product development, economics of processing, product quality, marketing margins, price instability, and promotion (Fleming, 1996, p. xii).

¹⁰⁸ Elections in late 2010 resulted in a change of government. In the 2011 budget, there was no money set aside for the proposed *Te One Kura* agriculture project. In response to this the Honorable Mangaian Member of Parliament Winton Pickering was reported in the Cook Islands Herald on the 27th July 2011 as saying "people in Mangaia had given up" (Cook Islands Herald, 2011) on promises of economic development assistance.

Furthermore, internal transport has always been unreliable and costly in the Cook Islands (Syed & Mataio, 1993). The Mंगाians I spoke with are very aware of these continuing barriers to agricultural export. Miria Ruatōe, a market gardener, stated:

How could I export cabbages even though people say they are the best cabbages in the Cook Islands. The plane freight is \$3 a kilo and the boat is \$425 a tonne. By the time I pay the freight there would not be any profit left.

Miria Ruatōe

Agriculture must be small scale as there are simply not enough workers on Mंगाia. Perhaps families could form a cooperative style arrangement to boost supply and help overcome transport and market access barriers. This approach fits with our culture of helping each other. We also need to focus on non perishable crops as reliable transport for export cannot be relied on.

Teuanuku Koroa (Agriculture officer)

Commercial fishing is another option helped by the recent redevelopment of the harbour as part of a Pacific Adaptation to Climate Change (PACC) project (Komai, 2013), and Japanese funded upgrade of the Mंगाia Fishing Association building (Embassy of Japan, 2013). Ngametua Tangatakino from the Mंगाia Fishing Association explains:

Currently only nine people go trawling for tuna and with demand so great, we cannot even supply the domestic market. Last year we started tuna trawling workshops and fifteen youth were interested.

Ngametua Tangatakino (Fisheries officer)

However, any agricultural projects would need to align to people's desire to grow their own food by participating in *oraanga Mंगाia*:

People here value a balanced lifestyle. They like to plant, fish, and help their friends and family. They know they can depend on *akonoanga enua* to feed their families. Someone exporting taro would have to produce surplus on top of that which feeds their family and contributes to village, puna and church functions.

Angaanga ou kia tano i te akonoanga enua

Any commercial business would need to complement the Mंगाian lifestyle.

Participant 75: Community member

Agricultural initiatives must also align to culture norms. In the 1950s, Mंगाians refused to accept a citrus replanting scheme because of demands to title land which was at odds with Mंगाians land tenure customs (Allen, 1969).

Agriculture: The future

In response to failed externally conceived agricultural projects, that do not align to Manganian culture, Manganians are demanding their own agricultural projects (Te au Puna o Mangania, 2014). Vanilla is one example of a locally conceived, grassroots, participatory agricultural development project on Mangania. This example will now be presented.

The case of vanilla: A Manganian community economic development initiative

During my first research period, in August 2011, Ongoua Toko, a Manganian Church Minister, had invited George Maruae¹⁰⁹, a Tahitian vanilla grower, and friend, to explore the potential for a vanilla industry on Mangania. At a packed Manganian community meeting Maruae guaranteed he would buy all vanilla produced at a high fixed price¹¹⁰. Vanilla is almost the perfect agricultural export crop for Mangania. Ongoua outlined the following advantages:

- Vanilla grows well on Mangania with great soil and a climate perfect for stimulating blossom;
- Growing vanilla complements *oraanga Mangania* as it requires little labour, apart from at pollinating time;
- The work is light so the whole family can help;
- Vanilla plants can be grown on people's own land and around their houses not threatening Manganian land tenure customs;
- Dried vanilla beans are non-perishable; an advantage on an isolated island;
- *Tanutanu* (planting) skills allow Manganians to construct vanilla plantations using materials from the bush. Set up costs are kept at a minimum, making it unnecessary to secure financial capital. The vines grow on sticks cut from the bush. Raised beds made from bamboo cut from the bush are filled with compost, fertilising the vanilla. The vanilla plants are propagated under the leaves of existing banana plantations that substitute for expensive shade cloth;

¹⁰⁹ Maruae's family business specialises in naturally dried vanilla (Vanilla MaTahiti, 2011). In this niche, market demand currently far exceeds supply.

¹¹⁰ Independently Max Taerea, another vanilla grower from Tahiti, outlined how demand from Australia, United States of America and New Zealand meant "Tahitian growers cannot keep up with the demand from these markets and that is why members of his organisation are travelling to other countries to promote this product" (Cook Islands News, 2010).

- Value can be added by drying the beans;
- World demand for dried vanilla beans currently exceeds supply and is likely to remain so.

Minister Ongoua Toko
Chairperson of the Mangaia Vanilla Growers Association

The risks to vanilla export are mainly external. A drop in global demand or oversupply would reduce world vanilla prices. The reliance on a single buyer creates demand risk. Problems with the regulatory and quarantine framework surrounding vanilla export need to be addressed with the Cook Islands Government (Island Business, 2011; Radio New Zealand International, 2011).

On Mangaia, the MIA has worked in partnership with the vanilla growers from the beginning.

A partnership has developed between the Vanilla Growers Association, who lead the project, the Aronga Mana, the Island Council and MIA who support the project for the good of everyone on Mangaia. We assist the growers to cut and then transport the vanilla cuttings from the bush to people's homes¹¹¹.

Teuanuku Koroa (Agriculture officer)

Vanilla provides an example of the competitive advantage that Mangaia possess in being able to tap into the knowledge, skills and technology from both *oraanga Mangaia* and the western world. These endogenous development initiatives, complementing *oraanga Mangaia* and tapping into underlying motivation may prove to be the answer to development on Mangaia.

6.6.3 Tourism on Mangaia

Mangaia believe niche tourism offers another avenue for economic development whilst complementing *oraanga Mangaia*.

We have drafted a tourism plan for thirty tourists a week that would create jobs. These numbers will not harm the environment, upset our culture or interfere with *oraanga Mangaia*. We need to develop our own marketing campaign in Rarotonga and improve the links between the tourists and the tourism operators on Mangaia.

Taoi Nooroa (Tourism officer)

¹¹¹ The agriculture workers have been trained by experts to cut the vanilla.

With current accommodation underutilised¹¹² and Air Rarotonga flying to Mangaia three times a week the scope for increased tourism exists. Small-scale tourism operators already exist, offering cave tours, round island scenic tours, fishing charters and chances to get involved in local culture. These have the capacity to increase their operations. However, Mangaia's reliance on the national tourism authority to promote Mangaia, concerns some tourist operators:

We need someone on Rarotonga to help us promote Mangaia.

Tuara Tuara (Tourism operator)

The problem is the Cook Islands are marketed as Rarotonga and Aitutaki. Most tourists do not even know Mangaia exists. I advertise myself, piggy backing off overseas travel agents.

Babe Pokino (Hotel owner)

The extra cost of flying, about \$450 return from Rarotonga to Mangaia acts as a disincentive in attracting tourists from New Zealand and Australia.

New Zealanders wanting a cheap holiday will not pay the extra money to get to Mangaia.

Jan Kristensson (Hotel owner)

Poor infrastructure, unreliable water supply, poor roading, basic medical facilities, an absence of restaurants and a restricted nightlife would also discourage some tourists.

Tourism: The potential

However, perceived disadvantages can be turned into advantages. I interviewed two tourists:

I have been travelling the Pacific for three months and this is what I have been looking for. The scenery is so different with the cliffs and the pinnacles. It is beautiful. It is so easy to interact with the friendly locals and see how they live their lives. Mangaia provides something unique. I love it here. I wish I were staying longer.

Participant 101: German Tourist

¹¹² An old building was converted into a backpacker hostel. Two other hotels offer accommodation on either side of the island. With the building of the more upmarket Mangaia Villas in 2010, there is now a variety of accommodation to suit all tastes and budgets.

When we landed, we were surprised the place seemed so quiet and we wondered what we would do for a week. Now, as we are about to leave, we are going to run out of time trying to see everything we want to. Everyone is so friendly. Mangaia feels like a real island experience when compared to Rarotonga.

Gordon Bishop (New Zealand tourist)

The tourist operators I spoke to affirm the tourists' comments.

Tourists to Mangaia are looking for something different than lying on beaches. They love the caves, the cross island walk and the history of the island. They love meeting with the people and sharing our culture. I think they appreciate how everyone here looks after each other. I have yet to meet a tourist who did not like Mangaia.

Tuara Tuara (Tourist operator)

Once people are on the island they love meeting the friendly locals.

Taoi Nooroa (Tourism officer)

Mangaia has the capacity to offer experiences that will attract the 'alternative tourist'. Some possibilities are outlined in table 3:

Table 3: Opportunities for Niche tourism

Ecotourism	<ul style="list-style-type: none"> • Whales are visible from July to October along the coast. Coconut crabs and bats can be seen at night time. • The endemic <i>Tanga'eo</i> (Mangaian kingfisher) along with other rare birds makes Mangaia “an important bird area” (Evans, 2012). • Tourists can see the unique geographical features of a raised coral atoll, including caves; dramatic cliff drops into inland valleys, stunning coral pinnacle formations and small ecologically complex reef systems. • Participation in conservation projects, for example, the Seacology¹¹³ funded Lake Tiriara protection project (A. Tuara, 2007). • Participant 8: A community member commented: Atiu has successfully focused on ecotourism¹¹⁴. We can do the same here on Mangaia.
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¹¹³ Seacology is “an international environmental non-profit organisation that focuses on saving endangered species, habitats and cultures of islands throughout the world”(Seacology, 2011).

¹¹⁴ “Beyond Rarotonga, Atiu, a young island in tourism terms, is shaping up to be the first dedicated eco-island and a test case for the rest of the Cook Islands. As well as its nature-based offerings, such as caving, birdwatching and hiking tours, there are plans for eco-lodges, bird sanctuaries (also on Aitutaki), renewable energy (solar and wind farms) and composting public toilets (to solve waste and water problems). The island's moves to sustainability will be promoted to educate locals and visitors” (Southerden, 2011).

Cultural tourism	<ul style="list-style-type: none"> • Manganians enjoy sharing craft knowledge; for example, tapa making, basket making, <i>tivaevae</i> sewing and tie dying <i>paraus</i>. A successful tapa making tour¹¹⁵ coincided with a tapa making renaissance on Mangaia¹¹⁶. • Tourists can go fishing, planting, help prepare an <i>umu</i> or observe carvers at work.
History tourism	<ul style="list-style-type: none"> • Taoi Nooroa (Tourism officer) explains: We have just signposted the island. There are directions to, and explanations about, all the historical sites (including marae, the sites of old battles, burial sites, churches and a shipwreck) and walks available. We have guides available who can explain the legends and stories of Mangaia. • Tangimama Vavia (Tourism officer) explains: The former colonial resident agent's residence has been converted into a museum for both Manganians and tourists.
Special interest tourism	<ul style="list-style-type: none"> • Tuara Tuara (Caving tour operator) suggested: We could attract New Zealand caving clubs to come over and explore our unique caves, while also experiencing the culture and beauty of Mangaia.” • Previously Tuara Tuara¹¹⁷ arranged for a group of Southland farmers to come and hunt wild pigs. He explains: They came to shoot pigs but loved the people and the culture too.
Research tourism	<ul style="list-style-type: none"> • Participant 8: A community member stated: Researchers¹¹⁸ can study in a safe, friendly place. Manganians benefit financially but also gain knowledge about their own unique island.

Mangaia's hosting of the 2010 total solar eclipse event demonstrates Manganians ability to deliver economically successful tourism whilst enhancing Mangaian culture. Rachel Reeves, A Cook Islands News journalist, reports:

¹¹⁵ The 2010 tapa tour cost \$NZ825.00 which included return flights from Rarotonga to Mangaia and 2 nights' accommodation. Participants made their own tapa in the traditional manner, participating in the whole process right from stripping of the bark from the *ava* tree to the completion of the tapa. A cave tour, island feast and dance show was also included (Destination Management Cook Islands, 2010).

¹¹⁶ Subsequently a tapa was made and sold to Te Papa, in Wellington, New Zealand. It featured in a tapa exhibition display at Te Papa in 2010 (Museum of New Zealand Te Papa Tongarewa, 2010).

¹¹⁷ He made contacts during his time working in the freezing works in Invercargill, New Zealand.

¹¹⁸ Archaeologists are currently carrying out long-term research on *Human-Environment Interactions in Mangaia*. The principal objective of the project is to study the dynamic interactions between a Polynesian population and their island ecosystem over a several thousand-year period (Kirch, 1996, 1997, 2007).

The Mangaian community banded together to feed, shelter and entertain over 400 eclipse-chasers, nearly 2/3 of the island's population. They re-painted buildings, upped production of pupu shell necklaces and hand-woven bags and delegated cooking responsibilities among themselves. Tourists arrived to neatly made-up bunks, hot showers, sunshine and a warm island welcome.

(Reeves, 2010)

Visitors were hosted in permanent tourist accommodation, church halls, *puna* meeting houses and the school. Visitors were provided with a rich and authentic island experience including traditional dancing, feasting and most importantly *ārikianga* (Mangaian hospitality). Mangaian benefited financially but also through a reinvigoration of Mangaian culture. Periki Poila, Assembly of God, Minister explains:

The church provided accommodation and meals for the visitors. The money made was used to buy new furniture for the church. The tourists loved the umu and dancing. These visits improve our culture as the youth had to learn the traditional dances and stories used in the show.

Periki Poila

These examples of niche tourism suggest an innovative tourism strategy that focuses on Mangaia's strengths; its people, culture and unique environment might not only succeed economically but culturally as well:

Tourism can work if we targets tourists who want a different experience from the one they experience on Rarotonga.

Tuara Tuara (Tourism operator)

The types of tourist that we want to come to Mangaia are people interested in nature and our culture.

Clarke Mautairi (Tourism operator)

Mangaian have the cultural, historical and environmental knowledge that tourists are interested in. Mangaian, as the custodians of Mangaian culture, can determine what knowledge they are prepared to share (Te au Puna o Mangaia, 2014).

However, a successful tourism industry requires more than just cultural knowledge and a passion to share and display *oraanga Mangaia* to outsiders. Mangaian must also gain the business skills necessary to set up, market and run tourism based ventures. In addition, they must develop the skills to relate to tourists and understand what tourists want. The current place-based tourism class at Mangaia School attempts to do just this. In chapter seven, I argue tourism studies are an important component of ESD on Mangaia.

6.6.4 Small Business Ventures on Mangaia

Having examined small business focused on agriculture and tourism, I now explore *Kimianga puapinga no te ipukarea* (small business based on culture). Most businesses are small and part of a favoured multiple livelihood strategy. Many have started from an interest in culture rather than a desire to make money. Some craft are sold locally; some are marketed and sold through the Te Marae Kapeu Tara shop¹¹⁹ on Rarotonga. Other craft are made to order for expatriate Mangaian.

The following *uriuri manako* (discussion) with Mangaian business owners reveal their business journeys¹²⁰.

Maire

*Maire*¹²¹ *ei* are decorative necklaces made from the leaves of the *maire* vine. They are in big demand in Hawaii as fragrant *ei*'s worn to weddings, graduations and other special events. The Karena family owned *maire* business on Mangaia makes around 100 *ei*'s each week, which are then air freighted to Hawaii. At a price of \$10 per *ei*, this provides significant income. Collecting the *maire* from the sharp pinnacles on the *makatea* is difficult work. The couple pick some *maire* themselves, contracting pickers from other villagers to fill the quota. The Karena's work hard to meet quota, recognising customer satisfaction is crucial to the running of a successful business.

Occasionally the Karena family are asked, at short notice, to provide *ei*'s for functions in Rarotonga. Experience has taught them to ask for a higher price for *ei*'s requested at short notice. They believe this is fair, as they must make extra effort to meet the deadline.

Nootai, reflecting on her family business, stated:

We are currently renegotiating the selling price for *maire* as we provide a quality product based on a lot of hard work. Over the years, we have learnt a lot about the market and final price determination. We check that all *maire* look good and are fresh before being exported. Quality control is extremely important in maintaining the reputation of our business.

¹¹⁹ *Te Marae Kapeu Tara* is a Mangaian craft shop at the Punanga Nui Markets on Rarotonga. Craft have also been sold at a Mangaia Trade Stand at the annual Pasifika festival in Auckland in 2010.

¹²⁰ Further examples of small business ventures connected to culture are outlined in appendix 10.

¹²¹ *Alyxia stellata* is a climbing plant.

We still enjoy the work but are getting older. Hopefully, some of the youth would like to share the business with a plan to take it over someday.

Nootai Karena

Ei pupu

*Ei pupu*¹²² is a traditional Manganian necklace given as a gift for departing family, friends and dignitaries. They are also used to decorate dancing costumes and church hats and are in high demand. Prices are cheaper for locals selling at \$70 a dozen compared to \$100 on Rarotonga. The *ei* makers work individually but often collect the *ei pupu* shells together. They collaborate on price, ensuring no one undercuts anyone else. *Ei*'s are usually made to order and frequently producers find it difficult to keep up with demand. Tamaine told me they were considering raising their price as the demand was high but they had yet to make a final decision. They felt a price increase was justified based on the amount of work that goes into making *ei*'s yet it was also important to them that they were not seen as *noinoi apinga* (greedy).

A lot of time and work goes into producing a single *ei pupu*. Therefore, at \$100 a dozen our hourly rate is very low. Manganian *ei pupu* are popular throughout the Cook Islands, everyone wants one.

Tamaine Teaurima

Laptop bags, backpacks and bible covers

Nancy Moeauri first learnt to make pandanus baskets from her mother. By experimenting, she has expanded into pandanus laptop bags, backpacks and bible covers with *tapa* added for decoration. They have become very popular with Manganians.

I enjoy making the bags and can make one laptop bag a day. I make to order but usually have some spares. Manganians buy them as gifts, especially those returning to New Zealand after Christmas. I sell them for \$50 to locals and for \$80 to Rarotongan's and tourists. I cannot keep up with the demand. A Rarotongan told me I sell them too cheaply but I would have to think

¹²² *Ei pupu* are made by collecting the very small pupu snail along the side of the road in the makatea. Pupu are easier to collect in the rain as they come to the surface. When it has not rained, it could take up to half a day to collect a margarine container full, which would make half a dozen *ei*. The *pupu* are boiled, the snail removed to leave the shell, a hole made in the shell and then the shells are threaded onto a string. The whole process is very time-consuming.

carefully before I increased the price because I do not want to be called *noinoi apinga* (greedy).

Nancy Moeauri

We went on to discuss the difference between public servants, whose salary is paid into a bank account, and Nancy's income that comes via cash sales.

People don't complain about government workers earning too much money I suppose because they can't see their money going into a bank. But with me people see how many bags I make and they can calculate how much money I make which can lead to gossip.

Nancy Moeauri

With so much work available, Nancy has contracted Moe, a recent school leaver to help her keep up with demand.

I like making the bags and can make most parts of the bags on my own. I am not sure what I'll do in the future. Maybe I will go overseas to look for a job but I would like to stay here on the island if I could.

Moe Atariki

With Nancy indicating she wanted a break from the business, I questioned Moe about her thoughts on taking over the business:

I would like to but firstly I would have to learn the skills to run my own business.

Moe Atariki

Market sellers

Other successful small businesses centre on food selling. I interviewed Rourumaruru who sells food at the market.

I make and sell a whole variety of food. I sell *tiroimi* (cooked taro) from taro I grow myself. I sell *paua* and *ungako*¹²³ which I collect on the reef. I also sell drinking coconuts. I bake and sell coconut rolls and banana cakes.

I come to the market but also sell food to order. At Christmas I am very busy as many Manganians from New Zealand come home for Christmas. I cater for the big *umukai* (feasts) that families put on for their relatives. When the New Zealand Manganians return home I get even more orders as families usually want to take some *tiroimi* back to relatives in New Zealand.

¹²³ *Paua* and *ungako* are shellfish that are found on the reef. They can be eaten raw or cooked.

Rourumarū Papatua

I asked Rourumarū if her schooling had helped her when she went into business.

I learnt how to make the cakes and coconut rolls in Home Economics from Mrs Vaiimene who was a good teacher. I think it is important to teach practical and financial skills at school through home economics, agriculture, craft and woodwork because it gives us ideas and the skills to help create a business.

Rourumarū Papatua

I spoke with Tangiteina Terepai who described how her family prepares and sells food for the market.

We work as a family to get ready for the market. The two boys fish for *tiotio*, collect *paua* on the reef, harvest taro and get drinking coconuts. My daughter helps me make the *tirome*, goat curry and raw fish. Sometimes we get orders, for say \$100 worth of *tiotio* (a reef fish) so the boys will go out and catch it. We also get food orders when there are haircutting ceremonies or birthdays. Some of the money the children earn helps feed the family and the rest they save themselves. It makes me happy when we work together as a family.

Tangiteina Terepai

Discussion

Small business connected to agriculture, tourism or Māngaia culture and craft offer opportunities for students to stay on Māngaia and earn an income. Students need not depend only on jobs in the dwindling public service. Many existing businesses operate in an environment where demand exceeds supply, so there is scope for expansion. These examples illustrate the point that small business success on Māngaia often links to *oraanga Māngaia* and Māngaia culture. By tapping into *oraanga Māngaia* and the resources of the *enua* (land and sea), most businesses have low or zero start-up costs thereby reducing financial risk. Many of these businesses are family run and are one of multiple livelihood strategies that families use to provide resilience.

With this in mind, I will argue in chapter 8 the benefits of teaching students the skills and knowledge of *oraanga Māngaia* alongside western economic, business and marketing knowledge in ESD programmes. Learning programmes that teach students the entrepreneurial skills that would allow them to fashion livelihoods that leverage of the strength of *oraanga Māngaia* and the many local business opportunities that exist would be beneficial.

6.6.5 MIRAB

MIRAB is often framed negatively in the Pacific as proof of Pacific Islander's dependency on the Global North. Here I draw on Bertram and Watters (1985) thinking, to view MIRAB positively as a deliberate livelihood strategy in which Mंगाians, in conjunction with *oraanga Mangaia*, “enjoy considerable managerial autonomy and are not dependent upon wage labour for their survival” (ibid, p. 511). Positive slants on using MIRAB to improve livelihoods are now described.

Migration and Remittances

The tradition of leaving Mangaia temporarily to work in New Zealand to earn enough money to buy household goods is a common livelihood strategy¹²⁴. Once the goal is achieved, there is a return to Mangaia and *oraanga Mangaia*. Tuara Tuara explains:

I am working in the Invercargill freezing works to earn money to complete my house. During the off-season, I return to Mangaia with building materials to complete my house. Currently we have just one room to sleep in. We have plans for three rooms, a lounge and kitchen but will build bit by bit when we get the money hopefully in 3 years time. Just now we cook over the fire and hand wash our clothes. Once the house is complete we will work one more year to get enough money for a new bike, oven and freezer. Then we will come back home and stay. My wife and I have no mortgage and so owe no money to anyone. We like it that way.

Tuara Tuara (seasonal freezing worker)

Remittances were once an important source of income for Cook Islanders. Bertram and Watters (1985) estimate that in 1982 “taken as a percentage of total imports gross remittance inflows accounted for 14%” (G. Bertram & Watters, 1985, p. 506). This equated to \$288 per migrant, per annum. Whereas in 2003 remittances to the Cook islands had dropped to 0.7% of GDP (Connell, 2015). Times have changed and there is more likely to be gift sharing than a direct repatriation of money home.

Remittances have slowed. Mंगाians now realise the burden on relatives in New Zealand. Of course, close relations like a mother and father are still sent money.

Nowadays, the New Zealand relatives bring gifts when they come back for Christmas. Flat screen TV's, washing machines, small engine parts, fishing equipment, household wares, sports gear, mobile phones and clothing are all

¹²⁴ For example household goods such as building supplies, white ware, furniture and motorbike.

brought. While they stay here over Christmas, they are fed and looked after and then when they go back they take Māngaiān craft and food. It is kind of like an exchange.

Participant 75: Community member

Many community members view modern remittance flows not as dependency or one way help but part of an equal partnership between Māngaiāns and New Zealand Māngaiāns.

Participant 32 explained it as follows:

Remittance flow as part of *taeake aroa* becomes a method for Māngaiān diaspora to recognise the pivotal role Māngaiāns living on Māngaiā have for the continued stewardship of Māngaiān culture, language and the land itself as the ancestral and spiritual home of all Māngaiāns.

Participant 32: Community member

The Keia hall project provides an illustration of the partnership approach taken with expatriate Māngaiāns. In 2012, a *tere* party (travelling group) of 12 had just returned from a trip to Australia and New Zealand to raise funds for the refurbishment of the hall. The group had hoped to raise \$45 000, instead they raised in excess of \$140 000. The expatriate Māngaiāns, commanding higher wages, provide the project funding and the local Māngaiāns provide the labour to complete the project. Māngaiāns view this as a partnership, not dependency.

Aid projects

The third aspect of MIRAB is AID. Aid funding supports Māngaiān development via budgetary support for government services and development projects. Indirectly it helps fund public service salaries. Māngaiān NGOs have also been successful in tapping into available funding pools. Two examples of recent NGO funded projects are:

- Seacology funded the building of a viewing platform at Lake Tiriāra, shown in plate 7, in return for the Veitatei puna signing a covenant protecting the lake and surrounding wetlands (A. Tuāra, 2007).

Plate 7: Lake Tiriara



Photograph courtesy of <http://www.cookislands.org.uk/>

- Keia puna, through the Mangaia Growers and Livestock Association, accessed funding from the Global Environment Fund Small Grants Programme for a Wetland Taro Irrigation Project (National Environment Service Tu'anga Taporoporo, 2010).

Given the increasing funding for climate change projects, accessing aid money is likely to remain an important development strategy for Mangaians in the medium term at least (Te au Puna o Mangaia, 2014).

Aid funding has typically been considered one way assistance from donor to recipient. I argue funding for conservation and climate change initiatives could instead be seen as a partnership between Mangaians and aid donors who share similar conservation goals. Mangaians, as custodians of the local environment, supply labour for conservation projects; aid donors in turn, commit financial and/or technical support. Mangaians benefit as ecosystem people and aid donors benefit as biosphere people in protecting the environment. An added economic benefit for Mangaians is the injection of money into the Mangaian economy through wages and the purchase of local goods and services.

Bureaucracy

The benefits of a large bureaucracy, in providing wages through public sector jobs, has diminished with aid driven demands for public financial management accountability and the downsizing of the public service (Okotai et al., 2011). Nevertheless, the public service

remains the key employer on Mangaia. In 2011, Statistics Cook Islands reported 168 people were employed out of a possible 413 over the age of fifteen. Two hundred and twenty were not economically active, leaving 24 unemployed (Ministry of Finance and Economic Management, 2011).

6.6.6 Economic disadvantage on Mangaia

Although economic development is a priority for Mangaians and the government, Mangaia's small size and relative isolation combine to constrain opportunities for economic growth. Factors such as dis-economies of scale and the increased freight and storage costs associated with supply from remote islands, are common challenges faced in Small Island Developing States (SIDS) like the Cook Islands (Briguglio, 1995; Duncan, Codippily, & Duituturaga, 2014). On Mangaia, I describe just two examples:

- Small populations reduce domestic demand making business startup difficult.

I planned to open a fish and chip shop on a Thursday and Friday night but there just is not the demand.

Participant 18: Community member

- High transport costs to market make export uncompetitive; for example, when the Mangaian pineapple industry collapsed once Mangaians had to compete in deregulated markets with cheap pineapples from the Philippines and South America as discussed in section 5.8.

Unreliable transport networks make it difficult for produce to reach market on time.

Mangaians become disillusioned with the pineapple industry after seeing their pineapples, the result of a lot of hard work, rot on the wharf. Vanilla beans, which are non perishable, are a better option.

Jim Marurai

Member of Parliament for Ivirua and former Prime
Minister of the Cook Islands

Is economic development possible on Mangaia and if so do notions of success need to be redefined? The next section addresses this question.

6.7 Building economic momentum

Economic momentum could be built through:

- A strong domestic economy leading to some export; and
- Import substitution.

A strong domestic economy leading to some export

Many small, diverse initiatives will build a stronger domestic economy creating economic opportunity. Jim Marurai stated:

Economic development is possible but we cannot put all our eggs in one basket. Instead we need to generate a variety of economic activity led by Mंगाians that are in harmony with our culture.

Jim Marurai

Although Mंगाians supplement their diet with imported foodstuffs,¹²⁵ most Mंगाians still prefer local, fresh food, creating domestic demand and corresponding small business opportunities.

Opportunities exist as a grower. Good opportunities exist to sell traditional foods like *mamio*, *manioto* and coconuts, especially at Christmas time when there is increased demand with expatriate Mंगाians returning home to holiday. Vegetables, like cabbages, tomatoes, green peppers and watermelons are also in high demand as people seek increasingly varied diets. Growers are often unable to satisfy the domestic market. Miria Ruatoe explained:

I cannot keep up with demand. Last week when I went to sell my produce at the shop there were 10-15 people waiting and within 5 minutes all of my tomatoes, cabbages and watermelons were sold.

Miria Ruatoe (Grower)

Later that day I interviewed Miria about his business:

There is high demand for vegetables and you do not have to buy or lease land. Plants like lettuce, tomatoes and peppers are easy to grow. I plant seasonally but also in response to demand. In September, I plant lots of watermelon so they will be ready when the New Zealand Mंगाians arrive for their Christmas holidays. Agriculture is a great career for the youth. You can be your own boss and make some good money.

Miria Ruatoe

Opportunities exist as a fisherman. The nine current fishermen who trawl for tuna and wahoo struggle to keep up with market demand.

¹²⁵ For example corned beef, tinned fish, rice, butter, cabin bread and other packaged foods.

There used to be twenty fishermen now there is only nine. I sell my fish for seven dollars a kilo. As soon as I get home from fishing, the phone goes with people wanting fish. Sometimes people even follow me back from the wharf. We simply cannot supply the local market.

Ngametua Tangatakino (Fisheries officer)

One student I know catches *tiozio*¹²⁶ on the reef, after school, with his bamboo rod and sells them for \$7 a kilo. He easily sells all his fish. We buy some. His parents encourage him to keep all of his money but he likes to use some to help the family out with basic foodstuffs like milk powder, sugar, tea, butter and cabin bread.

Helen Henry
Island Secretary

There are many and varied opportunities to sell food with such high domestic demand. One family bakes bread and a number of bakers work out of their houses selling doughnuts. As described in section 6.6.4, island food is sold at the market or made to order. Bread and western style takeaways such as hamburgers, fried chicken and chips are also sold at the market. Jams¹²⁷ and preserves are made and sold at the market. Village shops sell canned and frozen foodstuffs.

6.7.1 Import substitution

Import substitution strategies would further strengthen the domestic economy, increasing local demand and reducing the importation of expensive foodstuffs. *Oraanga Mangaia* and Mangaians' love of island food already acts as de facto import substitution strategy. I outline below five diverse import substitution strategies, as described by informants that reduce the need for imports,

- Mangaia School's island only food policy promoting healthy eating for students also acts as a lesson to students on how to reduce the need for expensive food imports.

Sue Ngatokorua (Mangaia School Principal)

- Some families collect eggs from the bush instead of paying ten to twelve dollars a dozen for eggs imported from New Zealand. They are free.

Periki Poila (Community member)

- My wife and I harvest coffee beans once a year, from the bush¹²⁸. Once we dry the beans, we have our coffee supply for the year.

¹²⁶ A small reef fish popular with Mangaians.

¹²⁷ Menemene jam is sold. Students learnt how to make the jam at school.

¹²⁸ Coffee plants now grow wild all over Mangaia because of commercial coffee growing in the 1950s.

Raymond Owen (Community member)

- I invested in a portable sawmill and can cut and sell timber for less than half the price of the timber imported from Rarotonga. I also mill people's own timber for a small charge¹²⁹. The untreated timber is suitable for the inside of houses and with its attractive finish it provides a cost effective way to build a house.

Ngametua Papatua

The MIA has a policy of using local business to carry out work plans, the aim being to keep money on Mangaia:

- Last year we used Papatua's milled wood and a local carver to put in new road signs around Mangaia instead of getting the signs made in Rarotonga. When we refurbished the community clinic, we contracted a local to make the vanities, instead of ordering them from Rarotonga like we used to.

Helen Henry (MIA Island Secretary)

6.7.2 Economic development: A Discussion

This section demonstrates that development based entirely on external western economic fundamentals will lead to continued failure. Instead, the role of culture and context in improving development success could be considered on Mangaia. Development thinking that considers the success and resilience of *oraanga Mangaia*. Development projects embedded in *oraanga Mangaia* can use cultural advantage to firstly build a stronger domestic economy, then once successful, expand into Mangaian diaspora markets and ultimately export markets, see figure 5.

¹²⁹ Papatua also has a deal, whereby he will mill one log free in exchange for one log. In this way, people without any money can still get their logs milled.

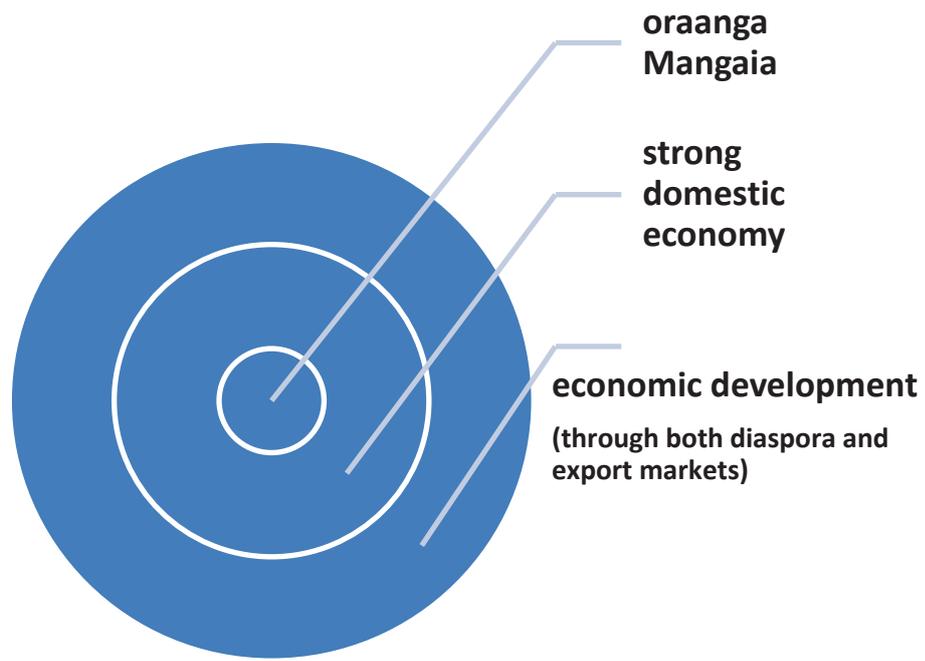


Figure 5: Leveraging Manganian economic development

Economic development could centre on agriculture, tourism and culturally connected business that have the ability to strengthen and reinforce each other, see figure 6.

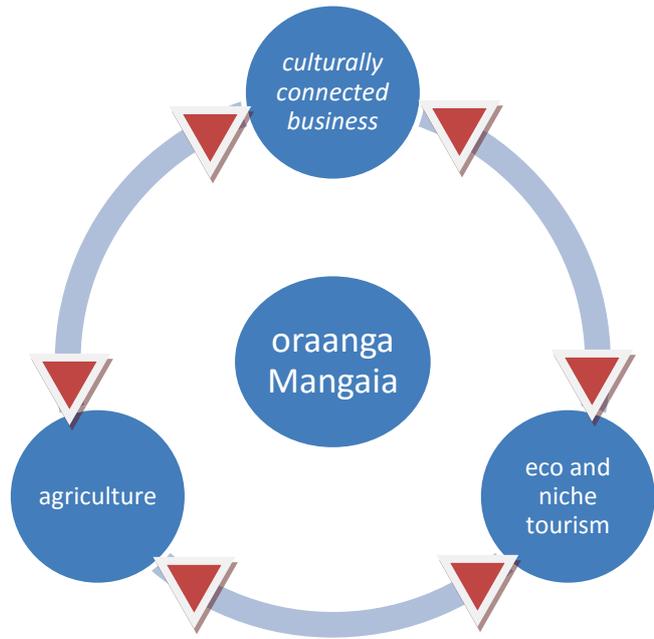


Figure 6: Mutually beneficial development sectors

Cultural activities and craft for sale enhance the overall tourist experience, while tourists provide market opportunities for business based on culture. Local agriculture has a similar effect; tourists get to taste local delicacies, improving their tourist experience whilst the tourists create extra demand for local growers and food producers. In the Cook Island context, local food supply provides a “competitive advantage to the tourist industry because of the high cost of imported food” (p. 70). As illustrated in figure 6.1, small-scale economic development, building on the strength and resilience of oraanga Mangaia and culture, is possible.

6.8 The environment and sustainable development

Mangaiaans, in thinking about environmental sustainability must consider local ecosystems as well as the wider biosphere. Mangaiaans are the custodians and guardians of nature on Mangaia. However, they are also global citizens, engaging in the global marketplace, which means they have obligations, alongside the rest of humanity, to protect the biosphere.

6.8.1 Mangaiaans as ecosystem people

Akonoanga enua, as part of *oraanga Mangaia* delineates Mangaiaans’ relationship with local ecosystems / environments¹³⁰. Mangaiaans’ relationship with nature has survived, and often flourished, over hundreds of years despite being tempered by periods of environmental damage and social breakdown (Kirch, 1996, 1997, 2007; Steadman & Kirch, 1990). In post Christian times, Mangaiaans have demonstrated the ability to adapt western ideas and technology to improve their lives. These endogenous development initiatives have had little effect on the Mangaian environment. In contrast, externally led development projects have created environmental risk, for example, the large-scale pineapple industry led to serious soil erosion and forestry overplanting that dried up stream beds which had provided water to the taro swamps (Allen, 1969).

¹³⁰ Mangaiaans define their relationship with the environment, already described in section 6.4.1 as, *Kimi i te oraanga meitaki/ matutu/ rangarangatu no te Mangaia* whilst *akono akaperepere ma te taporoporo to ipukarea* (Making a better life for all whilst caring for our treasures, our environment and culture).

Rau

*Rau*¹³¹, a cultural practice to prevent the overharvesting of food resources allows people to live sustainably on an island with limited resources. In recent times, people's understandings of *rau* and western conservation have merged. Some *rau* now embrace concern over biodiversity, species extinction and habitat destruction. Concern for continuity of food supply has extended to concern for the environment, promotion of ecotourism or concern with the aesthetics of the Manganian environment. Stephen Lyon, the founder of the Pacific Islands Conservation Initiative (PICI)¹³² argues *rau* should align but remain distinct from conservation, as he believes they serve different purposes.

Rau is a resource management technique that controls species numbers. Conservation protects biodiversity. Therefore, *rau* manages species numbers in a particular area over a defined time whereas a conservation area protects the biodiversity within that area for perpetuity. Students should understand the differing functions of *rau* and conservation and how they can work together to protect the environment. *Rau* have advantages over western quota management systems, in that they are an adaptive management tool that can be quickly responsive to biodiversity concerns.

Stephen Lyon

Westernisation in breaking down traditional social structures has led to a reduction in *rau* and reduced *rau* enforcement, resulting in some cases in reduced biodiversity and habitat destruction.

Rau are no longer enforced properly as people do not have the same respect for Manganian societal rules. Either *rau* or conservation measures must be invoked to protect nature before it's too late.

Participant 18: Community member

I argue the place of *rau* and its relationship with conservation needs to be rethought. Manganians may decide to reinstate traditional *rau* or adapt *rau* to modern times. Whatever the outcome I argue this thinking could take place in part in ESD programmes where students as the future leaders of Mangania, and custodians of Mangania's nature, must be educated to make development decisions that will enhance not destroy the environment.

¹³¹ Already described briefly in section 6.4.1.

¹³² The mission of the Pacific Islands Conservation Initiative is to work in the Pacific, alongside the people and communities "to develop a society that works in the tropical Pacific to preserve species, habitats and communities through the provision of sound science, establishment of programmes and advocating for legislative protection" (Lyon, 2013).

Mangaiaans and environmental responsibility

Mangaiaans believe *oraanga Mangaia*, is a gift from their ancestors, which allows people to balance their needs with protection of the environment. Equally, however, Mangaiaans dismiss romanticised suggestion that *oraanga Mangaia* might be perfect, allowing Mangaiaans to live in absolute harmony with nature. Alan Tuara, a Mangaian conservationist, explains:

We as Mangaiaans have and continue to cause habitat damage. As we look towards future development, it is important we educate our students about the necessary *raui* and conservation measures required to protect our environment. It perturbs me when outsiders attempt to patronise our culture by assuming we live in perfect harmony with nature. Like the rest of humanity we simply do not. These statements undermine our responsibility to improve our relationship with the environment.

Alan Tuara

Instead, Mangaiaans, as the custodians of nature on Mangaia, engage in *uriuri manako* (debate) about the right balance between development and environmental protection. Later I will present arguments that ESD may be beneficial in preparing students to participate in informed debate about development that is both environmental and culturally sustainable.

6.8.2 Mangaiaans as biosphere people

As global citizens, Mangaiaans are both the victims and perpetrators of biosphere degradation caused by global development¹³³. Mangaiaans, as well as potential victims of climate change, have a responsibility to reduce their impact on the biosphere. Many of these obligations can be discharged through participation in government initiated environmental projects, as explained below:

Mangaiaans and their responsibility to the biosphere: energy conservation

The Cook Islands government has committed the country to SD, taking an active lead in global environmental protection through a shift to a green economy. The Cook Islands Prime Minister, Henry Puna, stated¹³⁴:

¹³³ For example, climate change leading to rising sea levels and changing weather patterns, over fishing, pollution and habitat destruction.

¹³⁴ At the 2011 Joint Ministerial Meeting of the UN Conference for Sustainable Development (UNCSD) in Samoa.

Greening the economy is not a new concept to us ... ingrained within us is the understanding that we are the custodians of our environment.

(Cook Islands Ministry of Education, 2012, p. 17)

The Cook Islands supports the theme of a green economy in the context of sustainable development and poverty eradication.

(Cook Islands Government Online, 2012)

Action was taken in 2012 when the Cook Islands government signed a memorandum of understanding with IUCN to establish a Cook Islands Marine Park. Puna stated:

Protecting the Pacific, one of the last pristine marine ecosystems, is the Cooks' major contribution to the well-being of not only our peoples but of humanity in general. The marine park will provide the necessary framework to promote sustainable development by balancing economic growth interests such as tourism, fishing and deep sea mining with conserving biodiversity in the ocean.

(International Union for Conservation of Nature, 2012)

The Prime Minister then set an ambitious target of 50% of energy needs met by renewable energy by 2015 and 100% by 2020 (Government of the Cook Islands, 2011a). Mangaia had already started down this path. In 2003, Mangaia was part of a Sustainable Utilisation of Renewable Energy project that aimed to use wind energy to generate electricity for the island, although initial results were not promising¹³⁵. Anthony Whyte who headed the project explained:

The technology is improving. It will not be long before proper cost effective, renewable energy generation will be a real possibility on Mangaia.

Anthony Whyte

Nevertheless, the project was beneficial in educating students from Mangaia School about renewable energy. Anthony explains:

The students helped set up and monitor a wind energy project, learning the science involved back in the classroom. A small turbine that can run a night light was set up at school as a demonstration. The students also learnt about solar energy by observing the solar hot water system at Babe Pokino's motel units. Renewable energy is coming to Mangaia sooner than later. So the more

¹³⁵ Only 4.3% of total electricity was supplied by the wind and as a result, little savings in diesel usage were expected. Currently wind energy is not economic (Woodruff, 2007). The disappointing results were the result of technical issues (Cloin & Mario, 2004).

students understand the science of renewable energy and the links to sustainability the better.

Anthony Whyte

Climate change

Climate change poses a threat to the environment and consequentially development (Briguglio, 1995; Connell, 1999; Pelling & Uitto, 2001). On Mangaia, specific effects of climate change are difficult to quantify and are yet to be documented, however climate change discussions are occurring. There are scientific predictions that sea level rise may force a relocation of housing inland over time (Komai, 2013; Manins, 2011a). Some believe that oceanic fish abundance may already have been affected by climate change though this is speculative and no conclusive evidence yet exists (World Meteorological Organization, 2011 541). The Pacific Adaptation to Climate Change (PACC) project “climate change-proofing” (Manins, 2011a) Mangaia’s harbour and airport has brought discussion about climate change on Mangaia to the forefront. Students must be taught the science behind climate change so they can ascertain likely future impacts on the environment of Mangaia.

Paradoxically, global interest in climate change and renewable energy also creates economic development opportunities for Mangaians. Significant renewable energy project¹³⁶ funding is already available in the Pacific to combat the effects of climate change.

The Cook Islands will receive part of \$65 million from New Zealand to be shared between Pacific Islands to develop energy efficiency projects.

(Cook Islands News, 2013)

Mangaian are aware of the economic opportunities that will become available as funding is released. Mangaian, in their Puna plan, have already identified development projects that could tap into the climate change funding. The plan also recognises people will need funding application and project management skills to be able to tap into the funding (Te au Puna o Mangaia, 2014). As illustrated in figure 4, care for the environment will be a

¹³⁶ “Clean and efficient modern energy services are the cornerstone of sustainable development, economic activity and poverty reduction. Currently, the Pacific region meets around 80 per cent of its electricity generation needs from expensive imported fossil fuels. Yet the region has abundant renewable energy resources, including hydropower, solar, wind, biomass and geothermal,” said NZ Foreign Affairs Minister Murray McCully (Cook Islands News, 2013).

dynamic mix of Māngaia holistic care bound in akonoanga enua and rauī and western style conservation thinking.

6.9 Society and sustainable development

Te ipukarea ia rangaranga delineates Māngaians' social relations and well-being, already described in section 6.4.3. However, prolonged contact with the west has meant ever evolving values, beliefs and societal operation. The powerful western forces of individualism and materialism have tested aspects of *aroa taeake*. Moekapiti Tangatakino, a *ta'unga* and Taōi Nooroa, a *rangatira*, explain:

At Christmas time, we used to have a custom called *aroa aroa Kiritimiti* where people gifted each other food but that no longer functions. It would be good to reinstate it so the children could strengthen their understand of sharing in our culture.

Moekapiti Tangatakino

The *takurua mataiti*¹³⁷ and *uipaanga pukuru*¹³⁸ held in the New Year, are functions that ensure village well-being and cohesion. Interest has waned and the youth no longer understand their importance.

We used to fish in groups. All the men would fish and then come back and share the fish by *tua ngutuare* (share per household) or *tua atangata* (share per head). Nowadays people have their own nets and fish on their own; the tradition of sharing is waning. It would be great to revive some of these traditions, maybe at Christmas time, to bring everyone together. It would also serve to teach our children the old Māngaian values of *aroaaroa*.

Taōi Nooroa

In addition, the spread of hyperreality through the media, music and more recently social media, threatens cultural storytelling, song and dance. Gill Vaiimene, a teacher, explained:

People say the students are more interested in western music and videos but when someone organises a cultural event we soon find the students interested and participating. That tells me the students love our culture. It's simply a matter of providing them the opportunities to get involved. If students don't get the chance to participate in, and learn about, our culture then how are they expected to value it. That is when western culture takes over.

¹³⁷ Explained in section 6.4.3.

¹³⁸ A *puna* meeting held in the beginning of the year to decide on rauī for the year.

The recently launched Puna plan recognises the need to strengthen culture especially for youth and in later chapters, I suggest ESD may have a role in this process.

At the global level Mangaian have displayed a willingness to take their place as net contributors to global development and not just recipients of donor funding:

In March 2010 the Mangaian, community raised \$8200.00 for the Aitutaki cyclone relief effort¹³⁹. This was a fantastic effort for a population of less than 600 people.

On Friday 18 March 2011, the Mangaia Red Cross Branch coordinated a Red and Black day¹⁴⁰ to fundraise for victims of the 22 February Christchurch earthquake and Queensland floods. Mangaia School raised \$501.80 and the whole island \$3671.30 a great effort from a small population.

Gill Vaiimene
President
Mangaia Red Cross

These simple gestures indicate Mangaian are not concerned only with their own welfare but also the welfare of the global community as a whole.

6.10 Mangaia: Land tenure and development

Customary Land¹⁴¹ is pivotal to societal relations. Land cannot be titled, or sold, but is instead allocated by the *ui rangatira* after family consultation for use. In the few cases where allocation disagreements occur and cannot be resolved, final decisions are made by the *kavana* or if necessary, the *aronga mana*. Allocations typically include land on the *makatea* (coastal land areas) to build on with some planting areas in the *kainga* (interior swamp land)

¹³⁹ Cyclone Pat hit Aitutaki on 10 February 2010, leaving 80 people homeless, destroying 72 homes and severely damaging another 317.

¹⁴⁰ The sporting colours of the Canterbury region in New Zealand where the earthquake occurred.

¹⁴¹ Only three of the 15 islands in the Cook Islands, Mangaia, Mitiaro and Pukapuka have customary land tenure over which the land court has no jurisdiction. The remainder of the islands including Rarotonga, the main island, use native freehold (in effect private ownership); “Mangaia, Pukapuka and Mitiaro, have been excluded (by virtue of the Constitution Amendment No. 9 Act 1980-81). The Act prescribes that land matters in Mangaia, Pukapuka and Mitiaro were to continue to be dealt with by customary procedures unless the customary authorities requested otherwise” (Browne, 1994, p. 207).

(James, 1986). The criteria for land allocation are complex and follow custom. James outlines the general process:

Need and use is a primary criterion in land allocation. All sons are recognised as having some rights in their father's land but these are not usually taken up unless the son is resident on the island. People returning to the island after absences are also allocated planting sections from within the family lands. (p. 116)

Recent falling population has eased the demand on land, meaning disputes over allocation are rare. Communally owned land along the beach areas and *makatea* between villages are a feature of Mangaia's land tenure system. In these areas, *puna* decisions are made about what, how often and how much of the fauna and flora can be harvested for use, for example, coconuts, pandanus, *pupu* (snails) and *uga* (coconut crabs) (ibid).

Mangaia's I interviewed want to see the status quo, where everybody is entitled to a share of land, to remain. Ta'oi Nooroa, a *rangatira*, explains:

Under current Mangaian land tenure custom, everyone has the right to a share of land. Changes making it possible to buy, sell or lease land would not be a good thing. Look at what has happened in Rarotonga where land courts have led to arguments and bitterness amongst many families. We do not want courts making decisions on land on Mangaia.

Speaking as a *rangatira*, our job is to act as custodians of the land for the next generation; land does not belong to individuals. Western private ownership thinking is starting to influence some youth today. Some people think the land is theirs but it actually belongs to their extended family. Everybody is really a caretaker. The youth need to be educated about how we came to have our current land tenure system. They need to understand the historical reasons and how our culture has ensured everyone has a share of land and is happy. This is fundamental to life on Mangaia.

Ta'oi Nooroa

The notion of private ownership and leasehold land has begun to surface in recent times via Mangaian diaspora. Such thinking challenges customary practices and puts pressure on traditional land tenure practice. In 2008, the *aronga mana* rejected a proposal from expatriate Mangaia's to move the land tenure system towards a system where land could be titled and leased, similar to what happens on Rarotonga. The government news reported:

According to the secretary of the Aronga Mana Tūaiva Mautairi, the proposal by high chief Numangatini Ariki (to change land tenure systems) has come as a shock. Mautairi says people will not welcome outside influence whatsoever to the land tenure. It is understood Numangatini Ariki's proposal is the result of a push by Mangaia's living in New Zealand to try and change the system.

(Government of the Cook Islands, 2008)

The desire to change the land tenure system is also linked to beliefs that leasing land could bolster economic development on Mangaia.

In the past, Mangaians who have been living overseas have come back and encouraged the *aronga mana* to title land that can then be leased to foreign investors for development. They argue development will benefit the island by providing money and jobs. However any change that attempts to tamper with Mangaian cultural beliefs must be very carefully thought through.

Jim Marurai¹⁴² (Politician)

The idea that land could be a capital asset on which a loan can be secured has also surfaced but been soundly rejected by others. Gill Vaiimene, community member, explains:

The inability of Mangaians, especially the younger ones, to secure large loans against land is a good thing. There have been many mortgagee sales in Rarotonga where the lease has been sold to cover debts. Those people have lost the rights to their land for the period of the lease. I would hate to see that happening on Mangaia.

Gill Vaiimene

In summing up, I outline the thinking of Bijon (1995), who commenting on Pacific land tenure systems, rejects the argument that freehold or leasehold land is necessary for economic development in order to attract investment. Instead, he argues different solutions can be found:

The duty of government authorities is not to struggle against custom and customary authorities but rather thoughtfully and armed with imagination and courage to create favourable conditions for custom and customary authorities to adjust the way they apply customary principles to the demands of economic development. (p. 45)

Crocombe (1995), a Cook Islander, explains land tenure arguments in the Pacific are complex dependent on land use, population density and mobility. He points out, as “customary and legal frameworks that relate to land are being re-thought” (p. 21), it is important decision makers have all the facts. An ESD that recognises cultures role in the sustainability of resources, including land, for the livelihood resilience of future generations could be important here.

¹⁴² Jim Marurai is the current Member of Parliament for the Ivirua constituency and is a former Prime Minister of the Cook Islands serving from 2004 to 2010.

6.11 Development risk on Mangaia

Historically, *oraanga Mangaia* had minimal impact on the environment¹⁴³ (Allen, 1969). *Oraanga Mangaia* as “cultural development demonstrated a finely tuned ecological balance between societies and their modified habitats” (p. 59). Ecosystem people dependent upon a continued supply of local resources, have a much greater stake in the protection of the surrounding environment (Dasmann, 1998). With no manufacturing or transportation of goods to external markets, a lower carbon footprint was possible. In addition, *taeake aroa* ensured social sustainability through the redistribution of resources.

However, the desire to reap the material benefits of westernisation has given Mangaians perhaps two different pathways to follow; described here as pathways A and B.

In pathway A I use the pineapple industry on Mangaia as an example of an externally influenced, and often controlled, economic development that disrupted *oraanga Mangaia* leading to environmental damage, some social breakdown and a partial loss of culture. Whereas in Pathway B a development that is economically viable and results in better environmental protection, strengthened *oraanga Mangaia* and culture is described.

Pathway A

The pineapple industry, of the 1950s and 1960s, whilst providing income for Mangaians caused severe erosion on the *maunga* slopes (Allen, 1969). Pine trees¹⁴⁴ were then planted to stabilise the soil. Unfortunately, overplanting and self-seeding caused trees to grow alongside and in the valley streams eventually drying them up (Syed & Mataio, 1993). This has negatively affected taro crops. A planter explains:

We believe the pine trees have dried up the streams and irrigation channels that provided water to the taro swamps. Now we cannot grow our black swamp mamio (taro)¹⁴⁵. Nowadays we must make do with dry taro.

Participant 40: Community member

Some argue that overplanting occurred in part to protect jobs.

¹⁴³ With the exception of very early ecosystem destruction and species extinction (Kirch, 1996, 1997, 2007; Steadman & Kirch, 1990).

¹⁴⁴ Caribbean Pine (*Pinus caribaea*) (Syed & Mataio, 1993).

¹⁴⁵ Black swamp taro is anecdotally considered to be one of the nicest tasting taro in the Cook Islands.

The pine tree planting project was only meant to stabilise the soil on the top slopes but planting continued solely to provide jobs.

Participant 13: Community member

In the public service restructure of 1996, these workers became redundant anyway creating a new problem:

The original idea was to export the timber but with the 1996 redundancies there was no labour to prune the trees rendering them useless as a source of timber. Ironically timber export would have been unfeasible with the prohibitive cost of transport.

Participant 23: Community member

Geologist Paul Ascott stated, “The Pine trees are a hazard ... and need to be harvested immediately in order to restore and retain the valuable water resources and soil nutrients of Mangaia” (Cook Islands Herald, 2009). Ascott believes increased acidity, from the pine trees could leach the coral reef (ibid).

Compounding the problem has been the extension of the forest to the lower slopes and valley floors, with the planting of invasive tree species like *Acacia*¹⁴⁶ and *Albizia* for development projects that never eventuated.

Acacia was planted to provide fuel for the electricity generators on the island, reducing the need for expensive diesel, but the idea never even started.

Albizia was grown to provide a soft timber for pineapple packing cases, but the project never eventuated and the fast growing invasive tree has become a nuisance.

Participant 43: Community member

A forestry management plan prepared by Jahn (2001), recommended the removal of the trees with portable mills, as large-scale logging would rip the trees from the ground causing further soil erosion. The plan goes on to suggest the planting of slower growing indigenous tree species to improve soil cover. In summary, development practices, in this case the pineapple industry, led to soil erosion and the presence of invasive tree species.

The pineapple industry also impacted on cultural and social sustainability through “competition for labour” (Allen, 1969, p. 77). The singular focus on wage labour resulted

¹⁴⁶ *Acacia aulacocarpa*, *Acacia auriculiformis*, *Acacia crassicarpa*, *Acacia mangium* and *Falcataria moluccana* (McCormack, 2009).

in the neglect of *akonoanga enua* and a resulting reduction in livelihood resilience. Reduced fishing, planting and sharing meant some Māngaians went without.

In summary, the desire for economic development can result in a partial move away from more ecosystem friendly *oraanga Māngaia* practices, and a resultant pressure on the environment and culture of Māngaians. The development pathway is eventually unsustainable.

I now describe a potential alternative future pathway B where development thinking and practice incorporates culture and local context, a scenario where SD is indeed possible.

Pathway B

In this pathway, *oraanga Māngaia* stays firmly embedded at the centre of development thinking as described in sections 6.4 and 6.5. The desire to retain the benefits of *oraanga Māngaia* and culture is strong. New economic development initiatives co-exist and leverage off *oraanga Māngaia* rather than replacing it. Necessary economic activity and development occurs but in a manner which respects *oraanga Māngaia* and minimises environmental impact. As Jim Marurai counsels:

We have to be careful about how we go about development on the island. We have to consider the impact of any development on the environment and our culture.

Jim Marurai

Western interpretations of development disguised as helpful development assistance are recognised and politely rejected. The result is holistic development that creates economic and material wealth whilst strengthening *oraanga Māngaia*, Māngaian culture and protecting the environment. The development approach in pathway B is more sustainable and can be considered in the context of Maiava's description of a previously hidden Pacific indigenous development that operates in a hopeful post-development setting, as described in section 2.4.

6.12 Māngaian self-determination

The only type of development possible is self-development.

Ackoff (1990, p. 274)

'Ta'i Ake Puku Kana e Kai ei te Atea, a development plan, produced by and for Māngaians, reignites the Māngaian spirit of cultural and livelihood self-determination (Te au Puna o

Mangaia, 2014). The plan is a response to a perceived lack of development support from government and aid agencies (Samoglou, 2014). The plan outlines how political colonisation has not resulted in a colonisation of culture or future thinking¹⁴⁷.

Te au Puna o Mangaia (2014) explain how development projects that “have been locally conceived and implemented have been consistently more successful” (p. 7), than projects “administered by central government” (p. 7). The plan argues grassroots, bottom up; participatory development produces better results for two key reasons:

- Manganians by defining their own development goals ensure they are fit for purpose, relevant to their needs and align to *oraanga Mangaia*¹⁴⁸; and
- In taking ownership of development outcomes, Manganians are more determined and motivated to succeed.

This resolve by Manganians to take charge of their own development needs is in line with the Cook Islands government NSDP goals that “by 2020, the development of the Cook Islands will be led by Cook Islanders (Government of the Cook Islands, 2011a, p. 8)¹⁴⁹.

6.13 Discussion

Development in harmony with *oraanga Mangaia* maintains social obligations through *taeake aroa*, reinforces culture through *Te Ipukarea kia rangatira* and ensures environmental responsibility through *akonoanga enua*. Development centered on *oraanga Mangaia* ensures resilience to economic downturn and is a base on which to build strong domestic and diversified export markets. Diversified development strategies across the tourism,

¹⁴⁷ Manganians in moving on from a colonial world reject neo-colonialism. Instead they have embraced a postcolonial world where they have effectively taken on board the 1980s challenge of the renowned Cook Islands writer Kauraka Kauraka (2003):

Our confidence as a nation is low because of our dependence on foreign values and ideas. Let us re-examine ourselves. We will find that we are not inferior to others. God gave our ancestors our culture. Let us rediscover it and adapt it to current use. (p. 338)

¹⁴⁸ Helen Henry, a former island secretary, stated, “You have to live the life to understand its problems” (Samoglou, 2014).

¹⁴⁹ To enable Pa Enea Local Government and Island communities to decide on how best to promote the social, economic, cultural and environmental well-being of the respective islands (Sections 2 of the Pa Enea Local Government Act, 2013).

agriculture and small business sectors can minimise any vulnerability to a downturn in any one sector.

The hosting of the eclipse visitors, described in 6.6.3, and vanilla venture, described in 6.6.2, demonstrate it is not necessary to compromise *oraanga Mangaia* to achieve economic success on Mangaia. Clarke Mautairi explains:

Economic initiatives that complement *oraanga Mangaia* are more likely to succeed. That is why development on Mangaia must be led by Mangaians as only Mangaians understand *oraanga Mangaia* and how we want to lead our lives.

Clarke Mautairi (Ta'unga)

Mangaian led development does not discount partnership roles for central government and aid donors. These organisations continue to have key roles in providing financial, technical, business and project management support.

The findings on SD on Mangaia have demonstrated 21st century Mangaian development is complex and multimodal. It has elements of what Maiava and King (2007) argue is a previously hidden indigenous development. A development that employs a radical democracy, where Mangaian cultural values, beliefs and practices remain paramount but are able to draw on alternative modernities that consist of helpful technology and western ideas. In effect, it is a hopeful post-development. If students, as future leaders of Mangaia, are to lead their own development they will need the knowledge, values, skills and action competence to create their own culturally grounded solutions to SD. Solutions that are not influenced by western hegemony. A place-based culturally responsive ESD curriculum and pedagogy that prepares students for such a future is the subject of the next three chapters.

Chapter 7 Manganian Education as Sustainable Development: Curriculum

7.1 Introduction

The chapter begins by providing a brief history of education on Mangaia. Next parent, community and student thinking about education on Mangaia is revealed in the context of Manganians conceptualisations about SD and sustainable livelihoods as described in chapter 6.

Given the current diversity and complexity of Manganian SD and Manganians future aspirations for SD, the necessary components of an EasSD are outlined. Simultaneously, a review of current curricula reveals what aspects of a Manganian EasSD are already present and those that might need to be added and/or expanded upon. The current assessment flexibility of NCEA, in being able to contextualise learning, is described as an opportunity to begin to build students understanding of, and action competence in, Manganian SD while being able to gain internationally recognised qualifications.

Drawing on Hopkins and McKeown's (2001) strength model of ESD implementation, the implementation of a place-based culturally responsive Manganian EasSD at Mangaia School is described as an overarching collection of the following:

- Theme based environmental awareness;
- Vocational pathways;
- As a cross cutting curriculum theme; and
- A specific subject at senior secondary level.

EasSD, as a specific subject at senior secondary level, is discussed in terms of the need for a dedicated teaching and learning space, where students would get the space and time to make sense of the multiple, often competing, viewpoints and worldviews on what SD ought to entail on Mangaia. Examples of exemplar Y11 and 12 EasSD programmes are described to illustrate how it might be possible to make student learning about SD culturally and contextually relevant. New Zealand senior curriculum and assessment systems are explained as barriers to an effective implementation of EasSD. Revealing the western centric nature of imported ESD programmes, the case is made for the provision of some bi cultural, bi lingual, dedicated Manganian (or Cook Island) specific achievement

standards to complement already existing curriculum and allow students to freely explore SD from a Mangaian perspective.

To finish the chapter, a discussion outlines the six key benefits of a place-based, culturally responsive EasSD curriculum featuring dedicated EasSD teaching and learning as either a dedicated subject (or part subject) at senior school levels.

7.2 A history of education on Mangaia

Plate 8: 2011 Mangaia School prefects



Photograph courtesy of the Cook Islands News (Mangaia School, 2011)

Little has been published about the history of schooling on Mangaia. To obtain information, I interviewed Sue Ngatokorua, Principal of Mangaia School who provided me with this brief background:

There were originally three primary schools, one in each of the three villages on Mangaia. As the population dropped, Mangaia Primary, located in the village of Oneroa effectively became the main school for the island. Mangaia Primary moved onto its existing site in Oneroa in 1956 and then Mangaia Junior High School opened in 1964, teaching students up to Form 4 on the same site. At that time, Form 2 students sat an entrance exam and those that did well received scholarships to attend Tereora College¹⁵⁰, on Rarotonga,

¹⁵⁰ Tereora College is the biggest secondary school in the Cook Islands and is located on Rarotonga. It is the only school to offer programmes up to Year 13.

from Form 3 onwards. The other students completed their education up to Form 4 on Mangaia.

In 1976, Mangaia Junior High School was renamed Mangaia High School to reflect the introduction of a new Form 5 level, where senior students could sit Cook Islands School Certificate for the first time. In 1977, when the school expanded again, this time to offer New Zealand School Certificate, the school was renamed Mangaia College. In 1999, with falling rolls, the decision was made to amalgamate the college, primary school and preschool in Oneroa into one school; the new school was called Mangaia School.

With school rolls continuing to decline across the island, Tamarua Primary closed in 2001 and the remaining students moved to Mangaia School. In 2003, Ivirua School closed with the Year 1 to 3 students able to stay on the Ivirua School site as part of a satellite school relationship with Mangaia School. The older students moved to Mangaia School at Oneroa.

Sue Ngatokorua (Principal Mangaia School)

Teaching programmes up to Year 10 reflect the national subject curriculum statements, which are part of the Cook Islands Curriculum Framework released in 2002 (Cook Islands Ministry of Education, 2002). This framework signalled a move away from a reliance on western curricula, towards a greater acknowledgment of *te peu Maori* (Cook Islands culture) in teaching programmes across all subjects. Subject curricula became outcomes based, the aim being to provide Principals, senior leaders and teachers the flexibility to incorporate local context and content into school programmes. At the same time, the framework called for community aspirations to be reflected in local teaching programmes by suggesting that the curriculum be developed “in consultation with the parents and the community” (Cook Islands Ministry of Education, 2002, p. 4).

7.3 Parent and community views on Education for Sustainable development

This section explores Mangaian parent and community thinking on the purpose of education. Informants were asked to provide their viewpoints in response to a number of questions: *Should a dual curriculum remain with a primary focus on a western education for jobs and secondary focus on Mangaian culture and language predominantly for identity? Alternatively, should there be a more culturally and contextually relevant transformative ESD that incorporates the twofold influences of oraanga Mangaia and western development thinking on Mangaian SD?* In effect, a curriculum that reflects a hopeful post-development stance, where Mangaian knowledge and culture sit alongside western knowledge and ideas when determining best fit solutions to SD on Mangaia and in the Cook Islands. An ESD curriculum that empowers students to determine their own sustainable futures and livelihoods.

7.3.1 An education for qualifications

Understandably, many parents still viewed western qualifications as the key outcome of education. Pragmatically, they perceived education as the key to their children securing good jobs or careers. Three parents elaborate:

The *papaa* way is very important. The children need to pass all their exams, especially in English and mathematics so they get qualifications and a job or trade.

Participant 22: Parent

Culture is important, but these days students need to live in the modern world, therefore they need good qualifications in English, Mathematics, Science and Computing so they are not left behind.

Participant 12: Parent

My son wants to be a police officer, so it is important he get good *papaa* qualifications.

Participant 45: Parent

A parent who had returned to Mangaia with his school aged children, a few years previously, outlined his concern about the school's lack of capacity to offer a good western education:

With small numbers at the school, there is a lack of options for the children. My son wanted to do Physics but there was no physics teacher here. My biggest regret is not giving them the education they deserved.

Participant 18: Parent

Overwhelmingly, parents wanted their children to get the quality western qualifications that they believed provided them future job options and careers.

7.3.2 An education about Mangaia

At the same time, parents wanted their children immersed in Manganian culture. They were vexed about their children's lack of expertise in Manganian language and culture. They believed a key role of the school was to strengthen students understanding of *oraanga Mangaia*, Manganian language and culture.

Our language and culture are disappearing fast. The introduction of television, the internet and mobile phones has meant students are no longer interested in learning about carving, weaving, planting and other aspects of Manganian culture. They would rather watch videos and listen to western music. They are

becoming like children in Rarotonga who think they are better when they speak English.

Even our leaders and politicians, who make passionate speeches about our children losing Manganian language, speak English to their own children. What message does that send? We really need the government and the school to take the Manganian language and culture seriously so that we do not lose it.

Participant 26: Parent

Even though parents should be responsible for teaching their children Manganian language and culture, many do not. The school must step up if those parents will not. The children need to understand oraanga Manganian and how to live on Manganian.

Participant 40: Parent

Many parents argued it was self-evident that those students who had an in-depth understanding of language and culture were more likely to be involved in *oraanga Manganian*. In effect, those students were more comfortable living as Manganians and more likely to stay or, if leaving for career opportunities, more likely to express the desire to return to Manganian someday. One parent stated:

Are tetai au tamariki e pakiri ana te manako i ringa i te au peu ta'ito a te Manganian. Pakiri atu to ratou au manako e te inangaro i runga i te au mea ate papa'a, mei te pia roro uira e te tariponi tari aere. To ratou au manako ti runga i te au 'anga'anga 'opeti, e te aere atu i te au enua i vao ake i te akau mei a rarotonga e nu tireni. Inara, e ngao te au Manganian i roto te mataiti i te toru nga'uru e te 'a nga'uru e oki mai nei i Manganian nei no te tamou akaou i te au matara e te au peu Manganian. Kua pau rai to ratou inangaro i te no'o i te ora'anga papa'a.

No reira, me api'i ia te tamariki o teia tuatau i te reo e te peu Manganian, ka mou us rai tei reira i roto ia ratou. Me tae ake i te tuatau e manako ai ratou e, kua rava ta ratou moni i to ratou atea anga no runga i te enua, ka oki mai ai i reira ka mou akaou i ta ratou peu tupuna no te akamatutu atu i te turanga o Manganian.

Many students are rejecting *oraanga manganian* and focusing on western ways of living. They only think of getting office jobs overseas. However, ironically, many Manganians in their thirties are returning to Manganian wanting to relearn Manganian culture. They have had enough of overseas.

I strongly believe if you instill Manganian culture in the students of today, it will stay with them. Then when they have made money overseas and had their adventure they will return to where they belong, making Manganian stronger.

Participant 16: Community member

A well respected member of the community was adamant that students fluent in Manganian and confident within their own culture achieved better academically, socially, and possessed more life skills. She believed such students exhibited greater self-assurance and success when engaging with the world outside Manganian. Inangaro Papatua stated:

Me kite koe i toou reo, taau pen, e toou turanga, aore koe e mataka, aore katoa. Kae e akama me aere koe i vao mai i toou enua. Me ngere koe i teea au mea aore e matutu toou turanga i roto i te au ngai taau ka aere, e te au angaaanga taau ka rave.

Students who exhibit a strong Manganian identity are better able to cope with the stresses of an ever changing global world.

Inangaro Papatua

Ngametua Toko, a ta'unga believes it necessary to teach children their language and culture from an early age. He enlightens:

We have to teach language and culture early so children can appreciate *oraanga Mangaia*. Otherwise, they get hooked on all the western culture and think it's better. The school has a role to play in this.

Participant 77: Community member

Clearly, many parents and community members believe the school has a major role in teaching students Manganian language and culture so they strongly identify as Manganians and are at ease with *oraanga Mangaia*.

7.3.3 A dual education

In interviewing parents, a pattern emerged. Academic success and the teaching of Manganian language and culture were treated as essential but mutually exclusive. Parents consider academic achievement tantamount to success in the western subjects of English, Mathematics and Science. Manganian language and culture taught in the Maori class, although deemed vital for strengthening identity, were not considered synonymous with scholastic achievement.

Ironically, an analysis of 2011 NCEA results, see appendix 11, showed 85% of achievement standard credits were obtained in Cook Islands Maori and 49% of unit standards credits were obtained in either tourism or vocational standards, both with a clear focus on place-based *oraanga Mangaia* education. Therefore, although academic success at Mangaia improved with a knowledge of *oraanga Mangaia*, many parents did not recognise this. Instead, parents viewed schooling as serving dual, mutually exclusive purposes:

I believe the focus of the school is to help the children achieve academically in papaa subjects as well as teaching the children to understand the Manganian language and culture.

Participant 36: Parent

Very few parents contemplated educating students to stay on the island. Parents had developed an acceptance that their educated children would have to leave Mangaia to pursue a career.

It would be nice if my son could stay but in reality he will have to go to New Zealand to look for work.

Participant 45: Parent

Some parents hoped their children might be able to get one of the few public service jobs available on Mangaia but there were not many vacancies.

I hope that he will be accepted for the police or a job in the public works as a mechanic. That way he can stay.

Participant 45: Parent

For parents, the apparent lack of job opportunities led to an acceptance that their children would have to leave the island. Many parents viewed migration of their children positively, believing it led to a better future.

7.3.4 An education to stay

However, when parents were questioned more deeply through *uriuri manako* many expressed the opinion that they would love their children to stay on Mangaia. They simply did not think it possible. The potential that EasSD style education might empower students with an ability to seek out sustainable livelihoods and take advantage of economic development opportunities on Mangaia was greeted with enthusiasm.

Agriculture is taught at school but we need to link it to agricultural opportunities for students once they leave school. What about teaching our senior students business skills and linking it to agricultural studies? It might help them to think about a future in agriculture.

Participant 75: Community member

My boys love fishing. They already make money from selling their fish. It would be great if the school offered qualifications that focused on fishing and business studies at school.

Participant 86: Parent

The students need more work experience courses at school; they love it. They love doing practical, real things that could lead to careers or business start ups in the future. The school needs to focus more on teaching useful life skills.

Participant 90: Parent

The school needs to extend its focus into practical areas where students show skill such as agriculture, woodwork and carving. Look how well the students

do in the tourism class. The school is not currently catering for the needs of all of its students.

Participant 35: Parent

There are not many jobs in the public service these days. The only practical way for school leavers to stay on the island and get jobs is to set up their own business. That is why teaching vocational and business skills at school is so important; allowing some of our children to make their future on Mangaia.

Participant 51: Community member

In section 6.6.4, Tangiteina Terepai described her family based small business that prepares and sells food at the market. Her school aged children are an integral part of the business.

Tangiteina reflected on the future she wanted for her children:

We taught our children to fish and plant so they can live off the land if necessary. I would love my children to stay on the island and make a life for themselves but it will be up to them.

When asked about the type of education the school should offer, Tangiteina replied:

They need to speak English to get a job and have qualifications but they also need to learn our Maori ways to live on Mangaia. That way they have the option to stay and make a life or go overseas. It would be good if qualifications for planting and fishing, and other practical subjects were offered so students get the skills to stay on Mangaia and make their own business.

Tangiteina Terepai

Having canvassed what parents might want from education for their children, I became interested in what the senior students themselves wanted from their education.

7.4 Student views on Education for Sustainable Development

I interviewed senior student about their plans once they left school. In Y12, fourteen out of fifteen students intended to leave Mangaia for further study or to look for work¹⁵¹. In Y11, a slightly lower number, nine out of fifteen students, were intending to leave Mangaia at the end of their schooling¹⁵². These figures are in line with the actual migration figures of ex-students from Mangaia School as recorded by Vaiimene (2011), a teacher at Mangaia School, in her unpublished research. Vaiimene recorded the 2011 whereabouts of 127 ex-

¹⁵¹ The one student remaining was staying to look after her grandparents.

¹⁵² The lower number may reflect less pressure to make final decisions, as these students still have another year at school. Two of the six thinking of staying, stated although they wanted to stay the reality was they would go to Rarotonga for further study or a job as their parents expected them to.

students from Year 6 upwards, enrolled at Mangaia School in 2003. The figures provided illustrate that only a very small number remain:

- 21 are still in Mangaia;
- 3 do seasonal work in New Zealand at the freezing works and return to Mangaia for the other 6 months of the year;
- 45 live elsewhere in the Cook Islands (43 in Rarotonga, 1 in Pukapuka and 1 in Aitutaki); and
- 58 are overseas (31 in New Zealand and 27 in Australia).

(Vaiimene,
2011)

Clearly, the pattern has been migration away from Mangaia with 81% of students leaving Mangaia for Rarotonga, New Zealand or Australia. Migration¹⁵³ is an acceptable livelihood strategy on Mangaia and drives stakeholder desire for a western education; see previous section. Most students do not currently envisage a future on Mangaia though many expressed a desire to return one day. Six of the Y12 students and a similar number of Y11 students declared that once they made some money they would like to return. They were pragmatic though:

I guess many of us will never return except for a holiday.

Participant 108: Student

My thinking now is that I will want to come back because I will miss the local food, the people, the culture and mostly my paradise. However looking at other Mangaiaans I am guessing I probably won't. I will leave and hopefully make a good life with good money and only return for a holiday.

Participant 109: Student

On the surface, with only one student indicating intention to stay and develop a livelihood on Mangaia, the desire to stay on Mangaia amongst senior students did not appear strong. I reflected and thought more deeply. *Did the overwhelming desire to leave Mangaia come about because of the perception no other viable alternative existed? Was there a hegemony of westernisation that had instilled in students and their parents the belief that success was measured narrowly by the ability to procure a western career?* I had to accept that leaving Mangaia for future educational and career

¹⁵³ Migration as part of MIRAB. With the reduction in remittances and public service jobs, many see migration as the only option.

opportunities was perhaps the best livelihood choice for most students. I decided to explore these issues more deeply by interviewing senior students.

7.4.1 An education to leave

A number of students reaffirmed their commitment to leave Mangaia for study, work and a desire for adventure, in line with Wright-Koteka's (2006) findings. The decision to leave was made easier with citizenship access to New Zealand and the availability of family support and accommodation in the large Mangaian communities on Rarotonga and in New Zealand and Australia.

My family wants me to go to Rarotonga, stay with family, and work next year. I have been on Mangaia looking after my grandparents but now my sister is old enough to help.

Participant 5: Student

I am going to Tereora College on Rarotonga next year to get qualifications to become a flight attendant or policewoman. I will stay with family there.

Participant 6: Student

Once I get my Level 2 qualification, I will go to Tereora College so I can take computer studies. I want to be a computer technician. I will have to leave Mangaia, as there is no future here in computing.

Participant 37: Student

I want to be an engineer or pilot so I have to go to Tereora College to study Physics.

Participant 38: Student

I am going to Australia to stay with family and look for a job.

Participant 39: Student

Although leaving for many was inevitable in the short term, some students still aimed to return to Mangaia one day, as they loved life on Mangaia.

I would like to build a house here from money I earn overseas and then come back when I am older.

Participant 109: Student

7.4.2 An education to stay

Though most senior students were resigned to the inevitability of leaving Mangaia, many, especially younger students, had a dream to stay on Mangaia. Maybe they were yet to encounter the pressure of finding work.

When I finish school, I want to plant taro and catch fish to sell. I would use the money to build a house and get a motorbike. However, I would also give some of my taro and fish away to my family and friends. I like fishing on the reef. I want to make my own canoe so I can go trawling for tuna when I get older.

I am also thinking about growing tomatoes, watermelon and lettuce. It would be easy to sell them, as there is never enough on the island. I would definitely be interested in learning about agriculture, fishing and how to run a business at school. That would be great. I like New Zealand but I only want to go there for a holiday, not to live.

Participant 79: Student

Ia rauka mai tetai moni. E upenga ana matou e oko ana ta matou mangaika, e \$7/kg. E taporo ana tetai ei kai na matou. E rama unga ana matou ia oko. Ia rauka mai tetai moni ia oko I tetai manga ia kai na toku ngutuare tangata. E save ana au I taku moni I ko I te bank ei oko patikara matini. Ae me akaruke ake au I te apii taku parani ka aere ka tautai no te kimi puapinga.

I catch fish using a net and then sell it at \$7/kg. I sell my fish to help get money to feed my family. I also save some money in the bank as I am hoping to buy a motor bike. I do not sell all the fish; I usually leave some fish for our dinner. When I leave school, I want to set up a fishing business. I also go hunting with my brothers and cousins for coconut crabs to sell.

Participant 14: Student

Ia tauturu ia matou ia rauka mai tetai moni na matou. Ka inangaro au I te tauturu I toku kopu tangata I te pae o te moni e te kaikai. Ka taporo au I taku moni ei oko I tetai manga na matou.

I mainly fish for the family's dinner. I then sell any extra fish to get money to buy other foodstuffs the family needs. I would really like to make fishing my job.

Participant 15: Student

E mataora ana. Tetai taima e taporo ana au ia kai na matou tetai taima ka oko au. Ia rauka mai naku moni. E akono ana au I te moni ia oko I naku apinga tautai mei te matau rai. Me are au e pini I te angaanga ka akariro au I te tautai ei kimi puapinga.

I enjoy fishing. I give some fish to our family for our dinner and the rest I sell. I save money to buy fishing gear like hooks. If I cannot find work then I will definitely look to fishing as a business.

Participant 16: Student

I would love to stay on Mangaia and make a business. I already do many things with my mother, like making coconut oil, *ei pupu* and tie dyed t-shirts; which I sell at the market. I also make and sell raw fish, curried goat meat and tiromi at the market. It is easy to make money on Mangaia if you work hard.

I would like to learn how to run a business as part of my studies at school. I would also like to learn how to make a business out of fishing because girls can fish on the reef.

Participant 17: Student

Teachers are aware of student thinking:

There is a desire by some students to upskill themselves so they are able to develop and run small businesses, allowing them to stay and live on Mangaia. Teachers recognise this and know more needs to be done to cater for these students' needs. We have underserved students who want to stay on Mangaia.

Gill Vaiimene (Teacher)

We are not catering to the needs of some of our students who would like to stay and live here.

Participant 30: Teacher

Interestingly, Mangaia is attractive for returning youth:

New Zealand born and returning students love it back on Mangaia because they can fish, plant, swim and engage in cultural activities and sports. Ex New Zealand students tell me hanging around the malls in New Zealand becomes boring. With mobile phones and facebook, they can stay in contact with their friends in New Zealand. With the warm weather, they quickly realise the advantages of living here.

We do think about educating students to stay on the island but we need help with curriculum ideas and resources.

Participant 2: Teacher

Given the chance to fashion a viable livelihood on Mangaia many parents and students would consider a future on Mangaia, either exclusively or in conjunction with temporary migration to global labour markets. A future immersed in sustainable livelihoods that are fashioned on the cultural and contextual uniqueness of SD on Mangaia, as outlined in chapter 6. Given these findings: *What then should an ESD curriculum at Mangaia School consist of?*

7.5 The necessary components of an Education as Sustainable development

The findings in chapter 6 demonstrate that an understanding of both Mangaian and western knowledge is necessary for students to comprehend and be able to formulate best fit SD and future livelihood solutions on Mangaia. Moreover, given the increasing importance of SD to the Cook Islands government and the economic and cultural opportunities this might provide for Mangaians,¹⁵⁴ it is timely to reflect on the place and

¹⁵⁴As illustrated by the NSDP (Government of the Cook Islands, 2007b, 2011a).

type of ESD necessary to teach students about SD at Mangaia School. This ability to live in two worlds and draw on the best from each is something parents and the community want students to be upskilled to do. Students who understand, and are action competent around, the economic, environmental and social intricacies of SD both within and across culture become empowered to determine their own sustainable futures. I now suggest what the necessary components of an EasSD curriculum on Mangaia might be under the following headings. They are:

- Knowledge of Mangaian values and culture;
- Knowledge of western ideology and technology;
- Knowledge of economics and business;
- Knowledge of Vocations;
- Knowledge of the Mangaian environment; and
- Knowledge of Mangaian society.

Under these same headings, I outline what is already embedded in the curriculum and what curriculum resources are available in the wider community.

7.5.1 Knowledge of Mangaian language and culture

Maori language is important as a vehicle allowing students to access Mangaian knowledge and culture as these sit at the core of future SD on Mangaia. Kauraka Kauraka, states:

<i>Toou Reo</i>	Your Language
<i>E akaperepere I toou reo</i>	Treasure your language
<i>Na te Atua i oronga mai i te reira</i>	It is a gift from God
<i>Auraka kia ngaro toou reo</i>	Preserve your language
<i>Ko te pōiri aea koe</i>	So you may know your
<i>I to tu Maori</i>	True Maori nature
<i>E apii I taau au tamariki</i>	Teach your children
<i>Ki toou reo tupuna, kia ora koe.</i>	Their ancestral language, to live

Kauraka Kauraka (Cook Islands poet)

Given the central importance of *oraanga Mangaia* to SD on Mangaia, it is essential students work towards a perspicacious comprehension of Mangaian knowledge, culture and values. Described to me by Tom Webb, a *ta'unga* as:

'iri o te kite pen karape and/or ua kite ma te nakirokiro.

Determine and remember the important (deep) knowledge and/or really understand knowledge

Tom Te-oi Webb

Ability in conversational Manganian language, while fundamental, does not lead to an automatic understanding of the depth of *Te ipukarea ia rangaranga*. Fluency in Manganian language is a minimum that then enables students to explore and articulate Manganian ideas, beliefs, knowledge and epistemology at deeper levels. At a national level, The Cook Islands Curriculum Framework aims to “ensure that Cook Islands cultural traditions, spiritual beliefs, histories and events are recognised and respected” (Cook Islands Ministry of Education, 2002, p. 5). Whilst fluency in Cook Islands Maori¹⁵⁵ is helpful, it does not enable Manganian students to develop a sagacious understanding of *oraanga Mangania*. Students must understand the language subtleties that provide a unique window into Manganian culture.

Kia kite katoa te tamariki i to ratou reo na mua ei reira ratou e marama ei i ta ratou akonoaanga e ta ratou pen.

Students need to understand Manganian language first so they can then really understand Manganian culture.

Rauaua Mauriati (Teacher)

Ko te reo Mangania te Ngutupa o te pen.

The Manganian language is the gateway to finding out who you are as a Manganian.

Moekapiti Tangatakino (Maori teacher)

For students growing up, Maori must come first because that's the language where they learn their values, traditions, history and ultimately sense of place. You must know who you are and what you are. Some of my grandchildren living on Rarotonga do not know their language. However, the grandchild who stayed with me is fluent in Manganian. She understands *Te ipukarea ia rangaranga*. She knows what it means to be a Manganian, making her confident even in the *papaa* world.

Participant 35: Community

I argue, although Manganian language fluency and an indepth knowledge of Manganian culture should be regarded as a crucial, cultural platform upon which to learn, they should not be regarded as an end in themselves. They should be considered only the beginning of learning about Manganian SD. Adoption of an EasSD approach demands learning in culture

¹⁵⁵ Manganian is classified as a dialect of Cook Islands Maori language.

goes to an ever deeper level, with students required to problem solve¹⁵⁶ development and livelihoods, reflecting the place of *kimi ravenga* at the core of *oraanga Mangaia*, as described in chapter 6.

Akatanotanoanga i te kite karape ou kia tano i runga i te kite Mangaia.

A practice inherent in *oraanga Mangaia* is taking existing knowledge, reshaping and/or resythenising it to solve livelihood problems.

Moekapiti Tangatakino

From an EasSD perspective, *oraanga Mangaia* should not be taught in isolation as a nice to have history. Instead, it should be taught in context and put up against western thinking and ideas. Therefore, use of Maori¹⁵⁷ language is essential across the curriculum. In an increasingly globalising world, *oraanga Mangaia* stands out as the benchmark on which Mangaian students will map out their futures, comparing and challenging what often seems the inevitable march of westernisation.

Current and potential ESD curriculum: Te Reo Maori

Maori, as a subject, teaches language and culture¹⁵⁸, in the process strengthening identity. Maori provides the foundation upon which students can learn more deeply about *oraanga Mangaia*. Moekapiti, the Maori teacher explains:

Mangaia School teaching and learning experiences aim to incorporate *kirititiano, peu puapinga, te au peu enua*, the importance of *kopu tangata* and

¹⁵⁶ The inclusion of an EasSD Mangaian pedagogy, replicating a Mangaian traditional livelihood problem solving approach is discussed in detail in chapter nine.

¹⁵⁷ Cook Islanders refer to Cook Islands Maori language as Maori, as do New Zealand Maori. To avoid any confusion and bearing in mind this thesis is based on research in the Cook Islands, future use of the term Maori will pertain to Cook Islands Maori. Any reference to New Zealand Maori will be prefaced as such.

¹⁵⁸ The knowledge is taught through the language. Mangaian culture is taught in three broad contexts:

- *Te Iti Tangata e to Ratou Irinakianga Keretetiano*
This context includes teaching about pre Christian history, the importance of Christianity for Mangaians and the impact that the arrival of Christianity and the subsequent change in faith to Christianity brought to the lives of Mangaians). *Aroa aroa* and *peu puapinga* sit alongside Christian values;
- *Te Iti Tangata e to Ratou Aorangi*
Themes around the *moana* (ocean), *rangi* (sky), *enua* (land) encapsulate *akonoanga enua*; and
- *Te Iti Tangata e ta Ratou Oroanga, Irinakianga e te Akanoonoanga.*

This context encompasses more practical manifestations of Mangaia culture such as planting, fishing, building, sewing, weaving, cooking, feasting, singing, chanting, dancing, sharing and working together.

akapapaanga and finally an understanding of the social structures of the *ariki, aronga mana, ui rangatera, puna and tapere*¹⁵⁹. The knowledge learnt provides the foundation upon which *ua kite ma te nakirokiro o te oraanga Mangaia* (a deeper understanding of oraanga Mangaia) can begin to develop.

Moekapiti Tangatakino

The difficulty in achieving these aims at senior secondary level is that the desire to obtain qualifications gets in the way. The only Cook Islands centric assessments on the NZQF are the Cook Islands language achievement standards. Primarily, these standards are designed for second language learning¹⁶⁰, not students fluent in their own language who might want to examine *oraanga Mangaia's* role in future SD on Mangaia. While *kimikimianga matatio* (critical thinking) remains a key goal of the Cook Islands Maori curriculum, in practice there has been little time to explore cultural perspectives critically as explained by Ina Hermann, Director Teaching and Learning Cook Islands Ministry of Education:

The intended focus on *kimikimianga matatio* has proved difficult, with many students needing to grasp language and culture fundamentals first. Furthermore, we are struggling to ground everything we do in Cook Islands values and contexts and to get in that mindset.

Ina Hermann

The same barriers exist on Mangaia. Moekapiti Tangatakino, the Maori teacher, explains:

Students, and some teachers, often do not have the depth of Mangaian language and cultural knowledge necessary to explore oraanga Mangaia at real depth. To the outsider they may appear to know Mangaian, but often it is only conversational Mangaian. When you dig a bit deeper, many students' language skills are basic.

Moekapiti Tangatakino

Student fluency in Mangaian is a bottom line to a proper understanding of *oraanga Mangaia*. However, at government level, without an “active Cook Islands Maori language Commission, the development of the language is compromised” (Scott & Newport, 2012, p. 48). This language loss is compounded by a preference for many families to speak

¹⁵⁹ The Mangaian terms used here have been described previously and appear in the glossary.

¹⁶⁰ Cook Island students living in New Zealand for whom English is their first language, Cook Islands Maori would be their second language. The majority of the teaching programme is focussed on reading, comprehending and translating Cook Islands Maori into English and vice versa.

English at home. For those that do speak Maori at home, some have a belief that learning at school should be reserved for English only.

In summary, on Mangaia, a lack of language fluency and the desire to focus on the language standards to build qualifications have been barriers to:

ua kite ma te nakirokiro o te oraanga Mangaia.

A deep understanding of the intricacies of oraanga Mangaia.

Urgent action should be considered; the risk is as Nettle and Romaine (2000) explain, “language death is symptomatic of cultural death: a way of life disappears with the death of a language” (p. 7). An EasSD curriculum could provide an impetus for deeper understanding of *oraanga Mangaia* with a resultant improvement of students’ overall language and cultural competency. In chapter nine, I explain how Moekapiti is seeking to confront this issue by facilitating lessons, driven by a Mangaian pedagogy, that immerse students more deeply in *oraanga Mangaia*, and consequentially culture and language.

Current and potential ESD curriculum: Ora’anga ë te Tupu’anga Meitaki (Health and Physical Well-being)

The *Ora’anga ë te Tupu’anga Meitaki* curriculum allows students to see the mental and physical health benefits of *oraanga Mangaia* in providing healthy local food and facilitating exercise. It could also allow students to explore notions of happiness through the pursuit of a balanced lifestyle, in the context of development and culture, as outlined by Maiava and King (2007), in a hopeful post-development setting, refer section 2.4. A lifestyle where a balance is struck between an engagement in healthy traditional livelihood pursuits such as planting, fishing and weaving and an increased dependence on the benefits of western technology to provide a comfortable lifestyle.

7.5.2 Knowledge of western ideology and technology

Knowledge from multiple sources often comes together to enhance development solutions. For example, on Mangaia, both *akonoanga enua* and western technological knowledge are used to strengthen fishing methods, grow vanilla and build a house. Inevitably, empowered Mangaians will decide for themselves the importance of specific knowledge. As Moyo (2009) explains, in the African context, African farmers will use whatever indigenous or western knowledge “meets their needs and aspirations” (p. 353).

As Burnett (2007) argues students encouraged to seek out all knowledge are able to move past the “simplistic binaries of ‘Western’ and ‘Pacific’ epistemologies, colonizer and colonized” (p. 271) . Students exposed to different worldviews can draw on a wider knowledge base when planning for sustainable futures. Students will make the link between knowledge and opportunity for themselves. Sometimes western theories of science¹⁶¹ may endorse local Manganian knowledge and sometimes challenge it. Moreover, a knowledge of western thinking provides Manganians a useful window into how development in the Pacific Islands is framed by financially powerful outsiders. Armed with this understanding, Manganians can make informed decisions on whether to incorporate, assimilate or reject western ideas in terms of their impact on *oraanga Mangania* and Manganian culture. Western knowledge and thinking that complements and enhances *oraanga Mangania* can be used.

Given the tendency of Manganians to migrate overseas for work, global knowledge remains imperative. Knowledge of science, technology, economics and business provides students with the skills to secure western qualifications and pursue diverse careers. The Cook Islands Ministry of Education backs this stance, viewing literate and numerate students as a prerequisite in a globalised world (Cook Islands Ministry of Education, 2007).

Current and potential ESD curriculum: English

English is an important vehicle, allowing students access to western knowledge and development thinking that is relevant to SD on Mangania through connecting “with the ever-changing world” (Cook Islands Ministry of Education, 2006c, p. 8). In addition, students are able to explore their own culture through localised learning contexts¹⁶², for example, the synergies and conflict between Manganian and western culture can be explored through posters and film¹⁶³. Topa Julian, the English teacher, described how ESD could be integrated into English:

In English, we learn about SD and sustainable livelihoods on Mangania as they are important to Mangania’s future. For example, we have just completed a unit

¹⁶¹ Including science, biology, economics, business models and technological applications.

¹⁶² The English curriculum positively reinforces Cook Islands identity through its focus on *Te Tango o te Peu Maori* (Maori cultural knowledge and practices) as contexts for teaching (Cook Islands Ministry of Education, 2006c).

¹⁶³ Students are able to discuss, interpret, evaluate and produce oral, written and visual language features “relating them to personal, social, cultural, political, and historical contexts” (Cook Islands Ministry of Education, 2006c, p. 38) .

on fishing where students learn English as they plan, carry out and subsequently evaluate a fishing trip. As part of the unit, students made a fishing rod, fishing basket, and then caught and cooked fish for a shared meal. This activity reinforces culture. We ended up discussing issues of sustainability, for example, the low cost of local food, the importance of *raui* and conserving fish stocks, fishing as a business and even the old ways of sharing fish.

Topa Julian

Topa explained how the fishing unit could be extended to include even more learning about sustainability. She suggested the class could explore:

The positive impact of fishing on diet and the ability to reduce spending on imported food;

The economic benefits and environmental risks¹⁶⁴ of developing a fishing industry on Mangaia;

An examination of the positive social benefits of a partial return to group or *puna* fishing whereby the fish caught are shared using *tua ngutuare* (share per household) or *tua atangata* (sharing per head).

Topa Julian

In agreeing to the urgent need for a place-based ESD focus across the curriculum, Topa provided a word of caution:

Teachers understand SD in general because it is always in the news and is a feature of life on Mangaia. At senior levels though, we would need some support, particularly around technical information, as the issues are complex. The provision of quality teaching resources would be a prerequisite to introducing ESD teaching programmes in the classroom.

Topa Julian

We went on to discuss how poetry from Raumea Koroa¹⁶⁵, a well-respected former Manganian teacher, could serve as a unique Manganian introduction to SD into the classroom. The poems had the advantage of being in the Manganian dialect and about local contexts. Whilst in Rarotonga, I visited Ani Wood, the daughter of Raumea Koroa, who described the strong SD themes throughout her father's poetry. She outlined the themes behind just three of her father's poems to illustrate this:

¹⁶⁴ Species depletion, pollution and reef damage.

¹⁶⁵ Also known as Koroa Koroa.

Rauia te Paua - has an environmental message.

The poem is saying do not overfish but it also alludes to conservation in general. It is thought provoking as it asks many questions about how, we, as Mंगाians, relate to the environment. In other poems, my father talks about the importance of the *Tanga'eo* (Kingfisher) to Mंगाia.

E mama kia akamaara'ia - has a social message.

It is about Mama Poti who was well known for being generous and helping everyone out. In Mंगाian, we describe persons like Mama Poti as “oronga ma te tutaki kore” a giving person. People like Mama Poti are the key to continuing social cohesiveness on Mंगाia.

Farewell my countrymen – debates the purpose of education.

If you succeed in education, you will leave the island, often never to return. You will work in a nine to five job and make money but you will miss the paradise that is Mंगाia. That is the dilemma. The poem challenges people to think about what development really means. Mंगाians have always migrated overseas for economic reasons to make themselves happier but ironically those who stay on Mंगाia may be happier as you have everything you need on Mंगाia.

Ani Wood

The poem “*Rauia te Paua*” could be used to introduce the *akonoanga enua* theme. “*E mama kia akamaara'ia*” could depict the importance of *aroa taeake*. “*Farewell my countrymen*” could represent the importance of *te ipukarea ia rangaranga*. Ani went onto to state that she would:

Like the poems published to benefit all Mंगाian students.

Ani Wood

This is an example of a place-based, culturally responsive teaching resource that could easily be made available to students to support their learning about SD.

As described in chapter six, both *oraanga Mंगाia* and relevant western knowledge are integral to future SD thinking on Mंगाia. Therefore, it is important students become bilingual as “each language has its own window on the world” (Nettle & Romaine, 2000, p. 14). The Cook Islands Curriculum framework (2002) embraces this view believing Cook Islands Maori is the “essence of Maori identity” (p. 11) and that “without language, culture will cease to exist” (p. 11). English is simultaneously recognised as an important international language for business, science and development initiatives in “modern Cook Islands society” (p. 11). At Mंगाia School:

The language policy at Mangaia School is to start children with their first language, Mangaian, and then add 10% English into the curriculum each year. By the time they reach year 6 it should be 50/50.

Marky Tangimataiti (Head of Primary at Mangaia School)

However, the transition to English is not always seamless:

At secondary school, classroom instruction is meant to be in English in all subjects apart from Maori but is often not as some students require instructions in Maori to understand.

Participant 42: Teacher

Current and potential ESD curriculum: Mātemātika (Mathematics)

Mathematics is fundamental to students becoming “numerate members of society” (Cook Islands Ministry of Education, 2005, p. 6) . Mathematics supports a problem solving approach to learning and is therefore an important part of any EasSD. Traditionally, Mathematics at Mangaia School has been textbook focused. Curriculum redesign at Mangaia School aims to make Mathematics more relevant by situating learning experiences in place-based contexts. Sue Ngatokorua, Principal and Mathematics teacher at Mangaia School explains:

In the senior school, the newly aligned achievement standards¹⁶⁶ have acted as a catalyst for the school to begin to offer practical numeracy assessment. In one assessment, we have tasked students with determining how much paint would be required to paint the roof of one of the school blocks. Over time, we are intending to move towards a more contextualised learning approach.

Sue Ngatokorua

Current and potential ESD curriculum: Tāieni (Science)

The science curriculum¹⁶⁷ at Mangaia School contributes to ESD by allowing students to make sense of scientific and environmental phenomena around them. Sue Ngatokorua, science teacher, explains, using only a few examples:

¹⁶⁶ In June 2008, the Alignment of Standards with the New Zealand Curriculum project began at NZQA to review and align standards with the new New Zealand Curriculum. Newly aligned standards were introduced progressively from 2011 (New Zealand Qualifications Authority: Mana Tohu Matauranga O Aotearoa, 2013).

¹⁶⁷ The science curriculum is divided into four contextual strands; Apinga Natura Ora (Living World), Tu e te Tienianga (Material World), Kaveinga Ririnui (Physical World) and Enea e te Rangi (Earth and Sky) (Cook Islands Ministry of Education, 2006b).

In science students learn about local flora, fauna and ecosystems¹⁶⁸. Students also learn about the chemical properties of the makatea and caves on Mangaia¹⁶⁹. When studying energy students learn about canoe paddling and electricity generation¹⁷⁰. Soil types on Mangaia and the effect of the moon on tides are also studied.

Sue Ngatokorua (Principal and Science teacher)

In class, students debate the impact of human development on the environment at both local and global levels, for example, they investigate pollution, waste disposal, habitat destruction and global warming¹⁷¹.

Fundamentally science helps students make sense of the surrounding environment. For example, evidence of significant vegetation damage and rock movement of the uninhabited south coast of Mangaia on 13 April 2010 led to speculation that a Chilean earthquake had generated a small tsunami. However analysis of scientific data could make no definitive link to the Chilean earthquake and therefore storm damage as a result of a rogue wave could not be ruled out (Goff, 2011). Science helps students to formulate objective hypothesis and not jump to unfounded conclusions, Lucky Julian explains:

In class, we talk about topical issues like the cause of the wave damage on the south coast of Tamarua. Access to reliable scientific information assists us to make rational sense of observed phenomena.

Lucky Julian (Social Studies teacher)

¹⁶⁸ Discuss the effects of human intervention on a local ecosystem. Investigate how biological principles can be applied to plant and animal management (Cook Islands Ministry of Education, 2006b, p. 11).

¹⁶⁹ Observe and discuss the nature of reactions and their applications (Cook Islands Ministry of Education, 2006b, p. 14).

¹⁷⁰ Discuss the applications of energy transfer (Cook Islands Ministry of Education, 2006b, p. 13).

¹⁷¹ The following are suggested learning contexts in the curriculum:

- Level 2 e.g. preserving food, rauī, recycling, preparing an umu;
- Level 3 Identifying positive and negative effect, for e.g., hydroponics, waste disposal;
- Level 4 Identify and report on the views of a particular group of the community towards a scientific issue; e.g. fishermen, shop owners, WWF, Mangaia Rangers;
- Level 5 Identify and compare the views of different groups of people about a given scientific issue and how it has promoted or constrained science; and
- Level 6 Explain the beliefs, values or ethics that have promoted or constrained a recent scientific development in their community / region and the impacts of any decisions made (Cook Islands Ministry of Education, 2006b, p. 21).

In summary western science is just another valuable tool to assist students in making sense of the issues inherent in sustainability.

Current and potential ESD curriculum: Ora'anga 'Iti-tangata (Social Studies)

The social studies curriculum has four main foci; Knowledge of society and identity (Social Studies), cultural development and change (History), people, place and environment (Geography) and economic organisation (Economics). The social studies curriculum is geared towards teaching students about the key principles of SD, especially at the local level with its focus on place-based learning. The following comment outlines some of the local context taught in just one junior secondary class at Mangaia School:

Students learn about oraanga Mangaia in detail. Especially *peu puapinga, te au peu enua, kopu tangata, akapapaanga* (culture, values and genealogy) and social organisation, for example, aronga mana, puna and tapere. We discuss the move from the *kainga* (inland) to the *makatea* (plateaus).

In the culture and change unit, we compare the old Mangaian ways to the new ways. We look at cultural and lifestyle changes, for example, food, transport (horse to motorbike), communication (radiotelephone to mobile phones), cooking (from firewood to gas) and fishing (from canoes to aluminum dinghies). We discuss whether all the changes have been for the better, for example, the canoes were light and easy to carry; now you need a trailer and ute to move your dinghy. We investigate the place of social customs like the *takurua mataiti* and *uipaanga pukuru* held in January and whether they should be reinvigorated. We also look at land tenure on Mangaia, comparing the rules to the rest of the Cook Islands.

Lucky Julian

Current and potential ESD curriculum: Tekinoroti (Technology)

Currently, the technology curriculum on Mangaia is in decline:

A lack of funding and teaching resource resulting from a falling school roll, has meant the workshop technology class no longer is operational. It is a pity as students are keen to do this subject. One off carpentry workshops have been held and are popular. We have been thinking about how we might reoffer classes in this area.

Sue Ngatokorua (Principal)

Trade and practical skills are vital to SD on Mangaia. The reintroduction of technology would provide students with foundational, practical skills.

Current and potential ESD curriculum: Peu Ora'anga (The Arts)

Art offers an avenue for students to express ideas about SD. Art is occasionally integrated into subjects such as Maori, Social Studies and English. There are currently no separate art classes. The issue is similar to technology, with limited funding for materials and a lack of staffing to be able to offer classes.

We have many good artists. We should be offering art classes to build on students' strengths. The arts can offer viable livelihoods for students wishing to stay on Mangaia.

Participant 95: Teacher

7.5.3 Knowledge of economics and business

Education has a role in supporting economic development on Mangaia. Mangaian students would benefit from understanding how the Mangaian economy works and building the skills to run a small business enterprise. Students cannot just study western economics and be expected to translate their understandings to the Mangaian economic context.

Students need to understand business and economy in the context of *oraanga Mangaia*. Specifically, the interaction between *aroa taeake* and conventional western economic theory in determining market price on Mangaia. Students will also benefit from understanding the competitive, economic advantage *akonoanga enua* provides in reducing the costs of enterprise capital. Instead of relying on expensive imported materials, some building and planting materials are obtained from the land and sea at no cost. For example, poles for staking plants, mulch for fertilizer, plant material for thatching and weaving and food for selling. With costs of production, reduced, net profit is increased. Tangi Matapo, the MP for Tamarua, spoke of missed economic opportunities over Christmas 2013, stating Mangaian small business operators were "ill prepared" (Chapman-Smith, 2014) for the influx of visitors and the demand for goods and services it created. She stated:

Residents need to think harder about the economic opportunities available to them. I think this is something we need to look into.

(Chapman-Smith, 2014)

The market acumen of Mangaian students, seeking business opportunities on Mangaia, could also be improved with a basic understanding of the common economic challenges facing SIDS countries¹⁷² including the Cook Islands. For example, factors such as prohibitive transport costs to market and diseconomies of scale. In summary, students need to understand economic fundamentals in context in what Polanyi (1957) describes as the “always- embedded economy” (Curry, 2003, p. 409) .

Students with an understanding of place-based, economic fundamentals are in a much better position to devise strategies that take advantage of or combat difficult market conditions. The current senior secondary New Zealand economic curriculum delivered to students does not reflect this outlook. New Zealand assessments and textbooks, unsurprisingly, focus on New Zealand markets and not the market factors at play in the embedded economies of small isolated islands, like Mangaia, that exist in SIDS’s countries.

Current and potential ESD curriculum: Kimi’anga Pu’apinga (Enterprise studies)

The enterprise curriculum (Cook Islands Ministry of Education, 2011a), is a key plank supporting the drive to create a “vibrant Cook Islands economy” (Government of the Cook Islands, 2011a, p. 6). The curriculum represents an opportunity to teach students the fundamentals of enterprising behaviour¹⁷³, a key element of SD. One section of the enterprise curriculum even offers students an opportunity to explore potential impacts of economic development on society and the environment. An EasSD approach could steer the delivery of localised enterprise programmes towards business initiatives that respect and leverage off *oraanga Mangaia* for success and away from a ‘New Zealand centric’¹⁷⁴ curriculum that only focuses on western notions of entrepreneurship and business success while ignoring *oraanga Mangaia*.

The importance of students building small business skills as a component of SD on Mangaia was alluded to in chapter 6. An EasSD approach would provide students the

¹⁷². Factors such as dis-economies of scale and the increased freight and storage costs associated with supply from remote islands.

¹⁷³ The curriculum aims to teach students the following four strands: Enterprise Knowledge and Understanding, Enterprise Process and Practice to develop Enterprise Attributes, Financial Education for Financial Capability and Enterprise in Society, Understand the impacts of enterprise on society and the economy (Cook Islands Ministry of Education, 2011a).

¹⁷⁴ Most resources referred to are provided by the New Zealand based Young Enterprise Trust through their website (Young Enterprise Trust, 2013).

opportunity to develop their entrepreneurial and small business skills in the context of *oraanga Mangaia*.¹⁷⁵ Students could then expand their future livelihood horizons beyond paid employment in what has become a smaller public service. The Y11 and 12 tourism course at Mangaia School, discussed in detail in section 7.8.1, is an example of an innovative classroom programme already teaching students place-based business and entrepreneurial skills.

Students make a variety of craft (for example, stone necklace, *pareu*, *kikau* broom, and wall hangings) and then learn how to market and sell them. Students develop an awareness of how they might develop their own small business on Mangaia.

Gillian Vaiimene (Y12 tourism teacher)

A two-day small business community workshop held on Mangaia in February 2012 provides an example of what is possible to get students to imagine future localised, sustainable livelihoods. The workshop, facilitated by Tangimama Vavia, the island's tourism and community development officer, aimed to teach unemployed youth and final year students how they might start small business that prepared, made and finally sold a variety of craft and food at the market. Tangimama stated:

I saw the need for school leavers and soon to be school leavers to develop the skills to earn their own money and not rely on their families.

Tangimama Vavia

At the completion of the workshop, some students continued to sell merchandise at the weekly market. The programme was a success with Tangimama receiving “positive feedback from families of the team and the general public for her efforts in helping these children make their own money” (Cook Islands News, 2012b). Tangimama explains the highlights:

The main purpose of the workshop was to make money, as I wanted the students' experience to be real. The focus was on local things connected to *oraanga Mangaia*, like food and craft¹⁷⁶. We encouraged participants to consider a zero start up cost. The skills we taught were how to brainstorm,

¹⁷⁵ Skills like the knowledge associated with product and service development, marketing, financial management, strategic planning and the ability to build effective business relationships.

¹⁷⁶ Examples of craft available for sale were *kikau* brooms, *pareu*, and *ei pupu*. Examples of food available were “avocado, coconut sauce, fresh *rukau*, coconut drinks, fish, taro and mangoes” (Cook Islands News, 2012b).

price setting, product presentation, personal presentation and attitude, budgeting and finally the skills to make or prepare the product for sale.

The students really enjoyed the practical side of things and the idea of making some money. One workshop participant, in partnership with his grandmother, is carrying on selling bottles of coconut sauce at the market.

Tangimama Vavia

The success of this short-term workshop demonstrates what can be achieved through enterprise programmes at Mangaia School. A key step would be to link such programmes to qualifications. Students would not only develop business and entrepreneurial skills, they would also gain credits towards their NCEA. This approach would increase the credibility of enterprise education with parents and the wider community.

Helping youth is part of my job, so I would be happy to help the school in the future. It would be great if the students could get academic credits for their work experience.

Tangimama Vavia

Aid project management skills

Students, the future leaders of Mangaia, also require the skills to apply for and manage development projects. With concern about climate change, environmental aid funding in the Pacific has already increased through both government and NGO channels (Global Climate Change Alliance, 2015; New Zealand Ministry of Foreign Affairs and Trade, 2012). Mangaians, through their *puna* plan, have already signalled the need to tap into this funding to both progress development on the island and to secure much needed finance for the local economy.

EasSD programmes could teach students project management skills. Students could be taught how to write project proposals, then plan, implement and evaluate development projects. Some actual aid projects that students could engage with were outlined in section 6.6.5.

7.5.4 Knowledge of Vocations

Successful development on Mangaia requires a skilled workforce to support tourism, agriculture and small business initiatives. In addition, skilled trades' people are required to support the provision of quality infrastructure for economic development and the provision of basic quality services to the community. Specific vocational training is a requisite in a wide range of areas, including tourism, agriculture, business services, building,

plumbing, electrical services and communications. In 2011, the Minister of Education, Teina Bishop, signalled the government's directions:

While academic studies are of paramount importance, it is equally as important to also encourage life education in schools.

(Reeves, 2011)

EasSD could provide a sharpened focus on vocational training on Mangaia. Vocational training, contributing to SD, is more likely to lead to real employment opportunities for students on Mangaia. Learning becomes purposeful and relevant to those students in the context of future, real livelihoods on Mangaia.

Current and potential ESD curriculum: Vocational study

The 2012 placement of the Human Resources Department (HRD), under the auspices of the Ministry of Education, signaled a move towards greater emphasis on the transition from secondary to tertiary study in schools.

The merger of HRD, which oversees tertiary training and qualifications in the Cook Islands, into the Ministry of Education will provide greater opportunity for senior secondary students to pursue vocational study and gain useful qualifications while still at school. It also eases the transition of senior school students into vocational courses once they have left school. The move to seamless pathways in education in the Cook Islands is what was envisaged in 2001 when Cook Islanders voted overwhelmingly to stick with New Zealand qualifications.

Violet Tisman
Director Human Resource Development

The newly formed Cook Islands Tertiary Training Institute (CITTI) will oversee all “education delivered beyond compulsory schooling. This includes programmes of learning described as continuing, community, vocational, trades or university education. It includes the interface between secondary school and post school” (Cook Islands Ministry of Education, 2013).

Starting in 2011, Mangaia School already offers students automotive and carpentry short courses:

Many students love, and are better engaged, when undertaking practical automotive and carpentry courses. With the seamless approach to education these courses can now contribute to students' qualifications¹⁷⁷.

Sue Ngatokorua

The community is keen to assist where possible with skill development:

I would love to help with any school based carpentry courses. I already help students interested in carpentry by employing them over the holidays. They really enjoy working on real building projects and are quick to learn.

Ngametua Papatua (Carpenter)

The Public Works department is interested in providing taster course for students interested in electrical or plumbing apprenticeships.

Anthony White (Public Works Department)

If there were students interested in agriculture as a career I would be keen to help.

Miria Ruatoe (Grower)

However, implementing vocational programmes creates logistical challenges:

We can access a "limited access to teaching" fund to pay for a technology teacher but then we still need funding to purchase tools.

Sue Ngatokorua (Principal)

Nevertheless the effort in creating these courses would seem worthwhile in providing relevant livelihood focused education that motivates students to learn:

I really enjoyed working on small motors and I liked the carpentry workshops too. We learnt some valuable skills.

Participant 89: Student

Mangaian, through the Mangaia Island and Puna Plans (2014), recognise the urgent need for vocationally trained and practically skilled youth to support development initiatives on Mangaia. In response, Mangaia School is already considering collaborative community based partnerships with the newly formed CITTI that create seamless education pathways for Mangaian students (ibid). An overarching EasSD curriculum would support vocational training programmes, providing students the opportunity to learn relevant skills in the context of future sustainable livelihoods, *oraanga Mangaia* and SD on Mangaia.

¹⁷⁷ As an example in 2011, Mangaian senior students obtained 46 motor industry and construction unit standards between them.

7.5.5 Knowledge of the Manganian environment

To appreciate what *akono akaperepere ma te taporoporo i te ipukarea*¹⁷⁸ entails from a Manganian worldview, students must explore the dynamics of *oraanga Mangania*. In particular, students need to appreciate the constant rebalancing that occurs through *akonoanga enua* and *raui* as Manganians engage with the environment. Parallel to this, students can extend their understanding of nature by exploring ecosystems through a western science lens. This knowledge integration would allow students to gain a deeper understanding of ecosystem dynamics on Mangania.

As Manganians globalise, it is vital students develop the skills to measure the impact potential development projects might have on local ecosystems. Here a knowledge of *raui* and Manganian ecological zone conceptions, alongside western ecological theory and notions of global conservation, would be beneficial in co constructing SD solutions. Jim Marurai¹⁷⁹ explains:

Environmental education, inclusive of Manganian conceptions of nature, is crucial for students when contemplating SD. We must not make any plans for development without first considering the impact on the environment.

Jim Marurai (Member of Parliament for Ivirua)

As an example, a *kavana* described to me how he had gained a new insight into conservation at the time of the Manganian airport opening:

During the ceremony, the NZ High Commissioner mentioned how beautiful he thought the pinnacles by the airport were. It made me think we must be careful when blasting the rock to get limestone for our roads. We should make a conservation plan and blast only specific areas, leaving the rest untouched. As a result, in Keia puna we stopped all blasting of pinnacles along the coastal areas so everybody can enjoy the unique Manganian landscape forever. This also protects the habitats of the pandanus, pupu and uga (coconut crabs) so the women have their materials to weave mats and sew necklaces and we can all enjoy eating uga.

Tuaiva Mautairi (Kavana for Keia)

Tuaiva's thinking has extended to other environmental areas:

¹⁷⁸ This describes how Manganians care for their environment and was explained in section 6.4.

¹⁷⁹ Former Prime Minister of the Cook Islands 2004-2010 and current Member of Parliament for Ivirua.

Now I am thinking about protecting areas of the rainforest for future generations of Māngaians and to benefit ecotourism. Conservation measures are something all Māngaians must consider.

The Island council wanted to privatise the road cleaning. I was concerned that new contractors would spray the weeds and end up killing the pupu that the women of Tamarua depend on to make ei pupu. Therefore, I have already put in place a plan to prevent roadside spraying on Keia puna land.

Tuaiva Mautairi

Tuaiva finished the interview by stating:

It is important students understand the need to protect the environment in the face of increasing development on Māngaia. Students need to learn the role rāui and conservation can play in environmental protection.

Tuaiva Mautairi

There is also awareness of the need for students to understand the whole energy topic, including renewable energy, energy conservation measures, and their relationship to the environment.

With concern about climate change, there is a big government focus on renewable energy. It is therefore timely for students to learn about the science behind renewable energy. Students need to make the connection between the principles of energy conservation and the benefits for the environment.

Anthony Whyte

Environmental awareness: Contributing to EasSD

In addition, to core environmental learning in mainly science and social studies curricula, students study environment sustainability through government, NGO and aid sponsored ecological awareness programmes¹⁸⁰. Lucky explains:

Last year we had a one week environmental programme at school in conjunction with environment week. Students looked at a variety of topics like kingfisher and turtle protection. They made posters and some wrote poems. We have also debated the reintroduction of rāui. To stop the pressure put on pauua stocks with expatriate Māngaians coming back home from New Zealand for Christmas wanting to take containers of frozen pauua back to

¹⁸⁰ The National Environmental Service co-ordinates yearly themes focussed on ecological protection. In 2012, it was the Year of Action against waste. In 2013, it is Year of Love Your Coast. In addition to these yearly themes, the government also co-ordinates an environment week in conjunction with lagoon day focussed on Rarotonga. In 2011 the theme was 'Healthy Wetlands' (National Environment Service Tu'anga Taporoporo, 2013).

New Zealand¹⁸¹. We are trying to get students to think carefully about our responsibilities to protect the environment.

Lucky Julian

Many environmental organisations also venture to Mangaia, promoting conservation. During my 2012 stay on Mangaia, Jess Cramp¹⁸², an environmentalist, was on Mangaia promoting the Cook Islands Shark Sanctuary Project - *Akono te mango*¹⁸³. She stated:

The Mangaian students have very quickly developed an understanding of the importance of sharks to the ocean ecosystem.

Jess Cramp

As much as possible, the school takes advantage of such visits.

We encourage visitors to school whilst being careful not to disrupt teaching programmes. For our students, living on a remote island, it is beneficial to be exposed to new ideas. What we get is some valuable teachable moments from fresh faces.

Sue Ngatokorua (Principal Mangaia School)

The school also makes use of local expertise

We get our *kavana* to explain the principles behind *raui* right through to getting Anthony to outline the thinking behind our local sustainable energy projects.

Sue Ngatokorua

The school also gets involved in community environmental awareness programmes. In 2011, the MIA supported International Earth Hour by turning off Mangaia's power for 1 hour. Participation in the event served to create an awareness of the need to reduce energy emissions in the context of climate change (Manins, 2011b). The significance of this event was discussed with the school students.

¹⁸¹ Pauua are a shellfish.

¹⁸² Jess Cramp is the programme manager for Pacific Islands Conservation Initiative (PICI) (Lyon, 2013).

¹⁸³ The Cook Islands established the world's largest continuous shark sanctuary in 2013, enforcing heavy fines on violators who are found with any part of a shark on board their vessel in the 1.997 million sq. km (771,000 sq. miles) Exclusive Economic Zone (EEZ) (National Geographic, 2013).

7.5.6 Knowledge of Manganian society

It is crucial students understand the impact of westernisation on *oraanga Mangania*. Some change may be welcome, but not all. The following question needs to be asked by Manganians: *Is creeping individualism eroding kinship ties and obligations?* If western ideas are not to dominate the social landscape on Mangania then students must be capable of making informed decisions on the impact of future development on Manganian society, using *Te ipukarea ia rangaranga* as their guide.

As an illustration, I outline the importance of facilitating discussions on the complex and potentially controversial topic of land tenure on Mangania¹⁸⁴. An EasSD approach would allow students the freedom to compare and contrast the different worldviews on land tenure. Tangi Matapo, the Deputy Principal, explains:

Land tenure on Mangania is complex. For students to really understand land allocation on Mangania they need a historical perspective and knowledge of how the rules evolved. Students also need to be aware of how expatriate Manganians might have had their thinking influenced by western views on land titling and ownership. Students must be allowed to debate both views and the advantages and disadvantages of titling and leasing land.

Tangi Matapo

Although land tenure is a sensitive topic on Mangania, refer to section 6.1, Tangi argues students can still discuss it:

It is OK for students to discuss and debate land tenure on Mangania as long as they respect individuals. In other words, students can debate the issues but not get personal. It's common sense really.

Tangi Matapo

Recent moves to title and lease land, refer back to section 6.10, indicate Manganians are interested in the western ideology of private land ownership. Thinking that views land as a common, could be overlooked by young Manganians when land as private capital with an economic benefit is allowed to pervade students' thinking. This example illustrates the necessity of a critical, reflective EasSD that facilitates debate and a consideration of all viewpoints across different worldviews. Tangi states:

¹⁸⁴ Discussed in section 6.10.

It is important the students of today are fully aware of the diverse thinking that exists around land tenure on Mangaia. As future custodians of Mangaia it is important they are in a position to make correct decisions that will benefit all Māngaians while respecting ongoing Māngaian culture.

Tangi Matapo

7.6 NCEA Assessment: Contributing to EasSD

The realisation of an EasSD curriculum, in an environment where internationally recognised qualifications are demanded has been made a lot easier with the existence of NCEA. NCEA offers the potential to contextualise learning towards local SD contexts. Though the expression of a Māngaian SD worldview remains problematic, strategies to overcome this are discussed in section 7.7.5 and 7.8.

Cook Island students have traditionally undertaken New Zealand assessment from Years 11 to 13. In 2001, when the New Zealand education system was planning to phase out School Certificate and replace it with NCEA¹⁸⁵, a survey was conducted to gauge parental and community opinion on the future of educational assessment in the Cook Islands.

Violet Tisam, Director Human Resource Development, explains:

In 2001 parents and the community overwhelmingly demanded their children continue with New Zealand qualifications at both secondary and tertiary levels. The reasoning was simple: Cook Islanders believed it would be easier to get jobs in New Zealand or Australia and be accepted into further tertiary training overseas, with internationally recognised New Zealand qualifications. In short, New Zealand qualifications were considered better than anything the Cook Islands could offer.

Violet Tisam

¹⁸⁵ NCEA Level 1 replaced School Certificate in 2002. NCEA Level 2 was introduced in 2003. NCEA Level 3 and New Zealand Scholarship replaced University Entrance, Bursaries and Scholarships in 2004 (New Zealand Qualifications Authority: Mana Tohu Mātauranga O Aotearoa, 2013).

Senior Ministry of Education officials recognised that NCEA conferred other advantages as well. Assessment opportunities were available in a greater diversity of fields than previously.

The introduction of more practical subjects such as the Certificate in Employment Skills and Agricultural Standards that could be assessed internally suited some students.

Peter Etches
Former Director of Audit and Quality
Cook Islands Ministry of Education

Motivation to study also increased:

Studies became more enjoyable with a move away from the previous sole focus on end of year examinations. Students became more motivated to study when they could see the gradual accumulation of assessment credit over the year.

Tere Utanga
Director Human Resources
Cook Islands Ministry of Education

NCEA also offered greater curriculum flexibility than New Zealand School Certificate:

Ministry officials, teachers and students liked the move to NCEA, as it signaled a move away from the pass/fail mentality of end of year examinations. Students could build up qualifications with a mix of internal assessment and external examinations over a more achievable two year period. Learning and assessment, although still based on a New Zealand curriculum, could now be contextualised. Concepts previously explained, using New Zealand contexts, could now be explained by using local examples.

Peter Etches

However, this potential to transform teaching by providing students with relevant, contextualised, place-based learning experiences centered on life in the Cook Islands has yet to be fully realised.

The introduction of NCEA opened up possibilities to make the curriculum more relevant for Cook Island students. Unfortunately, the demands to get students' qualifications and the continual turnover in teachers, especially at Tereora College, has meant only a partial implementation of place-based education has been realised. Maybe this is the next focus in the evolution of education in the Cook Islands.

Ken Matheson
Former Secretary of Education
Cook Islands Ministry of Education

At Tereora College many of the expatriate teachers only stay for two years and with pressure to ensure students pass, they tend to focus on the New Zealand based units of work with which they are comfortable. This slows the introduction of a true place-based curriculum.

Bali Haque
Principal of Tereora College

At Mangaia School, a similar pattern has emerged. With the focus on academic success, and the difficulty in preparing contextualised units of work, teachers have tended to adopt pre-prepared assessments from New Zealand that invariably have a New Zealand perspective.

We tend to use assessment tasks from New Zealand that have been pre-moderated. It is a lot easier and safer as we do not have to spend a lot of time hunting out resources. Some of us tried to make our own place-based assessment tasks only to have them rejected. It was very frustrating. The few New Zealand Correspondence School courses taken have an automatic New Zealand focus.

Participant 96: Teacher

The result is the Cook Islands senior curriculum remains New Zealand centric. Yet the rhetoric of the Cook Islands curriculum framework (2002) states:

The school curriculum will acknowledge and value the special place that is the Cook Islands, and will give students the opportunity to learn about Cook Islands culture and language. (p. 5)

Despite slower than expected change, examples of localised curricula at senior school levels are beginning to appear. The Cook Islands Maori and Tourism classes at Mangaia School, to be discussed in 7.8.1, provides an example of what is possible. Given the cultural and contextual uniqueness of Mangaian SD, a place-based culturally responsive Mangaian (or wider Cook Islands) EasSD offers a real practical chance for students to learn about their culture in the contemporary and increasingly important sphere of SD. A description of a potential EasSD curriculum is now presented.

7.7 Towards an EasSD curriculum

Vargas (2000) argues sustainable development education in the Global South requires learning that incorporates the “wisdom and knowledge of all, ‘modern’ and ‘traditional’” (p. 394). This thinking is backed by my findings in chapter 6 where I demonstrate Mangaian draw on all knowledge when grappling with best-fit solutions to SD on Mangaia. *How then should EasSD be implemented so that rhetoric turns to reality?* Drawing on Hopkins and McKeown’s (2001) strength model of ESD implementation I suggest students could explore current economic, social, environmental and technological curriculum programmes through a “SD lens”. They could integrate this learning with teacher, community and their own knowledge about *oraanga* Mangaia and Mangaian culture. Hopkins and McKeown (2002) explain:

To make progress in reorienting education to address sustainability, we need to identify and recognize the current contributions of disciplines, programs, and teachers to ESD in our own school systems. Once these individual components are identified, we can weave them together to create an integrated ESD program and teach it overtly as ESD to students. In this approach, the synergistic strengths of combined educational disciplines can convey the knowledge, issues, skills, perceptions, and values associated with ESD without adding substantial costs to school systems. (p. 22)

Of course, gaps in specialist SD knowledge, where they exist, would have to be filled whether they be of Māngāian or western origin, through the provision of curriculum resources and professional learning support. Nevertheless, a radical revamp of existing curricula should not be required.

Drawing on this idea of a strength-based implementation, I describe four distinct but interconnecting parts of a proposed Māngāian EasSD curriculum.

The five parts of the overarching EasSD curriculum are described in detail:

- Foundational knowledge;
- Theme based environmental awareness;
- A vocational pathway;
- A cross cutting curriculum theme; and
- A specific subject at senior secondary levels.

Many aspects of these parts have already been partially implemented by teachers on Māngāia and/or are expectations of the Cook Islands curriculum framework.

7.7.1 EasSD: Foundational Knowledge

The current Cook Islands Curriculum is made up of eight essential learning areas those being:

- *Te Reo* (Māori and English);
- *Ora'anga ̄ te Tupu'anga Meitaki* (Health and Physical Well-being);
- *Mātematika* (Mathematics);
- *Tāieni* (Science);
- *Peu Ora'anga* (The Arts);
- *Tekinoroti* (Technology);
- *Ora'anga 'Iti-tangata* (Social Studies); and
- *Kimi'anga Pu'apinga* (Enterprise studies).

The knowledge and skills learnt in these areas provide the foundational knowledge upon which an understanding of SD at both local and global levels can form.

7.7.2 EasSD: Theme based environmental awareness

Cook Islands students, like many students worldwide, are predominantly exposed to ESD through periodic foci on ‘one off’, often UNESCO funded, ESD events loosely attached to the curriculum¹⁸⁶. The activities are a valuable first step in capturing students’ interest in environmental protection. However, delivered in isolation from discussions on development, they fail to provide students with sufficient depth of understanding of Mangaian SD (Cook Islands National Capacity Self-Assessment Project Management Unit, 2007). The themes chosen reflect areas of growing environmental public interest, for example, climate change (Government of the Cook Islands, 2011b) but do not always link this learning to the complexity and multidisciplinary nature of SD.

Students do not always get the opportunity to build integrated understandings of the relationship between economic development and the environment. Learning is sometimes superficial. Where links are provided, learning is often predetermined and indoctrinates rather than educates (Sterling, 2001). Moreover, with imported programmes, learning is usually centered on global sustainability themes with students unable to make local place-based connections to nature or culture. The following example illustrates this.

The case of learning about climate change

While I was researching on Mangaia, students at Mangaia School were participating in an externally organised climate change activity as part of the Pacific Adaptation to Climate Change Project (PACC). The aim was to learn about climate change. The organisers had posed a question: “*What changes are evident on Mangaia over the last 10 years due to climate change?*” (Tavanabola, 2011). One student was encouraged to link the drying of the taro swamps to the effects of climate change, despite no scientific investigation, or cultural link being made¹⁸⁷. I argue care must be taken in attempting to make causal links between climate

¹⁸⁶ School talks from visiting experts and UNESCO themed days. For example Lagoon day was held 1st and 2nd of June 2011 as part of environment week.

¹⁸⁷ As described in chapter six, the main cause may instead be pine trees drying up the small streams that feed into the swamps. These pine trees were planted in response to soil erosion caused by the pineapple industry. Climate change may prove to be a factor but has to be determined empirically.

change and observed phenomena. In questioning Sue Ngatokorua, the science teacher, about the wisdom of reaching conclusions with little or no empirical or long term observational evidence, she agreed care should be taken in basing 'findings' on unsubstantiated dogma:

Yes, some of the learning resulted in inexplicable statements being made, we need to explore issues like climate change in greater depth in classroom programmes. However overall it is important to bring issues like climate change to students' attention.

Sue Ngatokorua

Nevertheless, climate change awareness through education remains important. As Sue quoted in the Cook Islands News (Tavanabola, 2011), the climate change activity:

Helped make them (students) aware that climate change is happening, and that we in Mangaia can have a role to play by changing our behaviour in order to help stop climate change. (ibid)

When unscientific information is used as the basis to teach students about sustainability, the danger is that students overlook other development initiatives causing greater environmental damage, at least in the short term. For example, overfishing from long lining and illegal fishing may be a much bigger factor in reduced fishing catches, at least in the short term than claims of climate change altering migratory patterns (Morrell & Scialabba, 2009). Nevertheless short term climate change programmes remain attractive for cash strapped schools, looking to capture much needed extra funding and resourcing.

In summary, environmental awareness, activities still serve the valuable purpose of igniting students' interest in sustainability. At a minimum, such programmes should be careful not to trivialise learning for students. When integrated into classroom programmes, they could potentially serve as valuable catalysts to engage students in deeper ESD learning.

Sandwatch programme

The Sandwatch programme¹⁸⁸, discussed in chapter 3, provides an example of an environmental programme that has been partially integrated into the curriculum in a number of Cook Islands schools (Cook Islands National Capacity Self-Assessment Project Management Unit, 2007). The Sandwatch programme “seeks to develop awareness of the fragile nature of the marine and coastal environment and the need to use it wisely” (UNESCO, 2011c). It has been a key Cook Islands response to ESD and the DESD. The Cook Islands Ministry of Education Sandwatch programme has been:

Recognized regionally and internationally for its work in the area of Education for Sustainable Development. This was initiated with the UNESCO Sandwatch programme in 2005 but has since been integrated into a range of programmes supporting objectives of the Cook Islands curriculum including Science, Social Science, The Arts, and Health and Physical Wellbeing”.

(Cook Islands Ministry of Education, 2011b, p. 11)

The Sandwatch programme is a more in-depth learning programme than one-off awareness programmes, allowing students’ greater time and flexibility to explore issues of sustainability:

For the past term, students have been studying a specific topic under ESD. Students have gone out and looked at key areas such as the environment, society, the economy with culture and language as the fundamental elements that need to be protected to build a safer future. (Wilson, 2010)

Two national student centered Sandwatch conferences in 2007 and 2010 were designed to allow students to share the findings of their own environmental investigation (IUCN, 2010; Sandwatch, 2007). The conferences demonstrate that a student inquiry approach to learning about SD is possible, along the lines of Sterling’s (Sterling, 2001) idea of a move from an “education about” to an “education for” SD. However, the Sandwatch programme and ESD in the Cook Islands currently remain optional parts of school programmes (Cook Islands National Capacity Self-Assessment Project Management Unit, 2007).

¹⁸⁸ The Sandwatch project was launched by UNESCO in 1999 as a volunteer network of primary and secondary school students and teachers.

7.7.3 EasSD: A vocational pathway

For economic and infrastructure development on Mangaia to be successful a pool of Mangaian youth, with business and trade skills is required. The Ministry of Education has already put in place vocational pathways planning that will increase the subject scope so senior secondary school students can achieve the qualification “they need to contribute to the development of the Cook Islands” (Cook Islands Ministry of Education, 2010, p. 3). The idea is to offer students “credits towards both school based and vocational qualifications, for example, carpentry, hospitality, automotive engineering” (Cook Islands Ministry of Education, 2010, p. 3). Previous trade training workshops have proved extremely popular with *pa enua* youth (R. Smith, 2013).

These practical programmes aim to provide students with the relevant skill set to support their own sustainable livelihood growth while helping address the many development challenges on Mangaia. An overarching EasSD complements vocational pathways programmes by putting students’ practical skills into the context of a sustainable future.

7.7.4 EasSD: A cross cutting curriculum theme

In considering what an EasSD curriculum could be, it is pertinent to consider what it should not be. Mangaian teachers expressed the view that ESD, as a ninth learning area in the Cook Islands curriculum framework, would place undue pressure on the delivery of an already full curriculum:

The curriculum is already crowded so we end up glossing over material trying to cover everything. We should be focusing on learning that really matters to students.

Participant 84: Teacher

This is in line with UNESCO (2006a) thinking, which believes ESD should not be:

‘One more subject’ to be added to an overcrowded curriculum but as a holistic or ‘whole school approach’ where sustainable development is seen as a context for delivering existing aims of education and not as a competing priority. (p. 22)

Implementation of EasSD, rather than attempting to replace key parts of the curriculum, could easily build on existing curricula by the insertion of a culturally responsive EasSD as a cross cutting theme. Implementation of EasSD as a cross cutting theme would begin to address the government’s focus on SD and concern about loss of culture (Government of the Cook Islands, 2007b, 2011a).

The Cook Islands curriculum across the eight essential curriculum learning areas allow students to build the necessary foundational knowledge about SD on Māngaia. For example, the strand “science and society” (Cook Islands Ministry of Education, 2006b, p. 20) in the science curriculum and likewise “enterprise in society” (Cook Islands Ministry of Education, 2011a, p. 19) in the enterprise curriculum, encourage students to investigate the ramifications of human activity on the environment. The social studies curriculum (Cook Islands Ministry of Education, 2006a) allows students to look at the impact of modernity on culture. With EasSD as a curriculum cross cutting theme, students are able to begin an exploration of the interrelationships between the economic, environmental, social and cultural dimensions of sustainability.

However, if students are to gain comprehensive understandings of SD they need to go the next step and integrate compartmentalised sustainability knowledge into a holistic whole. This process could occur at a number of different levels, at local Māngaian level, at Cook Islands country level and globally.

7.7.5 EasSD: A specific subject at senior secondary level

The core curriculum provides students a knowledge and skill base on which to explore the complexities of SD on Māngaia. However, to obtain, as Māngaians say, *ua kite ma te nakirokiro* (a deeper understanding), these economic, environmental, social and cultural dimensions of SD may be best studied in an integrated setting.

Walshe (2008) reveals how students in the United Kingdom viewed sustainability in linear terms, rather than being complex and interdisciplinary. They did not automatically make connections between the different dimensions of SD taught across subjects. For example, students in the economics classroom may not be aware of the potential for economic development to damage the environment and impact negatively on culture. Conversely, students in the science classroom narrowly focussed on conservation might overlook the need for economic development opportunities that would benefit the community. Students unaware of cause and effect relationships in development would fail to comprehend the interconnected nature of SD.

Furthermore, learning about *oraanga Māngaia* only in the isolated setting of the Maori class would not provide students the opportunity to compare and contrast the benefits, and possibly disadvantages, of aspects of Māngaian traditional livelihoods against western development thinking. For example, students in an economics class are not given the

opportunity to explore the benefits of sacrificing some potential profit to gain some of the social benefits of *aroa taeake* obligations; nor are they given the chance to see the economic advantages of *akonoanga enua* in lowering normally fixed costs of production. In addition, students do not get the chance to compare the advantages of business on Mangaia that has free access to customary land when contrasted with businesses in Rarotonga who usually must incur land lease costs¹⁸⁹, see section 6.10. Students not in a position to make sustainability connections across subjects and culture would not develop an integrated and in-depth understanding of SD on Mangaia.

From a wider educational and future livelihood perspective, a dual curriculum separates thinking about careers in Rarotonga or New Zealand from any debate about the overall happiness engendered by the desire to live a life on Mangaia focused on *oraanga Mangaia* and based on Manganian values. EasSD, as a dedicated learning space, could provide students the opportunity to begin comparing and evaluating different livelihood strategies in a balanced, rational manner.

During my first visit in 2011, I surveyed 25 senior students at Mangaia School on their understanding of SD. The majority, although having heard the term, had little idea of its holistic, deeper meaning. Students instead focused their explanations on visible infrastructural development projects¹⁹⁰, for example, improved roading, provision of water tanks and the rebuilt harbour; in effect, changes they could see. Only a few students were able to articulate Manganian SD as an interplay of more abstract economic, social, environmental and cultural development factors. This is not surprising, as Walshe (2008) opines students must be given the time and space to integrate and contextualise fragmented knowledge with the aim of building a real understanding of SD. He suggests:

Teachers consider spending time in lessons not only understanding the complexity of sustainability, but encouraging students to make more direct links to their own lives. (p. 552)

Given the multiple interpretations of SD within and across culture occurring on Mangaia, I argue students would likely benefit from a specialised EasSD class where they are provided

¹⁸⁹ Or New Zealand and Australia.

¹⁹⁰ In the Global North, students are usually focused on environmental protection when asked to define SD reflecting students exposure to environmental education (Walshe, 2008).

dedicated time and space to build their SD knowledge, skills and action competence¹⁹¹. A class where learning about SD and sustainability is treated as Sterling (2001) suggests “continual exploration through practice” (p. 61).

Armed with a deep understanding of *oraanga Māngaia*, western knowledge and technological expertise, students could begin to formulate contemporary solutions to SD. Solutions that consider how tourism, agriculture and small business initiatives might complement *oraanga Māngaia* and contribute to overall livelihood success. Development solutions that provide economic benefits but not at the expense of Māngaian culture and the environment.

Māngaian place-based EasSD, as a specialised subject, could put learning in context for students, as real issues of sustainability are studied in situ. Restrictive learning outcomes, tied up in mainstream development thinking, could be rejected in favour of “general, indicative concepts which are then explored, critiqued, adapted and made relevant within local and regional contexts” (ibid, p. 74). Introduction of a dedicated EasSD space would align with UNESCO’s ESD vision for teaching and learning that is interdisciplinary and holistic, values based, critical thinking focussed, pedagogically sound, participatory in terms of decision making, locally relevant and most importantly, culturally inclusive (UNESCO, 2006a).

Students educated in this manner would become empowered to lead their own and their community’s development and support UNESCO’s (2006a) overarching aim of promoting a SD “attitude and behaviour in the lives of communities and individuals at the local level” (p. 30).

7.8 Towards a subject specific EasSD

Māngaian EasSD, as a dedicated subject, is helpful because it allows students the space and time to bring the four dimensions of SD together into one teaching programme¹⁹².

¹⁹¹ 'Competence' is associated with being able and willing, to be a qualified participant. 'Action' needs to be interpreted in relation to the whole range of distinctions concerning behaviour, activities, movements, habits, and, then, actions. Actions can actually consist of the same happenings as these other constructs, but differ from them in that actions are characterised by the fact that they are done consciously and they have been considered and are targeted (Jensen & Schnack, 2006, pp. 165-166).

¹⁹² Walshe (2008) demonstrated students, on their own, make little connection between the economic, social and environmental dimensions of sustainability.

Students can unravel the complexity of SD by comparing and contrasting diverse viewpoints, spanning ecocentrism to technocentrism and different worldviews across culture. Students able to compare and contrast these varied perspectives are in a position to develop their own culturally and contextually best-fit SD solutions.

The educational setting on Mangaia has a number of natural advantages; allowing students to build a holistic understanding of SD. Students can draw on their existing knowledge of *oraanga Mangaia*. Students' close relationship with a community immersed in development thinking and practice provides numerous place-based SD learning opportunities. Gill Vaiimene, a teacher, elaborates:

Most students lack an initial understanding of the conservation concept but once it is explained in culture as part of *akonoanga enua*, or context, as part of current localised development initiatives, students' begin to understand its importance in contemporary Mangaian development decisions.

Students can understand concepts like erosion more easily because they have seen for themselves the effect of commercial pineapple production on the soil and topography of Mangaia.

Gill Vaiimene

A dedicated Mangaian EasSD class could take advantage of the flexibility of an outcome based New Zealand curriculum (NZC) (New Zealand Ministry of Education, 2007) and New Zealand qualification system that encourages contextualization of assessment activities¹⁹³, making it possible to provide students with relevant place-based EasSD learning experiences while still gaining internationally recognised qualifications. A Mangaian EasSD could be timetabled as a whole subject, or part of a subject, depending on student needs. In describing how such a programme might reflect SD on Mangaia, it is useful to provide an example.

7.8.1 Subject specific EasSD: An example

The current Y11 and 12 tourism course is place-based and alerts students to the myriad of economic opportunity that tourism on Mangaia presents to those prepared to innovate. Students explore livelihood options that build on the strength of their own culture. The

¹⁹³ Mangaian students undertake achievement standards registered on the NZQA framework. Teachers have been encouraged to contextualise assessments, making use of place-based learning to ensure learning is of relevance to students (Youth Guarantee: New Zealand Ministry of Education, 2014).

students make stone necklaces, *pareu*, *kikau* brooms and wall hangings and learn how to market them to tourists. The classroom programme is based around six of the nine Cook Islands tourism unit standards¹⁹⁴ registered on the NZQA framework. The rest of the programme consists of textile making¹⁹⁵, food preparation and nutrition unit standards¹⁹⁶ that link to tourism on Mangaia. Gill Vaiimene, Tourism teacher, explains:

Students learn about how the tourism industry works. They learn about marketing, the need for quality of service and what tourists might like to buy. Students learn about the fundamentals of how to run a good tourism business.

Gill Vaiimene

Despite the benefits, place-based education presents a challenge to teachers in that the teaching content, resources and tailored assessments need to be produced by the teachers themselves, against curriculum outcomes.

I developed the whole course by myself, taking unit standards from different areas and making them into a course centered on tourism. With the fabric and food technology standards, I took some ideas from correspondence school units. Making the course was a lot of hard work but seeing the students achieve so well and really enjoy the course made all the work worthwhile.

Gill Vaiimene

A quandary is created, as some teachers would find this process difficult, pedagogically and practically, in terms of accessing the necessary teaching resources. It is often easier to copy a unit of work already developed in New Zealand.

A common mistake made by outsiders is to assume Manganian teachers know everything about Mangaia. This is not the case. Manganian history and social organisation is complex, detailed, and needs to be learnt. It's hard for teachers to take an outcomes based curriculum and then make up their own units and lesson plan drawing on local content. It's much easier to teach straight from an overseas textbook. Teachers would need substantial curriculum support, especially if they were asked to produce ESD curricula at senior levels, given the complexity of the topic of SD.

Gill Vaiimene

¹⁹⁴ The Cook Islands tourism unit standards are registered under the domain Cook Islands Tourism Sub field Tourism. They were developed and revised by the Aviation, Tourism and Travel Training Organisation (ATTTO) as part of a New Zealand aid project to support tourism in the Cook Islands. The ATTTO is an industry training organisation and has since been renamed ServiceIQ (Service IQ, 2015).

¹⁹⁵ The unit standards offered are part of the textile technology domain on the NZQA framework (New Zealand Qualifications Authority: Mana Tohu Maturanga O Aotearoa, 2015).

¹⁹⁶ The unit standards offered are part of the food technology and nutrition domain on the NZQA framework. The standards have since expired (New Zealand Qualifications Authority: Mana Tohu Maturanga O Aotearoa, 2015).

Moreover, the introduction of ESD, at senior levels of the curriculum, would demand teachers have an expert knowledge of ESD fundamentals across cultures and at both local (ecosystem) and global (biosphere) levels.

The challenge creates a dilemma. *Should teachers spend substantial time developing units of work and then writing and moderating assessments to exacting standards?* Time that could be spent with students one on one, helping them in the learning process.

On Mangaia, every teacher must work alone as we are all in one person departments. Conversely in New Zealand, teachers are part of big departments where they can share the load of curriculum development. New Zealand teachers can also make use of the many commercially prepared or New Zealand Ministry prepared resources available. Back here I think the Cook Islands Ministry of Education should consider assisting teachers more directly with the production of units of work. We need to be pragmatic.

Gill Vaiimene

If teachers were too successfully, implement place-based EasSD courses focussed on Mangaian conceptions of SD, substantive resource support in the form of units of work, teaching material and already moderated assessment tasks would be required. The teachers could then build on these units using their and their community's specialised knowledge. Although challenging, it could be worth the effort. A student explains:

My favourite subject is tourism because it is fun and most of all because it will be useful in our future lives. We learn about things on Mangaia so I relate to what is being taught. The teaching makes sense to me. When I finish this class, I will be able to start my own business on Mangaia if I want.

Participant 90: Student

The development of the Y11 and 12 tourism courses provides an exemplar on which aspects of the implementation of an EasSD curriculum could build on.

A tourism course like this has plenty of scope to expand and prepare students to take advantage of other tourism related livelihood opportunities. For example, while on Mangaia a paying tourist was frustrated because he could not find a guide to take him through a cave. Yet a recent unemployed school-leaver with detailed knowledge of the caves inland from Ivirua was looking for some form of paid work. What the school leaver lacked was the basic tourism/business related skills that would complement his already existing cave and cultural knowledge. EasSD type tourism programmes at senior secondary school could upskill students to take advantage of the tourism opportunities that exist.

Plate 9: Cave tour with Tangi



7.8.2 Exemplar EasSD specific programmes

EasSD exemplar programmes Y11, shown in appendix 12 and Y12 shown in appendix 13, have been developed to demonstrate it is possible to provide valuable student learning experiences that utilise existing assessment on the NZQF, across many of the economic, environmental, social and cultural aspects of SD on Mangaia. They illustrate how achievement standards drawn from the economics, business, social studies, science and Education for Sustainability (Efs) assessment domains of the NZQF, can be used as the basis of EasSD teaching and learning units. Drawing on these programmes to demonstrate what is possible, I briefly outline examples of how Mangaian SD themes, taken from my SD findings in chapter 6, could form the basis of tailored EasSD teaching units on Mangaia¹⁹⁷.

¹⁹⁷ Although not included in the exemplar programmes, additional achievement standards in English and Mathematics could also be contextualised to include themes around SD and sustainability on Mangaia.

Under Economic and business aspects of SD students could learn about:

- Starting and running their own successful small business on Mangaia;
- The development and implementation of the Mangaian Puna Plan;
- How to apply for, start, manage and evaluate community aid projects¹⁹⁸; and/or
- The dynamics of the Mangaian domestic economy.

The benefits and challenges in targeting specific economic development opportunities could be explored in detail:

- The challenges of transport reliability and cost in securing reliable markets for maire and mamio export from Mangaia;
- The determination of a selling price for ei pupu or fish that addresses the tensions between market price and price influenced by aroa taeake;
- The importance of quality when attempting to build brand Mangaia, for example, maire export and responding to tourist expectations;
- The potential importance of the endemic Mangaian kingfisher, shown in plate 10, as an icon for ecotourism on Mangaia;

¹⁹⁸ With the increased NGO aid funding available, especially through climate change funding pools; it makes sense to teach students the rudiments of successful project management while still at school. Students can inquire into the factors that lead to the success and failure of previous community environmental projects then apply this knowledge while participating in current projects. There are many active projects on Mangaia that students could participate in; some are outlined in section 6.6.4.

Plate 10: Tanga'eo (Mangaian kingfisher)



- The role of environmental protection in supporting successful business development on Mangaia, for example, the need to ensure sustainable supplies of pupu, maire, and vanilla vines;
- Factors affecting market demand for export and domestic markets, for example, maire and fish respectively; and/or
- The viability of horticulture as a development strategy, including investigations into the factors that determine which vegetables might be best for export and those best for local sale.

Under social aspects of SD students could learn about:

- How colonisation, westernisation and more recently, globalisation, have changed life on Mangaia;
- The debate about custom land tenure versus titling and leasing land; and/or

- Topical issues of Māngaia life by conducting a social inquiry¹⁹⁹ into, for example, the impact of emerging individualism on societal relations, or the pros and cons of using social media to debate current development issues on Māngaia with Māngaia diaspora²⁰⁰.

Under environment aspects of SD students could learn about:

- The impact of poorly planned development on the physical and/or biological environment of small island fragile ecosystems;
- The impact of invasive species introduction on the Māngaia environment²⁰¹;
- The reasons for planting native tree species as recommended by Space and Flynn (2002) in their review of forestry on Māngaia;
- Protecting endangered bird species on Māngaia by partnering with the conservation focused Te Ipukarea Society (Evans, 2012);
- The social and environmental benefits of the Keia *puna* swamp irrigation project described in section 6.6.5;
- The long-term impacts of commercial pineapple production on the Māngaia environment;
- The future impact of climate change on Māngaia; and/or
- The environmental values inherent in oraanga Māngaia when compared and contrasted with technocentric views of nature as environmental capital.

Under cultural aspects of SD students could learn about:

- Any aspect of oraanga Māngaia, in particular Māngaia culture and its relationship to past, present and future sustainability on Māngaia²⁰².

¹⁹⁹ Social inquiry is an integrated process for examining social issues, ideas, and themes (New Zealand Ministry of Education, 2008). Using a social inquiry approach, students:

- Ask questions, gather information and background ideas and examine relevant current issues;
- Explore and analyse people's values and perspectives;
- Consider the ways in which people make decisions and participate in social action;
- Reflect on and evaluate the understandings they have developed and the responses that may be required.

(New Zealand Ministry of Education, 2007)

²⁰⁰ Voices of Māngaia is a Facebook discussion page for Māngaians to discuss local development issues. It can be found at <https://www.facebook.com/Voices-of-Mangaia>.

²⁰¹ Examples are feral pigs, rats, myna birds, and the Acacia and Albezia tree species.

²⁰² National Qualifications Services (NQS) has completed the development of three new unit standards at levels 1-3 in the domain of Pacific Indigenous Knowledge. The unit standards cover the presentation of

In summary, these programmes illustrate how ESD programmes could be contextualised to Māngaian SD while providing students with assessment opportunities to obtain valuable New Zealand qualifications.

7.8.3 The requirement for dedicated Cook Island EasSD assessment

Even though this contextualisation of New Zealand achievement standards²⁰³, to Māngaian circumstances, would be of value in focusing learning on the global principles of SD, it still does not allow students to explore a Māngaian worldview of SD. Contextualised New Zealand achievement standards are still underpinned by a western worldview of SD. Tangi Matapo, the social science teacher, explains:

Western thinking, even about indigenous cultures, dominates the achievement standards, making it hard to express our own Māngaian worldviews. Usually Māngaian sociocultural notions are lost in translation. Moreover, when we carry out a social inquiry in class, we do it in Māori. However, for assessment purposes it must be written in English. Valuable teaching time is wasted carrying out translations.

It's frustrating, as many of our students have a good understanding of Māngaian sociocultural organisation and *oraanga Māngaia* but get no academic recognition, as they find it difficult to adequately express their ideas in English. Academically, the students are considered failures when they are not.

Tangi Matapo (Social Science teacher)

Many of the EFS New Zealand achievement standards explore indigenous cultures in essentialised generic terms. It would seem somewhat ironic if Māngaian students were expected to become, in effect, 'anthropologists' exploring their own culture through a western lens. Essentially, they might adopt a western critical pedagogy to justify their own culture as a possible alternative to mainstream development on Māngaia. Should they not be able to explain the sustainability inherent in *oraanga Māngaia* in their own terms, based on their own values, and in their own language? Pound (1934) back as 1934, recognised "the sum of human wisdom is not contained in any one language, and no single language is capable of expressing all forms and degrees of human comprehension." (p. 34). With imported ESD curricula, education would remain 'for SD' rather than 'as SD', as western thinking about the world, including descriptions of what indigeneity means, take

information on an aspect of Pacific culture and are intended to encourage Pacific people to engage with and affirm their own traditions and values (New Zealand Qualifications Authority, 2010).

²⁰³ Based on a western based New Zealand curriculum.

preeminence. Modes of development that draw on western business practice, follow economic market fundamentals, assume western models of governance and democracy and incorporate western conservation practice would be favoured in such circumstances.

Even western centric curricula that might recognise culture by their nature would tend towards a situation where culture sits on the fringe of SD thinking, described and defined by western values. Something that is nice to have, if it can be made to fit within western development frameworks but ignored as a distinctive source of ideas on which to construct solutions to sustainability. Nurse (2006) explains:

SD as practised in the developing world is largely informed by Western notions and is often funded in accord with the agenda of multilateral, bilateral, non-governmental and philanthropic donor agencies from the developed countries. This is viewed as problematic because it creates new dependencies for the developing world and raises concerns about whose agenda is being served. (p. 36)

If teaching on Mangaia is to recognise Mangaian SD, with *oraanga Mangaia* at the centre, then an EasSD approach that puts Mangaian thinking before western thinking is required. Nurse explains why:

Culture is not just a fourth pillar to be integrated into the well settled notion of sustainable development. Alternatively, it is a basis for interrogating the meaning and practice of sustainable development at its epistemic core so that culture does not become just a palliative. (p. 36)

I argue education could be critical to Mangaian students gaining a real understanding of the contribution *oraanga Mangaia* and Mangaian culture make to SD locally and contribute to debate globally. As Breidlid (2009) notes:

Education's role in sustainable development is not unproblematic, since the hegemonic education discourse is more or less exclusively based on Western epistemology. There is reason to believe that ... (a) ... more comprehensive understanding of what education is will help opening up new and innovative avenues in the quest for a more sustainable future. (p. 147)

Kerr (2005) furthers Breidlid's thinking, describing mainstream SD as a "contrivance" (p. 506) to further neoliberal ideals, in the face of criticism, about the effect development has on nature and culture. What Mangaian²⁰⁴ students might need is an EasSD that puts their own worldviews and culture at the centre of SD thinking, with western knowledge and

²⁰⁴ As well as students from the Cook Island, Pacific and wider Global South.

ideas that complement and strengthen *oraanga Mangaia* and culture drawn on as part of alternative modernities. Here, students operating in a hopeful post-development setting could be given the time to debate and compare the pluralism of ontological, epistemological and axiological worldviews on an equal footing, being able to build their own culturally inclusive models of sustainability. What would be important here is western SD ideology would cease to dominate. In this way, students can decide for themselves, in an informed manner, the importance of the contribution their own culture makes to SD.

Given the current assessment system, how then could Mangaian students be given the opportunity to frame a Mangaian worldview of SD within a hopeful post-development setting? Just contextualising current New Zealand achievement standards, in an attempt to make them fit Mangaian SD although part of the answer falls short for two reasons:

- Students find it difficult to explain the intricacies of *oraanga Mangaia* in English, as explained in 8.5.3 above. Currently only two languages, English and New Zealand Maori, are acceptable in NZQA assessments²⁰⁵, although use of Cook Islands Maori has never been precluded outright. Carol Young, an EfS facilitator at the University of Auckland, recognises the conundrum and explains:

I see no reason why EfS assessments could not be written in Mangaian, answered in Mangaian and arrangements made to translate the answers into English. However, I accept this is not ideal.

Carol Young

- Although EfS assessments acknowledge indigenous worldviews, they do so from a western framework the assessment questions and expected answers have still been framed in western ideology and therefore by their nature generalise indigenous concepts of sustainability across all peoples no matter their culture or context.

EasSD that indigenises the curriculum and puts *taku ipukarea kia rangatira* (Cook Islands culture)²⁰⁶ at the centre of learning as envisaged when the curriculum framework was first

²⁰⁵ Achievement standards are the individual assessments that contribute to the National Certificate of Educational Achievement administered by the New Zealand Qualifications Authority.

²⁰⁶ Is intended to strengthen a learner's identity as a Cook Islander. It is grounded in the language, culture, thinking, visions and aspirations of the people and has a sense of belonging and pride (Cook Islands Ministry of Education, 2007).

released in 2002 has proved difficult to achieve. (Cook Islands Ministry of Education, 2002, 2007). Ina Hermann, Director of Curriculum for the Ministry of Education, elaborates:

We have struggled to ground everything we do in Cook Island values and contexts. By adopting NZQA achievement standards we have ensured we continue to follow a westernised, New Zealand curriculum at senior secondary level. The introduction of the Cook Islands Maori language achievement standards has helped to keep language and culture alive at a superficial level but we need to get students to inquire more deeply into their culture. We need standards where students are able to *akatanako* (think about), *uriuri manako* (debate) and *kimi ravena* (problem solve) issues of sustainability and SD in Cook Islands Maori.

Ina Hermann

A true transformation from culturally aware ESD to a culturally responsive EasSD may only be achieved when new dedicated bilingual achievement standards, that allow learning to focus on Cook Islands worldviews of SD, are produced. Standards that would be registered on the NZQA framework to give them status in the eyes of students, parents and the wider community. Henrika Wilson, Cook Islands Maori Professional Development Co-ordinator, Ministry of Education explains:

The current Cook Island language standards are important but mainly for Cook Islanders who are second language speakers. Originally, they were designed for Cook Islanders in New Zealand who are not fluent in Cook Islands Maori. Dedicated ESD standards in Cook Islands Maori would be great, as it would allow real learning to take place in Maori. Getting our own standards has been talked about for a while. The problem is the time and funding to produce them. The advantage of having the standards registered on the NZQA framework is that they count towards qualifications. Then parents will then see them as worthwhile.

Henrika Wilson

Given the costs involved in developing and administrating new standards, for what are small student numbers on individual islands, it is probable that generically written standards, inclusive of Cook Islands or possibly even Pacific SD thinking and culture may be necessary. Individual assessment tasks could then be tailored to local island cultures, contexts and dialects. In summary, only new bilingual EasSD standards would allow students to understand and develop their action competence as it pertains to Manganian SD.

Students allowed to learn about sustainability by bilingually exploring the contrasting worldviews of *oraanga Māngaiā*²⁰⁷ and western ideology, would invariably “learn to make effective language choices based on the context they find themselves in” (p. 272). As Wehipeihana et al. (2010), in the New Zealand Maori context argues, concepts in one culture may not easily translate into the language of another culture²⁰⁸. Durie (1996), also in the New Zealand Maori context, goes further, stating: “western thought with Maori words ... will erode the essence of the Maori language” (p. 6). In other words, traditional livelihood practices need to be epistemologically debated in indigenous language terms away from the influence of western hegemonic ideology to ensure a real student understanding of culture.

Walshe (2008) explained that the requirement to make sense of contrasting economic, environmental and social viewpoints of sustainability in a monocultural setting is difficult. It follows mastery of Māngaiā SD is even more complex, with the requirement to make sense of these diverse viewpoints across different worldviews and cultures. As Turnbull (2000) reminds, just as it is difficult to learn another language fluently, so it is difficult to absorb the values and practices of another culture. However, for Māngaiā students it is a reality of Māngaiā SD, as described in chapter 6. I therefore suggest it may be pedagogically prudent to pitch new EasSD standards at Level 1 and 2 of the NZQF, where students could receive considerable teacher direction and support.

Stakeholder support for the development of new standards

Cook Islands government support for a transformative EasSD for senior students, the future leaders in the Cook Islands, would seem logical given the government’s key NSDP goal of Cook Islanders leading their own development by 2020 (Government of the Cook Islands, 2007a).

²⁰⁷ Therefore, *akonoanga enua, aroa taeake* and *te ipukarea ia rangarangatu*.

²⁰⁸ McKinley (2005), also in the Maori New Zealand context, goes even further stating, “The use of indigenous languages as a means of science instruction is essential to develop the culture and language to go beyond conversational and technocratic levels of language to an academic capability” (p. 238).

Furthermore, with New Zealand's Aid programme focus on SD in the Pacific²⁰⁹ and commitment to helping the Cook Islands Ministry of Education achieve its educational objectives (Scott & Newport, 2012) support for the implementation of a transformational EasSD in the Cook Islands would also appear possible. The New Zealand Ministry of Education, which holds the authority to develop new standards, has already committed support to Cook Islands education, stating they will:

Work with the Ministry of Foreign Affairs and Trade (MFAT) and NZQA and other education partner agencies as required to respond to requests from Ministries of Education across the Pacific region, share evidence about what works for Pasifika learners and support dialogue. (Ministry of Education: Te Tahuu o te Matauranga, 2013, p. 14)

NZQA, given the responsibility to implement any newly produced achievement standards, has confirmed its commitment to support Cook Islands Ministry of Education aspirations to "use New Zealand Qualification Framework (NZQA) qualifications" (New Zealand Qualifications Authority, 2012, p. 7). Whether these commitments stretch to the production of new Cook Islands EasSD achievement standards remains to be seen.

Given Cook Islanders' continued desire to have qualifications that are internationally recognised, it would seem both sensible and appropriate to have any new Cook Island EasSD achievement standards registered on the NZQA framework. Scott and Newport (2012), in their review of Cook Islands education, point out:

The Cook Islands does not have the critical mass of students to warrant the development of a Cook Islands Qualifications Authority and due to its special relationship with New Zealand it is best that the Cook Islands continue to work within the NZQA framework. (p. 51)

The Cook Islands Ministry of Education already aims to develop assessment standards reflecting Cook Islands culture registered on the NZQF²¹⁰. Tere Utanga, Director of Human Resources, at the Ministry of Education, explains:

We have already had discussions with NZQA about getting our own standards. The barriers to achieving this are our capacity to produce the

²⁰⁹ "The New Zealand development assistance programme's mission is to "support sustainable development in developing countries, in order to reduce poverty and to contribute to a more secure, equitable and prosperous world" (New Zealand Aid Programme, 2015, p. 2).

²¹⁰ The Cook Islands Education Ministry already has a goal that by "2015 at least 3 standards for traditional knowledge will be registered on the qualifications framework" (Cook Islands Ministry of Education, 2010).

standards to a level recognised by NZQA, the time to produce the standards and the costs involved.

Tere Utanga

Ina Hermann, Director of Learning and Teaching, could see the advantage of focusing initial, new, dedicated Cook Islands achievement standards on SD through an EasSD approach.

We want standards whereby students can study Cook Islands culture and language at a higher level to the current second language learners' standards. EasSD standards focused on SD in the Cook Islands would achieve this. Importantly, a focus on SD would fit government NSDP goals and demonstrate to students the continuing value of our culture in the 21st century.

Ina Hermann

Given this universal stakeholder support for Cook Islands education aspirations, the production of NZQA assessment standards to support a place-based bilingual Manganian (or Cook Islands) EasSD is feasible.

7.9 Discussion

With *oraanga Mangania* sitting at the core of Manganian SD, as described in chapter 6, then logically it should form an integral part of ESD programmes on Mangania. Manganian students taught only imported, western centric interpretations of SD, would not be educated to make sense of the reality of SD on Mangania. Conversely, students given the opportunity to explore sustainability through multiple worldviews and viewpoints, get the chance to choose for themselves the development strategies and modes that best fit their culture and context. They have the space and time to explore the reasons for prior development failures and their possible lack of cultural responsiveness and contextual relevance. They get the opportunity to reconstruct their own development solutions in culture that may require the inclusion of previously neglected Manganian knowledge and culture. In essence, the argument is made for an EasSD that reflects a hopeful post-development stance. Learning where Manganian students are able to explore their own unique Pacific indigenous development ideals as described by Maiava and King (2007), Meanwhile objectively deciding the place of western ideology, knowledge and technology in strengthening solutions to Manganian SD and indeed Manganian culture itself.

The strength-based implementation of a place-based culturally responsive Manganian EasSD curriculum featuring a dedicated EasSD class at senior levels, although very challenging, could be advantageous for the following six key reasons:

1. Students would exhibit Mangaian SD action competence, culturally and contextually

Action competent students are able to construct endogenous solutions grounded in *oraanga Mangaia* and based on a Mangaian worldview that is:

*Kimi i te oraanga meitaki/matutu/rangarangatu no te Mangaia e te akono akaperepere
ma te taporoporo i te ipukarea.*

Relevant western knowledge can be used to strengthen culturally germane solutions to SD. Solutions to SD can take account of the economic remoteness and ecologically fragility to be contextually relevant. Western inspired development modes that do not align to Mangaian conceptions of SD, are able to be confidentially rejected.

2. Students would possess expanded livelihood options

With the lack of industry to provide jobs on Mangaia (Fleming, 1996), and a reduction in the size of the public service²¹¹ (Government of the Cook Islands, 2011a), a key livelihood strategy has been migration (Wright-Koteka, 2006). Parents reacting to this reality have demanded western education in the belief it will offer their children the best preparation for entry into jobs or careers overseas. This narrow pathway draws students into livelihoods where the ability to secure an income provides resilience. Migration moves people away from the social safety net and food security of *oraanga Mangaia*, should low wage work or unemployment result.

An EasSD that reflects the multimodal reality of SD on Mangaia could be pivotal in preparing students to widen their livelihood thinking and take advantage of the many and varied economic opportunities on Mangaia. EasSD could shift the curriculum from the current narrow focus on a western education, towards an education where multiple worldviews and livelihoods are explored. This changed focus is illustrated in figure 7 below. The current education focus (scenario 1 in figure 7) illustrates the focus on global labour markets and the public service. Under EasSD (scenario 2 in figure 7) the increased arrow

²¹¹ Implementation of the Public Financial Management roadmap means public service jobs will remain scarce. “The Public Financial Management system that exists is largely a creation of the reform process that the country undertook between 1996 and 1998 when government had become insolvent as it was unable to meet its debt obligations as they fell due” (Okotai et al., 2011, p. 3). A financial focus of government is to aim to keep “Personnel to GDP reduced and maintained within 40%” (Government of the Cook Islands, 2011a, p. 3).

size for *oraanga Mangaia* and *pitineti* (business), reflects a greater focus on livelihood opportunities, within culture and leveraging off culture, especially through agriculture, tourism and small business. Western subjects remain important for those students intent on careers in the public service or overseas²¹².

²¹² English medium literacy, numeracy and western qualifications are not compromised under such an approach.

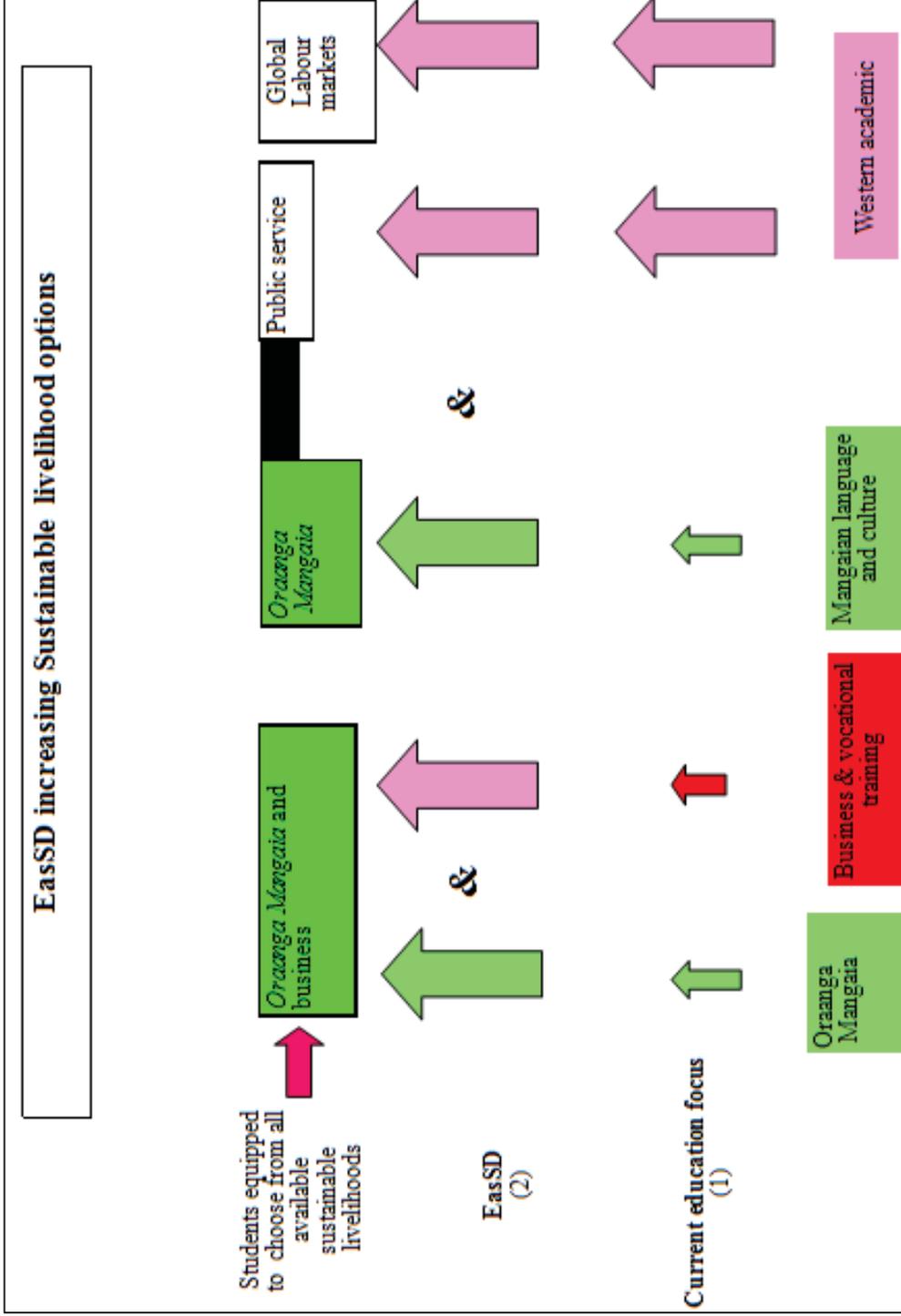


Figure 7: EasSD increasing sustainable livelihood options

A transformative, place-based, culturally responsive Mangaian EasSD could provide real hope for the many students and parents who indicated their desire to stay on Mangaia and fashion viable livelihoods that take advantage of the economic opportunities that exist, aligned to *oraanga Mangaia*. Armed with culturally diverse knowledge and worldviews²¹³ relating to SD on Mangaia, students would be able to explore and construct an economic future, a future that strengthens Mangaian culture and protects the environment. EasSD empowered students would be capable of planning their own and their communities' grassroots, bottom up, localised, SD solutions and livelihoods. Livelihoods that leverage off the existing resilience of *oraanga Mangaia* and build on culture to exploit both domestic and export economic development opportunities, whilst continuing to respect te ipukarea ia rangaranga. Livelihoods that could even vary over time, with temporary migration to overseas labour markets to build financial security, followed by a return to Mangaia and the resilience of *oraanga Mangaia*.

3. Students are empowered to address government NSDP and pa enua goals

Students possessing action competence, as it pertains to SD on Mangaia and the Cook Islands, can contribute to the goals of the NSDP²¹⁴ (Government of the Cook Islands, 2007b). In particular, “the development of the Cook Islands will be led by Cook Islanders” (ibid, p. 8). SD action competent outer island students also contribute to the goal of the Pa Enea Local Government Act 2013 that aims to have *pa enua* island communities leading their own SD (Te au Puna o Mangaia, 2014).

4. Students can think critically and sustainably in bicultural settings as Mangaians and global citizens

A Mangaian EasSD educates students biculturally to:

- Think critically and problem solve in a Mangaian framework, underpinned by Mangaian knowledge, epistemology and values to achieve a Mangaian vision of SD;

²¹³ Deep understandings of *oraanga Mangaia*, relevant western knowledge and practical technological skills.

²¹⁴ Contributing to the NSDP vision “Te oraanga tu rangatira kia tau ki te anoano o te iti tangata, e kia tau ki ta tatou pen Maori e te aotini taporoporoia o te basileia” (Government of the Cook Islands, 2007b, p. 7).

- Think critically in western frameworks to accept, modify or reject western knowledge, based on its usefulness in strengthening and enhancing *oraanga Mangaia*, Manganian culture and Manganian SD;
- Make sense of the complexity and diversity of SD thinking, spanning ecocentric to technocentric viewpoints within and across culture, both locally and globally; and
- Provide Manganian SD perspectives to global SD forums, strengthening global perceptions of how SD ought to be defined .

5. Students immersed in oraanga Mangaia strengthen language, culture and identity

Students, in learning to draw on *oraanga Mangaia* and culture to address SD on Mangaia, realise the continuing relevance of Manganian culture, knowledge and values. Students no longer need to bear witness to pro cultural dogma; *oraanga Mangaia* and culture have been validated in students' own minds by continuing, practical usefulness. Learning about your culture not only preserves it but strengthens it as well (Sanga & Thaman, 2009). The Cook Islands Social Studies Curriculum (2006a) reminds us, “as the prospect of globalisation of culture and economy increases, awareness becomes the greatest means of protection for Cook Islands cultural independence” (Cook Islands Ministry of Education, 2006a, p. 5). Former Cook Islands Prime Minister, Sir Geoffrey Henry, elaborates:

Kare te au peū e ko tei topa 'na ki muri. Mari ra ko te rave 'ia nei 'i teia 'ati'anga, e te ka rave 'ia i te au tuatai ki mua. Ko te peū tupuna, ko ta tatou I mua ana, 'i teianeī, e ta tatou e umuūmu nei.

Culture is not just the past. It is the present and the future. It is what we once were. But it is also what we strive to be. Culture is all that we have become and will become. (Jonassen, 2005, p. 45)

Western academic achievement no longer becomes the only yardstick for students to be measured against. Students excelling in culture act as stewards of *oraanga Mangaia* and for this should be recognised. As Cooper (2008), when discussing what New Zealand Maori achievement ought to look like, reminds us, “a new theory of progress needs to accommodate the “normal” and the “not normal” ” (p. 6).

6. Students experiencing pedagogically appropriate teaching will demonstrate improved student achievement

For a Manganian place-based EasSD curriculum to be accepted by all stakeholders, academic success must not be compromised. There is a fear, especially from parents, that students may somehow miss the vital western curriculum and qualifications necessary for future careers and jobs. The concern is misplaced; place-based, culturally responsive learning, as a dominant pedagogy, promotes academic success (New Zealand Qualifications Authority, 2012). Backing this up, my analysis of Mangaia School's 2011 NCEA results indicated place-based vocational subjects, consisting of motor industry and carpentry standards and Y12 tourism, accounted for 49% of all unit standards achieved. Moreover, 85% of all achievement standards passed in the school were a result of place-based Maori assessment, see appendix 11.

Aitken and Sinnema (2006) contend learning experiences that make connections to indigenous students' lives, align experiences to important outcomes and design experiences that interest students. They facilitate learning for indigenous students and promote academic success. Fletcher et al. (2009), concur, stating academic learning "is likely to be enhanced when Pasifika values, languages and cultural knowledge are made an implicit part of teaching and learning practices throughout the school" (p. 32). Therefore, I argue EasSD with its focus on place-based learning immersed in culture is likely to accelerate levels of academic achievement.

The success of the Y12 tourism class, in using place-based learning approaches to improve academic achievement, corroborates Aitkens and Sinnema's (2006) findings on how diverse learners best learn. Place-based Manganian EasSD programmes that build on students' existing knowledge, drawing on subjects that interest them, in an environment with which they are familiar, should expect to improve student achievement results. In other words, implementation of EasSD should assist the Ministry of Education to achieve its academic targets of improved NCEA success at Level 1 and Level 2 (Scott & Newport, 2012). The argument that a movement away from an absolute focus on a western education could lower academic standards becomes redundant.

The next chapter explores the pedagogy required to make an EasSD curriculum a reality.

Chapter 8 Manganian Education as Sustainable Development: Pedagogy

8.1 Introduction

This chapter addresses the following research question: *What pedagogy will assist students to make sense of SD on Mangania?* A teaching and learning pedagogy is required that will facilitate students' exploration of the dynamic interplay between the economic, environmental and social dimensions of SD across the juxtaposition of Manganian and western ideology and culture.

The chapter starts by outlining two key reasons a Manganian EasSD pedagogy is needed. Firstly, if students are to interpret SD through a Manganian worldview, they should consider adopting Manganian thinking, underpinned by Manganian epistemology. Secondly, if students are to make sense of Manganian SD, a fluid mix of Manganian and western ideas and technology, students will need a pedagogy that allows them to compare and contrast Manganian and western development thinking and technology, as they formulate contemporary best fit SD solutions.

I explain with *akatamanako* (Manganian thinking) and *kimi ravenga* (problem solving) sitting at the core of *oraanga Mangania*, why they necessarily should be a fundamental part of a Manganian EasSD pedagogy. Drawing on these points, I conceptualise a Manganian EasSD pedagogy that reflects Gegeo and Watson-Gegeo's (2001) concept of an indigenous, critical praxis, alongside the inclusion of western critical thinking practice, as a helpful tool. A pedagogy that ensures a Manganian worldview of SD emerges. A worldview that is based on Manganian values, beliefs, customs and traditional livelihoods. I explain how this Manganian EasSD pedagogy can be used by students to reject unhelpful western centric SD ideology, whilst drawing on relevant western knowledge and technical knowhow that strengthens Manganian SD and culture.

The chapter finishes with a discussion that considers how a Manganian EasSD curriculum and pedagogy might be successfully realised, by drawing on Hopkins and McKeown's (2001) idea of a strength-based ESD implementation. The suggestion is made that practical implementation should focus on a gradual shift in curriculum and pedagogical delivery, with emphasis from the main focus on western centric education and ESD towards a

Mangaian EasSD centred on Mangaian worldviews, culture and context; in short, a gradual curriculum shift in emphasis from curriculum type one towards five:

1. Western - New Zealand context;
2. Western - Cook Islands context;
3. Dualist - Western with Cook Islands Maori as a separate subject;
4. Western ESD - inclusive of a western social justice and diversity narrative;
5. Mangaian EasSD.

8.2 The need for a Mangaian EasSD pedagogy

Implementation of EasSD on Mangaia would benefit from a pedagogy that acknowledges *oraanga Mangaia's* vital importance to Mangaian SD. It should look to incorporate the centrality of *akatamanako* (Mangaian thinking), *kite peu karape* (Mangaian knowledge) and *peu puapinga* (Mangaian values) to a Mangaian worldview of SD.

The pedagogy would permit students to discern between the adoption of facets of westernisation that might strengthen Mangaia's sustainable future and enhance *oraanga Mangaia* and the rejection of western hegemony that might destroy Mangaian culture. In other words, the pedagogy would reject restrictive learning outcomes that focus only on monocultures, in favour of multiple sources of knowledge, which are then critiqued, adapted and "made relevant within local and regional contexts" (Sterling, 2001, p. 74).

As Sterling (2001) advocates, ESD pedagogies must reject thinking that simply accepts the status quo; in this case, a dominant neoliberal, neocolonial ideology. The place-based Mangaian pedagogy should focus students on bilingual, critical and creative, learning that allows them to compare and contrast the different worldviews, as they formulate solutions to sustainability. A real understanding of Mangaian SD will come, not from, as Vare and Scott (2007) put it, "a received view of sustainable development" (ibid, p. 193), but from students' own examination of SD on Mangaia, incorporating both *oraanga Mangaia* and helpful elements of western development practice.

What would an EasSD Manganian pedagogy look like? Western liberal pedagogies, such as the social inquiry model²¹⁵, EfS action competence model (New Zealand Ministry of Education, 2011) and Freire's (1972) critical pedagogy of conscientisation, although supportive of indigeneity by their nature, still tend to frame indigenous cultures through a western lens, in effect essentialising them. As pedagogies, they are incapable of supporting Manganian students to construct a Manganian worldview of SD centred on *oraanga Mangania* and Manganian culture.

I argue, Manganian students working with a Manganian EasSD pedagogy would draw on *akatamanako*, in particular *kimi ravenga* and *uriuri manako*, to explore a Manganian worldview of SD. Manganian metacognition would be used to explore oral histories, anthropological theories and historical accounts of their past, placing the learning in the context of *oraanga Mangania* today. For Manganians, this would mean reviewing the anthropological works of Gill, who was assisted by Mamoe (Reilly, 2003, 2009), and Buck (1934).

Students supported with a Manganian EasSD pedagogy, would be in a position to compare the benefits and disadvantages of western models of development against *oraanga Mangania* and Manganian culture. Western hegemonic thinking could be challenged from a Manganian SD perspective and rejected where necessary. However, western critical thinking as a tool would not be rejected; it provides students with a helpful insight into globally dominant development thinking. In other words, western thinking can be used to strengthen solutions to SD but importantly, no longer dictates what sustainability means to Manganians. Gegeo and Watson-Gegeo (2001) explain: "Indigenous ethnic groups are asserting the validity of their own ways of knowing and being, in resistance to the intensifying hegemony of mainstream epistemology from the metropolitan powers" (p. 55). A Manganian EasSD would allow a Manganian model of sustainability to emerge from as Robinson (2004) theorises a "process of community based thinking" (p. 381), about the "kind of world (in this particular case Manganians) collectively want to live in now and in the future" (p. 382).

²¹⁵ A critical, social inquiry approach to learning is used in the New Zealand Social Studies curriculum. It allows students to gain deeper conceptual, critical and affective understandings about how societies operate and how they themselves can participate and take social action as critical, informed, and confident citizens. (New Zealand Ministry of Education, 2008, p. 2). The focus of the social inquiry approach is reconciling social issues. As such, it has a limited focus on the environment (ibid).

In beginning to frame an EasSD pedagogy for Mangaia, it is useful to understand this thinking is not new. Taufe'ulungaki (2002) argues, Pacific people:

Need to create their own pedagogy ... rooted in their own Pacific values, beliefs, assumptions, knowledge, processes and practices, and particularly in those values which support sustainability and equity of benefits, not necessarily measured in economic terms. (p. 18)

Here the idea is not to totally reject helpful western knowledge but rather get Pacific students to conceptualise SD centred on Pacific values (Thaman, 1995). Gegeo and Watson-Gegeo (2001), in discussing the Kwara'ae Genealogy project in the Solomon Islands, explain that there has been an educational inclination to look to western knowledge to solve indigenous problems, in the false belief that such knowledge is superior. This creates an urgency to implement Pacific pedagogies in order to begin the process of "dehegemonization" (p. 55). This thesis contributes to that process, in the Mangaian context.

8.2.1 SD solutions on Mangaia require complementary Mangaian and western critical thinking

Contemporary SD on Mangaia, whilst centered on *oraanga Mangaia* and culture, can also draw upon relevant western knowledge, skills and technology. Peter Ngatokorua, fishermen, outlines an example:

Noatu e te taangaanga nei te au ravakai i te au apinga tautai a te papaa ua akatanotano ra matou, i teia au tu mea ia tano i te au tautai ta to matou ai tupuna i apii mai.

Mangaian fishermen adopt western fishing technology to enhance the already successful fishing methods our ancestors taught us, with the aim of maximising their fishing catches.

Previously many Mangaian fishermen were keen to replace traditional fishing methods with western ones, until they realised the local knowledge they had learnt from their fathers and grandfathers was superior.

Peter Ngatokorua (Fisherman)

This coalescence and sometimes dissonance, at the interface of Mangaian and western thinking occurs across all three dimensions of the SD equation, as the following examples illustrate:

- Economy interfaces with *aroa taeake*;
- Environment interfaces with *akonoanga enua*; and
- Society interfaces with *te ipukarea ia rangarangatu*.

Economy interfacing with aroa taeake

As discussed in section 6.6.4 students grappling to understand the determination of market price on Mangaia would benefit from learning that considers the impact of both western micro economic fundamentals²¹⁶ and *aroa taeake* on selling price and quality of life. For example, the term subsistence, as outlined in a New Zealand Level I Economics Study guide used by Cook Islands students, is explained as:

When one person tries to provide all the goods and services they want, the resulting standard of living is very low. This is a subsistence economy. People are so busy working ... they cannot enjoy themselves. (Douce & Williamson, 2011, p. 113)

For Mangaian students taught to value *akonoanga enua*, any linkage of *oraanga Mangaia* to subsistence in this manner is incorrect and potentially culturally offensive²¹⁷. In a similar vein, Escobar (1995) argues, the use of the term “informal economics of the Third world” (p. 217), downplays and undermines the importance of traditional economic networks and has been used as an attempt to maintain power over emerging local economies.

Participant 104, a community member, in describing the tensions that exist between western business thinking and *aroa taeake*, outlines two separate examples of why it is crucial to consider both Mangaian and western thinking alongside each other when problem solving:

1. The women making *ei pupu* are grappling with the determination of a market price that both compensates them for the time they put into making the *ei pupu* but also recognises the importance of *ei pupu* to Mangaian gifting culture.
2. There are cultural expectations to gift fish as part of *aroa taeake* but conversely some people depend upon their sale for their livelihood. Why can't people make some money through an engagement in traditional livelihoods? In our culture fish are considered free, but shouldn't the fisherman be compensated for his fuel and time and be able to make a living? After all, public servants getting a salary do not have to give all their money away.

²¹⁶ Factors such as supply, demand and the consequent derivation of equilibrium price.

²¹⁷ Interestingly, in the same textbook the more positive term “satisficing” (Douce & Williamson, 2011, p. 99), meaning to “make a satisfactory amount of profit but not exploit others while doing this, and allowing for other goals to be achieved as well” (ibid, p. 99) has been recently introduced into western economic terminology. Satisficing as a concept could be discussed with students having some similarities to *aroa taeake*.

By studying western economics alongside *oraanga Mangaia*, students begin to understand what Polanyi (1957) termed the “always-embedded economy” (Curry, 2003, p. 409) . An economy where local food, materials and labour are often provided free or in kind, land has no market value and money is often gifted. Clearly, these resources cannot be regarded as true commodities in the marketplace. On Mangaia, *aroa taeake* is an example of what Curry (2003) describes as “other economic imaginings” (ibid, p. 405) that have been ignored by “structuralist and functionalist discourses of development” (ibid, p. 405). With Mangaians motivated by a range of logic, some based on western market forces and many more motivated by *aroa taeake*²¹⁸; a critical pedagogy exploring this diverse thinking is required.

The development of a critical pedagogy employing both Mangaian and western thinking, would not only provide a mechanism for students to explore and make sense of cross cultural tensions but also draw upon wider bicultural sources of knowledge to produce better development outcomes. The following example illustrates:

During our enterprise workshop students soon realised a knowledge of business based on *oraanaga Mangaia* meant little, or no, capital setup costs, thereby reducing the chance of financial failure. However, students also realised a knowledge of western business fundamentals was imperative to maximise selling prices and find markets for their products.

Tangimama Vavia (Enterprise workshop facilitator)

Environment interfacing with akonoanga enua

For students seeking to understand the impact of SD on the Mangaian environment, knowledge of both Mangaian *raui* and western conservation practice is imperative. Alan Tuara, a Mangaian environmentalist, suggests a complimentary mix of both *raui* and conservation measures are necessary to protect the environment:

²¹⁸ It is interesting to debate whether Mangaian society has always had elements (with some now disappearing under pressure from the market economy) of Polanyi’s vision of a free society. “To remove the elements of production - land, labor and money - from the market... is already giving rise to a variety of new societies. Also the end of market society means in no way the absence of markets. Those continue in various fashions, to ensure the freedom of the consumer, to indicate the shifting of demand, to influence producers’ income, and to serve as an instrument of accountancy, while ceasing altogether to be an organ of self-regulation” (Polanyi, 1957, p. 252).

To reverse the environmental damage resulting from poor development practice over the last 30-40 years we must adopt a twofold approach, by reintroducing *raui* and adopting necessary conservation measures.

Alan Tuara

I argue, students need to understand the philosophical rationale behind the two different worldviews sitting behind *raui* and conservation and the different benefits each confers.

Stephen Lyon, a biologist on Rarotonga, explains:

Raui is an adaptive, resource management technique that ensures a continuous supply of food and material resources. Conservation protects biodiversity ad infinitum. Therefore, a *raui* manages species numbers in a particular area over a defined time, whereas a conservation area protects the biodiversity within that area for perpetuity. Students are better placed to discuss environmental protection when they know the specific advantages and potential disadvantages of each approach.

Stephen Lyon

At a more fundamental level, students need to be aware of the ongoing debate between environment and nature. As Sachs (1992) states, “nature, when she becomes the object of politics and planning, turns into ‘environment’” (p. 34). Contrasting views of nature, viewed through an *oraanga Māngaia* lens and the environment as natural capital to be exploited for economic growth from a western economic viewpoint, must be rationalised.

Society interfacing with te ipukarea ia rangarangatu

Sociocultural development on Māngaia is influenced by both Māngaian and western values. Students would benefit from learning how Māngaian values continue to influence Māngaian development decision making but also how western, sociocultural ideology is beginning to encroach on Māngaian livelihoods and culture. Participant 11 explains:

The youth seem more interested in western music, movies and styles than their own Māngaian culture.

Participant 11: Community member

It is useful for students to understand the different governance responsibilities and functions of the *aronga mana*, Island Council and the Religious Advisory Council, in terms of development on Māngaia, described in sections 5.4 and 5.5.

Community development discussions often centre on the encroachment of western values and lifestyles on *oraanga Māngaia*. A pedagogy that allows students to think critically in bicultural settings would be helpful in development debate.

Summary

Mangaian students provided with a biculturally responsive, critical pedagogy, would be able to draw on all relevant knowledge to construct best fit SD solutions that are in harmony with *oraanga Mangaia*, yet draw on relevant western knowledge if it supports Mangaian development aspirations. As Vargas (2000) sums up, “Sustainability is assured when the knowledge base is multiplied through a proper integration of traditional knowledge with modern technology” (p. 393). *So what might such a pedagogy look like?*

8.3 EasSD: The place of akatamanako

A Mangaian EasSD pedagogy reflecting *akatamanako* (Mangaian thinking) would enable students to develop a Mangaian worldview of development. Mangaian thinking, like all thinking, has cognitive levels that traverse from lower to higher order dependent upon purpose. To illustrate this, I outline six orders of Mangaian thinking that parallel a revised Bloom's Taxonomy²¹⁹ in Table 4.

Table 4: Mangaian orders of thinking

Reo Mangaia	English description
Remembering Knowledge	
<i>akamaara i to kite</i> (knowledge)	Remembering knowledge
<i>tamou ngakau i te kite peu karape</i> (deep knowledge)	Memorise the deep knowledge by heart so that it becomes part of you
<i>'i'iri o te kite peu karape</i>	Determine and remember the important (deep) knowledge
Understanding Knowledge	
<i>ua kite</i>	Understand
<i>ua kite ma te nakirokiro</i>	Understand at a deeper level
Applying knowledge	
<i>'aka'anga'anga i te kite</i>	Apply knowledge
Analysing Knowledge	
<i>'akamaarama'anga o te kite peu karape</i>	Work out where the idea came from

²¹⁹ An educational tool used to identify stages of learning in the West. Bloom's revised taxonomy, proposed by Anderson has the following cognitive domains: remembering, understanding, applying, analysing, evaluating and creating that move from lower to higher order (L. W. Anderson et al., 2001).

Evaluating knowledge	
<i>kimikimi o'onu o te kite peu karape</i>	Think deeply about the knowledge
Problem solving / Critical thinking / Creating knowledge to solve a problem	
<i>Kimi ravenga e te titau</i>	Critical thinking / problem solving
<i>Uriuri manako</i>	Critical thinking /problem solving more commonly in a group
<i>Kimi ravenga e te titau i te kite karape</i>	Problem solving using Manganian knowledge
<i>Kimi ravenga e te titau na roto i te kite karape o to tatou ai tupuna e kia tau no te oraanga</i>	Problem solving SD initiatives and sustainable livelihoods in culture using Manganian knowledge.

These orders of thinking, synthesized over multiple interviews, are not an attempt to define Manganian thinking, simply to demonstrate its complexity.

The different thinking stages illustrated, closely align to Manganian culture and are therefore vital for students seeking to better understand Manganian knowledge and values and how they might relate to Manganian SD. Oral chants, learnt by rote, serve a purpose in passing down cultural information from generation to generation. *Tamou ngakau* describes how the knowledge must become part of you, for example, specific carving designs, learnt by copying, convey important Manganian stories that form part of a student's Manganian identity - *I roto I toou ngakau*.

The expressive nature of the Manganian language serves a purpose in connecting the thinking to particular human emotions, for example, concepts like "*nakirokiro*", "*e te titau*" and "*kimikimi o'onu*" all designate the extra effort expected to ensure the problem solving respects Manganian values and culture.

8.3.1 The current place of *Kimi ravenga e te titau*

In the context of developing a place-based Manganian EasSD pedagogy, I argue *Kimi ravenga e te titau* (Manganian critical thinking and problem solving)²²⁰ is important. As described in section 6.5, it is central to the success of *oraanga Mangaia* in maintaining livelihood resilience. However, in spite of indigenous critical thinking being recognised as an essential skill in the Cook Islands Curriculum framework (Cook Islands Ministry of Education, 2002), it rarely features, as is revealed in 8.3.2. A key reason may be that the senior secondary Maori curriculum has positioned itself to provide the content necessary for students to achieve the second language learning achievement standards offered by NZQA. The assessment is actually designed for New Zealand students wishing to learn Cook Islands Maori as a second language, along with an introduction to basic Cook Islands culture. However, such courses are relatively straight forward for first language learners and provide a valuable source of ‘easier’ assessment credits. Learning is predominantly focussed on lower order thinking skills such as memorisation, where translation from Cook Islands Maori to English and vice versa is expected, along with a knowledge of basic culture. The standards allow students little opportunity to engage in contemporary problem solving around localised issues of sustainability, especially from a Manganian worldview perspective.

8.3.2 Promoting *Kimi ravenga no te oraanga Mangaia* in thinking sustainably

During my first period of research, in 2011, I was privileged to have Moekapiti Tangatakino, the Maori teacher, share with me his desire to get students to use Manganian knowledge and culture as the basis for addressing contemporary development and issues of sustainability on Mangaia. Moekapiti aims to highlight, to students, the continuing relevance of *oraanga Mangaia* to everyday life on Mangaia. He is concerned that Manganian culture is under threat from the westernisation of Manganian youth. Moekapiti stated:

Some students are not interested in Manganian language and culture, viewing it as inferior. They are instead attracted to the transient excitement that western technology offers. If students do not understand our culture and language, how can they understand the continuing importance of *oraanga Mangaia*.

We must make our culture and language relevant and interesting to the students. We can do this by involving the students in contemporary, real

²²⁰ Analogous to *kimikimianga matatio*, critical thinking as described in Cook Islands Maori language.

learning experiences that explore the continuing usefulness of *oraanga Mangaia* today. The teaching of Cook Islands Maori language and culture should be much more than just a history lesson.

Moekapiti Tangatakino

Moekapiti worked with Henrica Wilson, the Cook Islands Ministry of Education Secondary Maori Adviser, to explore how the teaching of Mangaian knowledge might benefit young Mangaians. Tangatakino and Wilson (2011) developed a draft paper entitled:

Te Mato o taku ui tupuna. Tanu no te oraanga: Apii tuarua o Mangaia 2011
The rock of my ancestors. Cultivate for life
An educational paper on the use of Mangaian knowledge. (p. 1)

The aim is to teach students how to use the wisdom, knowledge, culture and language of their ancestors to fashion sustainable livelihoods today (ibid). Mangaian knowledge and culture are to be treated as *taonga* (treasures) that will ensure development on Mangaia is economically sustainable, in harmony with the environment, and socially just. The paper sets out some key tenets:

Na roto i te taraanga e te tataanga i te reo Mangaia ka riro teia ei akaoraora e te akamouanga i te Kite, marama, e te karape o te uitupuna i roto i te Pen.

By speaking and writing the Mangaian language, we will continue to revive, keep alive and promote the knowledge and wisdom of our ancestors.

E rangatira ai teia porokaramu kia angaanga kapiti te apii kit e au metua, e ki te au ta'unga korero o te enua nei

We will only succeed if all stakeholders in the school, school leaders, teachers, parents, community and most importantly students, commit with all their hearts to this project. (p. 2)

The paper also sets out what the future benefits for Mangaian students are:

Kua tangoia teia tuanga apii ki runga i te Mato o te Ui Tupuna koia oki to ratou Kite, Marama e te Karape. Ko te irinakianga kia orongaia te reira marama ki roto i te au tamariki o teia tuatau e pera no te tuatau ki mua.

Let the knowledge and wisdom of our ancestors flow freely in the hearts of our children now and forever more.

I roto i te au tumu tapura tei akanoonoia no teia tuanga apii, ka riro te reira ei kakaroanga no te apaianga mai i te kite e te au marama ki te au tamariki.

Our children will be enlightened and therefore encouraged to seek out, understand, and use the knowledge they learn. (p. 3)

The paper outlines what the curriculum will include, emphasising the particular focus on Mangaians and their relationship to the land and sea through *oraanga Mangaia*:

Te oraanga natura (Enua e te ao rangi): A module in which students develop the skills that allow them to interact and use the resources of the land effectively and sustainably.

Au peu enua: A module in which students learn about the customs and practices related to land use on Mangaia. Ensuring all students have extensive knowledge of legends, parables, songs and practices such as rau.

Taporoporoanga; inana, teia ra e te uki o apopo: A module in which students explore our ancestral knowledge to determine whether it can still guide us in our interactions with the environment today. (p. 4)

The paper also outlines how historical events shaped the social structures of today and provide lessons on how to live:

Ngai taito i runga i te enua: A module in which Mangaian history, with a focus on how a knowledge of past events can guide us in how we might live today. Knowledge of important marae and battlefields and their ongoing significance today is provided. (p. 4)

Kite peu karape ou (new knowledge)

Moekapiti points out Mangaian knowledge is not static, explaining how it is continually being reshaped:

Akatanotanoanga i te kite karape ou kia tano i runga i te kite Mangaia

Knowledge can be adapted and reshaped to generate new ways of doing things in response to changing environments and situations over time.

Moekapiti Tangatakino

The following examples, described to me by Mangaians, illustrate Moekapiti's thinking:

- Both adze making and tapa making have changed in response to changing materials, equipment and interpretations of their purpose. This does not make them any less Mangaian;
- There is a continuing debate over land tenure and how interpretations of history influence land allocation today; and
- With increasing environmental concerns, the role of rau in managing the island's resources is being rethought.

As Burnett (2007) explains, culture draws on the past but is not located in the past, as it adapts to the present and future. Although some cultural practices have already been revived, many more have yet to be. Taio Nooroa, a *rangatira*, outlined to me some examples of 'forgotten culture' that he would like revived to strengthen SD on Mangaia. They are:

- *Aroa Krimaiti*, whereby families share gifts of food in villages over the Christmas period. This could be reinstated as an illustration, particularly to children, of the power of *aroaaroa* (love and commitment);
- Village fishing expeditions, whereby the catch is shared equally amongst all villagers, could be reinstated periodically to teach youth the importance of *aroaaroa*; and
- Traditional baskets made from coconut leaves could be used to replace the use of plastic bags to look after the environment.

Tangatakinō and Wilson's (2011) unpublished paper, hints at a mechanism in which students can use Māngaia culture and knowledge to develop solutions to Māngaia SD. Students educated in this manner would learn that westernisation does not hold all of the answers to SD. Instead, they could appreciate that they are the custodians of a culture that offers solutions to SD locally and can make meaningful contributions to SD globally.

8.4 Conceptualising a Māngaia EasSD pedagogy

The pedagogy constructed should be capable of allowing Māngaia students to construct a Māngaia vision of SD²²¹.

Kimi ravenga i te titau (problem solving /critical thinking) sits at the core of *oraanga Māngaia's* ability to provide resilience in the face of continually changing environments, on what is an ecologically fragile island. Consequentially, *kimi ravenga i te titau* sits at the core of a Māngaia EasSD pedagogy. *Kimi ravenga i te titau* is analogous to Gegeo and Watson-Gegeo's (2001) idea of an indigenous critical praxis, defined as:

people's own critical reflection on culture, history, knowledge, politics, economics, and the socio-political contexts in which they are living their lives; and then their taking the next step to act on these critical reflections. (p. 58).

And underpinned by an indigenous epistemology, defined as a:

cultural group's ways of thinking and of creating, reformulating, and theorizing about knowledge via traditional discourses and media of communication, anchoring the truth of the discourse in culture. (p. 58).

²²¹ Described in sections 6.4 and 6.5.

Gegeo and Watson-Gegeo argue that it is this use of an indigenous epistemology, based on different values, to underpin critical, reflective thinking that results in different SD conclusions from that of western models of thinking (ibid).

Put in the context of this case study, only a Manganian worldview will achieve a Manganian vision of SD. A Manganian EasSD pedagogy, by situating *kimi ravenga i te titau* and *oraanga Mangaia* at the heart of Manganian sustainability thinking, challenges and questions, is the antithesis of current educational systems, which support and feed into “industrialism, nationalism, competitive transnationalism, individualism, and patriarchy” (p. 27). In conceptualising this Manganian EasSD pedagogy, I have drawn on, and included, David Teata’s²²² art piece entitled Sacred Steps²²³ (Teata, 2013). David, a Manganian, accepted my request to use the print in a gesture of *aroaroa* (sharing to express friendship)²²⁴. The Sacred Steps drawing is a useful, visual depiction of a Manganian EasSD pedagogy, as it features the symbolic use of a lens, signifying an exploration of knowledge, values and ideas. The interweaving patterns indicate both indigenous and western knowledge, values and ideas can be drawn on to fashion best-fit SD solutions and sustainable livelihoods on Mangaia. The Manganian EasSD pedagogy is shown in figure 8.

²²² David grew up on Mangaia and left for New Zealand as a 16 year old. David has a Bachelor of Fine Arts from Otago University and a Postgraduate Diploma in Art and Design from the Auckland University of Technology. “I have always loved art. I recall helping my Great Grandmother design *tivaivai* patterns. While studying, I became interested in woodblock printmaking. It gave me the opportunity to explore my Manganian artistic heritage, to develop the carving skills of my ancestors, and to give their artistic traditions a contemporary expression” (Teata, 2013).

²²³ David’s description of his image is as follows: This image features the symbolic use of the lens, a universal shape created by the intersection of two circles. It explores the process of interweaving that creates our culture and identity (Teata, 2013).

²²⁴ David explained to my wife and me he was delighted to support anything that might help improve the education Manganian students receive.

Towards a Māngaian Education as Sustainable Development pedagogical framework

**Kimi ravenga e te titau na roto i te kite karape
o to tatou ai tupuna e kia tau no te oraanga**

(conceptualising and actualising Māngaian Sustainable Development)



Kimi ravenga e te titau i te kite peu karape
(problem solving using Māngaian knowledge)

- aroa tacake
- akoutanga entia
- te ipukarea la rangaranga

Kite peu karape
(Māngaian knowledge)

- Western ideas innovation and technology
- Development thinking and practice.
- Economic, social, environmental and cultural perspectives
- The development project

exploring
analysing
evaluating
creating

Western knowledge

Global and
biosphere
knowledge

Local and
ecosystem
knowledge

**Kimi i te oraanga meitaki / matutu /
rangaranga no te Māngaiā**

e te

**akono akaperepere ma te taporoporo
i te ipukarea**

(Māngaian Sustainable Development)



The goal
being

Critical thinking

Figure 8: Māngaian EasSD pedagogy

8.4.1 Explaining the shape of the sacred steps (thinking lens)

Kimi ravenga e te titau na roto i te kite karape o to tatou ai tupuna e kia tau no te oraanga Mangaia. That is Mangaian critical thinking, underpinned by Mangaian epistemology and focused on a Mangaian vision of SD as the overarching thinking, sits at the top of the lens. Moekapiti explained it to me as:

Kimi ravenga e te titau na roto i te kite karape o to tatou ai tupuna e kia tau no te oraanga Mangaia

Think critically /problem solve in a Mangaian context, underpinned by Mangaian knowledge, epistemology and values to achieve a Mangaian vision of SD.

Moekapiti Tangatakino

Littledyke (2008), in the wider Global South context, argues that students must not only think critically about sustainability, but must also engage the affective domain of thinking to explore, and respect, their own, and their communities' values and attitudes towards sustainability. That is why reference is made to '*to tatou ai tupuna*' (our ancestors). Mangaian EasSD pedagogy would demand students immerse themselves in Mangaian culture as a prerequisite to effective learning about sustainability. By adopting a politicised Mangaian pedagogy, students can form opinions on what sustainability means and develop actions on future sustainability that reflect Mangaian worldviews. Students steeped in *oraanga Mangaia*, determine the right mix of Mangaian and western ideas to ensure solutions to sustainability enhance Mangaian culture and reflect their own, their families' and their communities' vision for a sustainable future.

Given both Mangaian and western critical thinking are important when considering the different worldviews on SD, how might they be incorporated into the one model?

Kimi ravenga e te titau i te kite peu karape, a Mangaian approach to problem solving, sits at the bottom left of the lens, encouraging students to seek out Mangaian solutions to SD. Mangaian critical thinking directs students towards an exploration of sustainability that is based on an integration of *taeake aroa*, *akonoanga enua* and *te ipukarea kia rangaranga*. Students are able to debate what is preserved, "intergenerationally renewed" (Bowers, 2008, p. 332), embraced or occasionally rejected, demonstrating that Mangaian culture is neither located in the past nor constructed in immutable terms.. The dynamic process of taking *te kite karape o to tatou ai tupuna* (indigenous traditional knowledge) and relevant western

knowledge to generate *kite karape ou* (new knowledge) can occur. Students employing *Kimi ravenga e te titau i te kite pou karape* are in a strong position to differentiate between the assimilation of relevant western knowledge augmenting *oraanga Mangaia*, and the rejection of western ideas and technology that have no relevance, or may harm, *oraanga Mangaia*.

Western critical thinking is a vital part of Manganian EasSD pedagogy and consequentially sits at the bottom right of the lens, as a tool contributing a western perspective to SD thinking and planning. For example, project management skills²²⁵ provide valuable methodology to ensure business and development project success. Scientific method²²⁶ is used to interpret phenomena and gather valuable environmental data that assists with agricultural development project decision making. In this model, western critical thinking is also used to ‘self-analyse’ the worthiness of western development ideas and technology. Good ideas and technology can be adopted or modified to strengthen Manganian visions of SD. Poor ideas and technology can be rejected. By sitting at the bottom of the lens, western thinking does not dominate Manganian development thinking. Instead, the information gained is subject to an overarching decision making process, grounded in Manganian critical praxis and Manganian epistemology. Here, western knowledge informs and supports decision making but no longer drives it.

Summary

The pedagogy with *Kimi ravenga e te titau na roto i te kite karape o to tatou ai tupuna e kia tau no te oraanga* sitting at the top of the lens, as an overarching framework, ensures western ideas do not dictate students’ development thinking, through what Burnett (2007) describes as “covert cultural domination” (p. 262) and “overt” (p. 262) economic domination: Cultural domination, whereby students succumb to westernisation and hyperreality, and economic domination, whereby students follow livelihoods that result in global economic and

²²⁵ Including knowledge of strategic planning, project implementation, monitoring, evaluation and use of tools like: critical path analysis, Gantt charts, SWOT analysis and evaluation matrices.

²²⁶ A method of procedure that has characterized natural science since the 17th century, consisting in systematic observation, measurement, experiment, and the formulation, testing, and modification of hypotheses (Oxford Dictionaries, 2015).

financial dependency²²⁷. Manganian thinking ensures *oraanga Mangania*, remains at the centre of future SD discussion on Mangania. Moreover, with the model's focus on understanding and upholding Manganian culture and values, the Manganian EasSD pedagogy complements Te Ava, Airini and Rubie-Davis's (2011) *tivaevae* model of a culturally responsive pedagogy for teaching in Cook Islands secondary schools, described in 5.12.6.

Equally, the conceptualization does not dismiss the advantages of western critical thinking as a learning tool. In this way, education focussed on cultural essentialism, as a backlash to neo colonialism, is avoided. Western critical thinking, sitting at the bottom of the lens, becomes a valuable thinking and learning tool, supporting but not dominating contemporary Manganian thinking and future development decisions. Inclusion of western critical thinking, allows students to move past "reductive culturalism, instead taking into account the nuances, fluidity, multiplicity and dynamism of contemporary Pacific lives and realities"(Burnett, 2007, p. 271).

I argue, this model would allow students to explore conjointly, both indigenous and western thinking and ideology from a hopeful post-development perspective, thus rejecting any western development models that are in conflict with local culture and/or context, while not stooping to reductive definitions of culture, which deny students, as Willinsky (1998) stated, a "right to know" (p. 252).

8.4.2 Explaining the space of the sacred steps (thinking lens)

What does the space inside the thinking lens represent? The space is where knowledge acquired by both Manganian and western critical thinking is subject to *uriuri manako* (debate) and synthesis under the overarching thinking of *Kimi ravenga e te titau na roto i te kite karape o to tatou ai tupuna e kia tau no te oraanga*. The thinking is culturally heterogeneous, fluid, and flexible (Burnett, 2007). Visions of Manganian sustainability are no longer articulated by western outsiders who base their representations on cultural histories that no longer exist; instead, as Carter (2004) describes such cross cultural thinking they are a "postmodern conception of fluid hybrid formations" (p. 827), of in this context SD, "inherently

²²⁷ World system and dependency theory argues that continued economic growth in the core depends on the continuous extraction of natural resources from the periphery which damages the environment (Carvalho, 2001).

adaptable and inventive, and always in the making” (p. 827). The space acknowledges Māngaiān SD is the result of:

The increasing awareness of shared historical processes, cultural reciprocity, and the diasporic tendencies of the globalizing world around more complex and multiple conceptualizations of Western science and indigenous culture. (p. 833)

Rather than acquiescing to the western conviction that western science determines universal knowledge²²⁸, the pedagogy embraces the heterogeneity of knowledge where certainty is elusive. Māngaiāns, confident in their culture and identity, would remain open to, and not threatened by, different points of view, celebrating what Turnbull (2000) describes as the “motley” (p. 19) of knowledge. In advocating for a plurality of knowledge systems, under the protective cultural umbrella of *Kimi ravenga e te titau na roto i te kite karape o to tatou ai tūpuna e kia tau no te oraanga* but mindful of western development theory and practice, I find it helpful to quote Turnbull:

If we do not actively celebrate the messiness of all our knowledge making we will in the long run condemn ourselves to an inevitable death brought on by the inflexibility and sterility of a monoculture. In the long run, social and cultural complexity cannot be winnowed away; it’s all there is. (p. 227)

As Burnett (2007) argues, attempts to view Pacific and western knowledge and culture as simple binary opposites, undermines the rethinking education process. When diverse knowledge can be embraced, Turnbull (2000) believes it possible to move beyond the modern to the transmodern. Turnbull describes the transmodern as a space where differing knowledge traditions can undergo a “process of mutual creative fertilisation” (p. 227). Turnbull calls the space ‘a third space’, where contrasting rationalities can work together. It is also a critical space²²⁹ where effective critique of “value, capital, labour, labour-power, value creation and capital accumulation and so on” (Rikowski, 2003 para 6), can occur. Turnbull believes that currently, in the ‘development – education’ nexus there is a compression of this space, preventing a critical assessment of neoliberalism and the capitalist system.

²²⁸ Turnbull (2000) challenges western science’s belief in universality by arguing scientific and technological ways of knowing and doing are “riddled with indeterminacies” (p. 7).

²²⁹ Critical space is about the potential and actuality for criticisms of existing society and promulgation of alternatives (Gabbard & Ross, 2004, p. 186).

I argue that elements of this third thinking space are already evident in *oraanga Mangaia*. *Aroa taeake* contends with western economic rationality to decide the allocation of resources on Mangaia. *Akonoanga enua*, as an adaptive management process, contrasts with conservation measures to moderate the impact of development on nature. Westernisation vies with *te ipukarea ia rangarangatu* in shaping contemporary societal norms, especially amongst the youth.

Therefore, the space represented by the lens is a pedagogical space, where students employing *both Manganian* and western critical thinking epistemologies can debate and contest positions along the sustainability continuum, rather than blindly accepting existing ideologies. Students no longer need be indoctrinated with simplistic environmental messages. Instead, by employing thinking skills, from multiple epistemologies, develop their own culturally and contextually appropriate visions of SD as Sterling (1994) argues, all students should be able to.

In this space, students can examine arguments used to justify particular modes of development. What may be paraded as scientific fact could in fact be an untruth, used by protagonists to further their own wealth and power. Scientific fact and technological change are treated more cautiously, with western science viewed simply as a “product of its time” (Hodson, 2003, p. 647). Students are able to reject “technological determinism” (ibid, p. 662) and the “myths of modernity” (Bowers, 1996, p. 5). Students draw on their own Manganian values to decide what western ideas and /or technology might enhance *oraanga Mangaia*, benefiting them and their culture.

Adopting Kawagley and Barnhardt’s (1998) view of indigenous education, the thinking framework ensures Manganian teaching and learning occurs in the culture, rather than being about Manganian culture. The pedagogy, by putting *oraanga Mangaia* at its centre, adopts an ecozoic stance²³⁰, where Manganians would not see themselves as separate from the natural world. Students immersed in this holistic, organic, biocentric world feel part of the “web of life (or) circle of life” (O’Sullivan, 1999, p. 73). Use of a place-based Manganian pedagogy

²³⁰ “The term, “Ecozoic,” is coined by Thomas Berry to indicate the new culture we must adopt for a viable future. The Ecozoic is the period in which the human and the non-human coexist in a mutually enhancing manner” (Lee, 2011, p. 1).

would contrast with a progressive technozoic pedagogy that is modern, exploitive and mechanistic (ibid). Both Bowers (2008) and Gruenewald (2003), commenting on the strength of place-based education, view the ability of students to understand, and make connections with, local ecosystems as the basis of an education system which supports sustainability.

8.5 The Maro-itiki: A framework for inclusion

The Manganian EasSD pedagogy presented encourages students to seek out relevant western thinking, knowledge and technology that strengthen contemporary Manganian livelihoods and rejects the idea of cultural essentialism. Yet it demands Manganian values and culture, expressed through *oraanga Mangania* remain paramount. So the question arises: *How is it possible to integrate this beneficial western knowledge alongside Manganian culture without the potential to damage that culture?* The danger in remaining receptive to western sustainability ideology, is students are overwhelmed with the “the hegemony of some forms of knowledge and delegitimation of others” (Carter, 2004, p. 824).

Moreover, Carter (2004) believes current binary views of IK and western science, where cultures are separated, has the effect of perpetuating neocolonialism. Carter (2008a) instead suggests a more critical view of western science is now possible. Western science is perceived as “localized ethnoscience that has transcended its immediate determinants through its reliability and usefulness” (ibid, p. 176).

When western science is viewed as a subculture of western thinking, it no longer becomes a threat to indigenous peoples and the use of IK does not have to be defended. Students making sense of their own cultural beliefs and knowledge in relation to other knowledge systems, in a third thinking space, can make their own informed decisions on what knowledge to use. Both knowledge systems can then coexist. I now describe how a critical evaluation of contrasting knowledge might take place in the EasSD pedagogical space.

Diagrammatically I have taken the *maro-itiki*, part of the Manganian SD framework, illustrated in figure 4, and described in 6.3.1, magnified it and shown it in more detail in figure 9.

Explaining the **Maro-itiki**

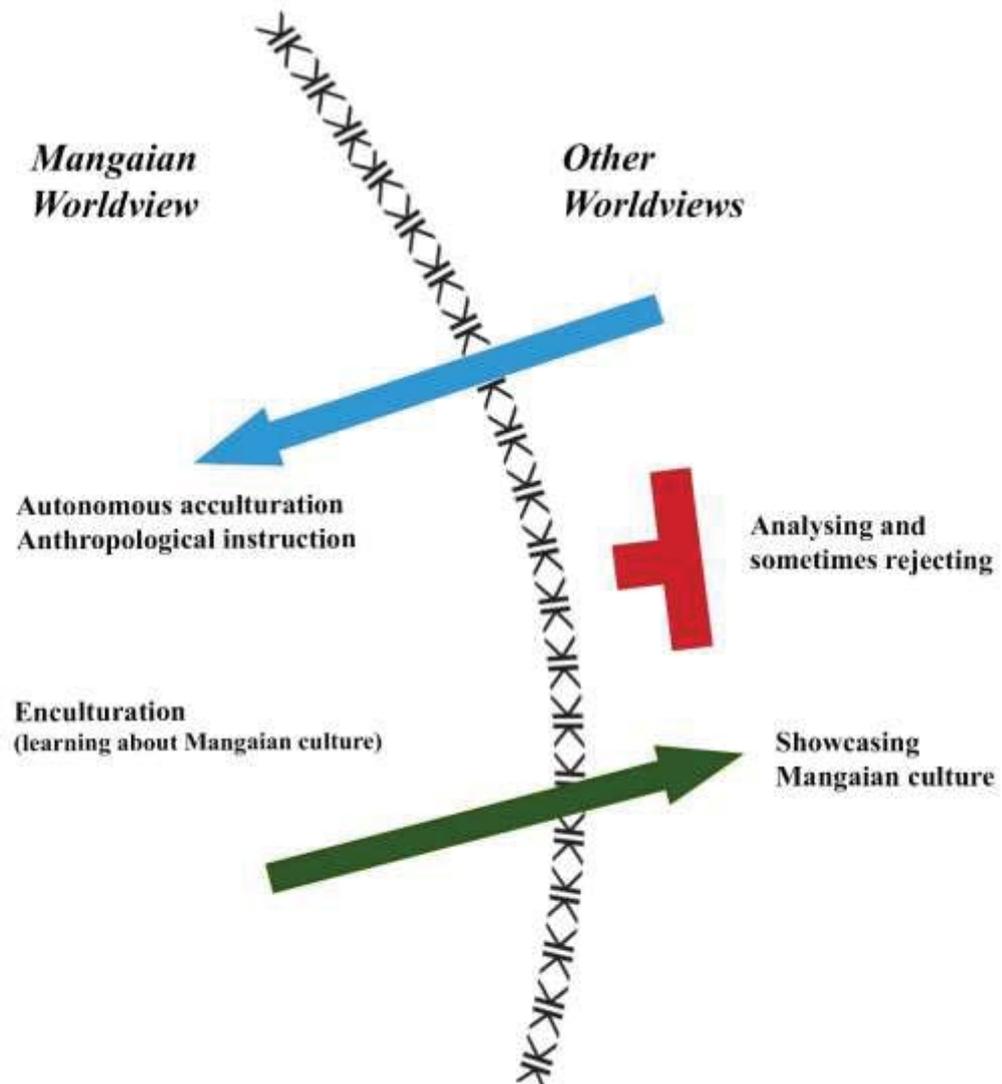


Figure 9: Explaining the Maro-itiki

Mangaians think critically, both internally and externally, to improve their lives. Internally to draw on the strength of their culture. Externally to evaluate the worthiness of western

ideology and technology when put up against Manganian values and *oraanga Mangania*. Decisions on what western knowledge and technology should be assimilated, modified or rejected are then made.

Internal thinking

Internal thinking might be thought of as enculturation which is the “process by which an individual learns the traditional content of a culture and assimilates its practices and values” (Merriam-Webster, 2016). This does not imply such learning is fixed instead learning is dynamic and evolving. Manganians constantly re-evaluate aspects of *oraanga Mangania*²³¹ against constantly changing social conditions, physical and biological environments (nature) and external pressures, usually western in origin. Moekapiti Tangatakino explains:

Kimi ravenga te kite karape o to tatou ai tupuna.

Problem solving is carried out in the context of the knowledge and values of our ancestors.

Kia akatanotano ia rai e kia ravera te kite o to tatou ai tupuna kia riro rai ei apiianga ia tatou i teia ra. Kia taangaanga ia tei reira kite taito.

The knowledge and wisdom of our ancestors can be applied today. Sometimes the knowledge needs to be reshaped and resynthesised but it is still relevant.

Moekapiti Tangatakino

External thinking

Thinking, facing outwards, assimilates, modifies or rejects western ideas and technology using the three following processes, explained in the paragraphs to follow:

- Autonomous acculturation;
- Anthropological instruction; and
- Rejection.

Autonomous acculturation - Useful western science and technology are adopted by autonomous acculturation that, “is a process of intercultural borrowing or adaptation in which one borrows or adapts attractive content or aspects of another culture and

²³¹ Incorporating *akonoanga enua*, *aroa taeake* and *te ipukarea ia rangarangatū*.

incorporates (assimilates) it into one's indigenous culture" (Aikenhead, 1997, p. 230).

Mangaian worldviews sit alongside this new western scientific view and technological view.

Anthropological instruction - Indigenous students requiring western science and technology, to pass an examination or function in a job, will cross a cultural border into the subculture of science, where they may find the newly acquired knowledge does not agree with their own worldview. They respond by using anthropological instruction; the concepts are learnt but do not replace their own cultural worldviews or change their values. Western science in this sense becomes a subculture of western culture and does not displace IK (Aikenhead, 1996; M Ogawa, 1986; Pomeroy, 1994). Aikenhead (1997) describes anthropological instruction as "students learn(ing) the content of subculture science similar to an anthropologist learning the ways of a foreign culture" (p. 230). Teachers facilitate what Aikenhead terms "cultural border crossings" (p. 217) into the subculture of western science, while ensuring the validity of students' own indigenous understandings. The result is students gain the skills and knowledge to gain formal qualifications for jobs while not sacrificing cultural integrity.

Rejection - Western ideas and technology are rejected, as they are incompatible with Mangaian values, culture, *oraanga Mangaia* and/or Mangaian visions of SD.

8.5.1 Students thinking critically does not clash with culture

Having argued *kimi ravenga* is central to *oraanga Mangaia* and Mangaian resilience and therefore a key to any Mangaian EasSD pedagogy, I now ask the question: *Is a critical thinking framework for students at odds with cultural values, in particular, respect for elders?* I argue it does not need to be, as adoption of passive learning strategies is not necessary to show respect for teachers as elders.

Interestingly I argue, the pedagogy, by instilling in students a deeper understanding of Mangaian culture and values²³², is more likely to build in students a genuine *kauraro*

²³² Mangaian values are an important component of *oraanga Mangaia* and hence SD on *Mangaia* and can be represented by one of the patterns of the *tivaerae* namely *peu puapinga*.

Peu puapinga is another pattern that acknowledges values identified by the *pa metua: tāuene* (participation), *angaanga taokotai* (cooperation), *akatano* (discipline), *akakoromaki* (patience), *ngakau akaaka* (humility), *kauraro*

(respect) for elders and cultural *ngakau akaaka* (humility). Cultural respect is not foisted onto students for mainly politically correct reasons but genuinely instilled through indepth understanding of Mangaian values and culture.

Interviews with teachers at Mangaia School, confirm students are encouraged to think critically about potentially contentious issues that affect life on Mangaia, as long as the values outlined in the tivaevae model of a culturally responsive pedagogy are adhered too. Tangi Matapo explains what this means in practice:

Students can discuss the pros and cons of Mangaian development projects as long as Members of Parliament and Island Council members on Mangaia are respected

Tangi Matapo

Teachers in the classroom have a role to play:

Students are a lot freer to scrutinise politically charged development issues in the Cook Islands than perhaps students in other Pacific countries. However, it is important the teachers do not state their own political biases. They must stay neutral, only acting as a facilitator for the students' own learning.

Participant 2: Teacher

8.6 Discussion: A strength-based implementation of EasSD curriculum and pedagogy

Drawing on Hopkins and McKeown's (Hopkins & McKeown, 2001) concept of a strengths based programme implementation, the realisation of a Mangaian place-based EasSD curriculum and pedagogy will have to be a gradual process. Currently at Mangaia School, a number of senior secondary curriculum and matching pedagogy types are evident, reflecting:

- The teaching objectives derived from the NZC;

(respect), *angaanga oire kapiti* (community involvement), *te reo Maori Kuki Airani* (Cook Islands Maori language), and *auora* (physical and spiritual wellbeing)" (Te Ava et al., 2011, p. 124).

- The available assessment tasks and moderation requirements of NZQA²³³;
- Teacher pedagogical skill, belief, and background;
- The availability of teaching resources;
- A determination to focus more directly on teaching Māngaiān culture; and
- A determination to incorporate more relevant place-based teaching.

The curriculum types vary from teacher to teacher, subject to subject, within subjects and units and even within a lesson. For discussion purposes, I have categorized five curriculum and pedagogy types.

1. Western - New Zealand context;
2. Western - Cook Islands context;
3. Dualist - Western with Cook Islands Māori as a separate subject;
4. Western ESD - inclusive of a western social justice and diversity narrative;
5. Māngaiān EasSD.

They are described in detail in table 5.

Table 5: Teaching and learning styles in senior secondary curriculum and assessment

Curriculum type	Pedagogy driving curriculum	Context for curriculum	Assessment ²³⁴
Western (New Zealand) ²³⁵ .	Underpinned by western ideology and narratives.	New Zealand.	Assessment tasks reflect western ideology and New Zealand context.
Western (New Zealand).	Underpinned by western ideology and narratives.	Predominantly New Zealand but some Cook Islands contexts drawn	Many assessment tasks reflect a New Zealand context, but some

²³³ There are two quality assurance bodies responsible for approving qualifications in New Zealand: NZQA and the New Zealand Vice-Chancellors' Committee. These bodies are also responsible for the quality that underpins the delivery of qualifications. NZQA is responsible for quality assuring all non-university tertiary education organisations, and approves qualifications developed by these organisations. The New Zealand Vice-Chancellors' Committee (also known as Universities New Zealand) is responsible for quality assuring all universities, and approves qualifications developed by these organisations.

²³⁴ New Zealand Qualification Authority achievement and unit standards (New Zealand Qualifications Authority: Mana Tohu Matauranga O Aotearoa, 2013).

²³⁵ Here I refer to the New Zealand curriculum and not Te Marautanga o Aotearoa, the New Zealand Māori medium curriculum.

Often simplistic attempts to introduce place-based education.		on to illustrate western concepts.	others attempt to include a Cook Islands context.
Dualist Western (New Zealand) continues to dominate. Cook Islands Maori taught as a dedicated subject.	Western narratives reinforce the perception that a western education is the gateway to academic and career success. Cook Islands culture and language ²³⁶ learning employed as a way of strengthening student's identity as a Cook Islander.	New Zealand and Cook Islands. Cook Islands contexts used to illustrate western concepts. Culture and language often taught as historical artefacts.	Some assessment tasks reflect New Zealand context, others reflect an attempt to include a Cook Islands context. Cook Islands Maori as second language achievement standards offered in the Maori class ²³⁷ .
Western centric ESD curriculum, inclusive of a social justice and diversity narrative offered. (New Zealand in origin).	Critical thinking processes used to challenge power and oppression but from a western worldview. Tendency to patronize and romanticise culture and language.	Students learn about the effects of colonisation, neocolonialism and the potential effects of globalisation and neoliberalism on the economy, society, culture and environment of the Cook Islands.	Education for Sustainability (Efs) achievement standards and social inquiry standards used to investigate sustainability in the Cook Islands from a western perspective.
Mangaian / Cook Islands EasSD.	Mangaian critical thinking underpinned by placing culture at the centre of learning ²³⁸ . Western ideology, development practice and technological knowhow drawn on where it can contribute to culturally responsive and contextually relevant	Authentic, culturally responsive place-based teaching and learning experiences provided. Students understand and develop Mangaian SD action competence. Students able to understand and debate contrasting positions	Specific Cook Islands EasSD achievement standards registered on NZQA framework ²³⁹ . Assessments are tailored to culturally and contextually authentic place-based SD themes. Standards promote

²³⁶ Culture and language taught as historical artefacts. Students predominantly are not educated to consider Cook Islands culture could contribute to SD. Culture and language restricted mainly to the subject Cook Islands Maori and school culture days. Culture and language does not pervade the whole curriculum.

²³⁷ The focus is on students ability to communicate (New Zealand Ministry of Education, 2007, p. 24).

²³⁸ Gegeo and Watson-Gegeo (2001) define the ability of indigenous people to engage in critical thinking and reflection, as indigenous critical praxis. It refers to: "people's own critical reflection on culture, history, knowledge, politics, economics, and the socio-political contexts in which they are living their lives; and then their taking the next step to act on these critical reflections" (ibid, p. 58).

²³⁹ Yet to be developed.

	development solutions. Dehegemonistion and conscientisation underpins thinking.	along the sustainable development continuum and across different worldviews.	bilingualism.
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I now describe each curriculum and supporting pedagogy type:

Western (New Zealand context)

In senior secondary at Mangaia School²⁴⁰, a New Zealand focused curriculum persists because students undertake New Zealand qualifications based on the NZC. Many teaching resources originate from New Zealand, meaning learning is based on New Zealand contexts²⁴¹. Although many of the achievement tasks on the NZQF promote place-based teaching, in practice only a few opportunities are taken. The lack of curriculum expertise, availability of localised teaching resources and time for teachers to develop their own resources, makes it difficult for teachers to provide a place-based education.

Two examples illustrate this: The Manganian indigenous ecological zones, described in detail by Allen (1969), could provide the basis of a localised, ecosystem perspective in biology, yet there has been no attempt to put them into a suitable format for teaching. In English, Raumea Koroa’s poems²⁴² could be used to provide valuable insights into SD on Mangaia, yet they have not been published and are unavailable for student use.

Western (Cook Islands context)

As outlined in chapter seven, there are examples where innovative teachers use local contexts to explain western ideas and western explanations of observed phenomena. Emphasis is put on connecting learning to students’ lives and providing experiences that interest students. Aitken and Sinnema (2006) argue this approach reflects quality teaching practices aimed at improved student learning. However, in a western centric curriculum, predominantly western ideology and knowledge are contextualised. There is little attempt to challenge the usefulness of western ideas with Manganian (Cook Islands) thinking,

²⁴⁰ Moreover, in all Cook Islands secondary schools.

²⁴¹ The science curriculum even provides a list of useful textbooks, all of which are New Zealand in origin (Cook Islands Ministry of Education, 2006b, p. 33).

²⁴² Discussed in section 7.5.2.

underpinned by Manganian epistemology. Under this curriculum type, a Manganian worldview on sustainability is still not considered.

Dualist Western with Cook Islands Maori as a separate subject

In the third approach, western ideas, thinking and hegemony remain dominant. Cook Islands culture and language²⁴³ are valued but mainly as tools to strengthen students' identity as Cook Islanders in a globalised world. The underlying message conveyed to students is that in a globalising 21st century, *oraanga Mangaia* has little value in terms of its contribution to future livelihoods. *Oraanga Mangaia* is effectively overlooked as a source of real solutions to sustainability on Mangaia, despite its previous record in having provided resilience to Manganians for hundreds of years (Allen, 1969; Mark, 1976).

Western ESD - inclusive of a western social justice and diversity narrative

This curriculum type attempts to validate Manganian culture but does so using a western critical pedagogy. The tendency is to combine all indigenous cultures into a generic whole. An irony instantly arises, as students scrutinise their own culture as though they were anthropologists from the outside. Although students' own culture is presented in positive terms, it is still presented as an alternative to western centric ideas on what development and livelihood options students should aspire to. Students receive the subconscious message that their own culture and values are inferior when compared to western lifestyles. Nurse (2006) explains:

When it comes to sustainable development not all cultures are equal, some cultures are more equal than others, depending on the political and historical context. At one end of the sustainable development discourse western science is viewed either as the cause or the solution to the problem. At the other end of the spectrum, traditional or localized, particularly non-western knowledge is either seen as 'backward' and problematic or romanticized as 'sacred wisdom' and therefore valued for its future value. (p. 5)

²⁴³ Culture and language are viewed as historical artefacts. Students are not encouraged to consider Manganian culture's past, current and future contribution to sustainable economic, social or environmental solutions. The use of Manganian culture and language is restricted mainly to the subject Cook Islands Maori and school culture days. Manganian culture and language do not pervade the whole curriculum.

Mangaian / Cook Islands EasSD

In this pedagogy, Mangaian conceptions of SD are defined by Mangaians as:

*Kimi rvenga e te titau na roto i te kite karape o to tatou ai tupuna e kia tau no te oraanga
Mangaia.*

This problem solving approach was explained in 8.4.1. It drives the teaching and learning process and allows students to explore the myriad of SD interpretations but importantly does it from a Mangaian worldview. In this approach Mangaian SD is viewed as “an essentially creative, reflexive and participative process” (Sterling, 2001, p. 61). Relevant western ideas, processes and technological solutions are not excluded²⁴⁴ but incorporated into development thinking and used to strengthen progress towards a vision for a Mangaian SD.

Discussion

Education aimed at building human capital to support government backed mainstream development, currently means teaching and learning is focused on the first three western centric curriculum types. As you move down the table from curriculum type one towards five, their frequency in the classroom diminishes, reflecting the continuing dominance of western centric curricula at Mangaia School. Only a “focus on reorientation” (Hiebert, 2014, p. 3) of curriculum towards curriculum type five, will see a change from ‘Education about’ and ‘education for’ approaches to SD to the realisation of a transformative place-based Mangaian EasSD at Mangaia School.

For students aiming to secure public service jobs or wanting to migrate for study and work, the attraction of at least partial exposure to western curricula remains. The right of students, and their parents, to determine their own futures and chase the perceived benefits of westernisation must be respected. However, I argue at least a partial immersion in an EasSD style curriculum would expose students to more diverse sustainable livelihood options, and potentially happier more culturally satisfying lifestyles, where they are able to enjoy some, or all, of the six key benefits of EasSD, as outlined in section 7.9.

²⁴⁴ However, western hegemony is.

8.7 Summary.

Use of a place-based bicultural Māngaia EasSD pedagogy, allows students and their communities to seek out development solutions that are culturally and environmentally sustainable, reflecting a Māngaia worldview. A Māngaia EasSD pedagogy is the key to ensuring the delivery of an EasSD curriculum is not the result of western centric SD ideology or a reflection of a romanticised view of Māngaia culture. A place-based Māngaia EasSD pedagogy fits with post-development thinking that rejects assumptions that development is Eurocentric (Curry, 2003). Instead, a Māngaia EasSD curriculum and pedagogy empowers students to imagine and build SD solutions that reflect Māngaia values, livelihoods and culture, while still being able to benefit by making use of western ideas and technology that enhance culture.

The next chapter begins by looks at the implementation challenges of a Māngaia EasSD curriculum and pedagogy. It argues that many of these challenges might be overcome by drawing on educational stakeholder support. EasSD implementation is then discussed in the context of the wider Global South.

Chapter 9 EasSD implementation challenges

9.1 Introduction

The challenges of implementing Manganian EasSD, in particular the challenges in producing place-based curricula, by teachers adopting new pedagogies and having to learn new knowledge specific to SD on Mangaia, are examined in this chapter. How the key stakeholders, the community, Ministry of Education, aid agencies and, importantly parents, might collaborate with Mangaia School staff to realise a quality place-based Manganian EasSD for Manganian students are explored.

The next section takes a look at EasSD style implementation across the wider Global South, exploring the extent to which the challenges faced by Mangaia School and the Cook Islands education system are repeated elsewhere. The key challenges in the Global South, to the implementation of a transformative EasSD curriculum, are revealed. Finally, the suggestion is made that many of the best practice EasSD implementation examples, outlined throughout this case study, may be of interest to communities and Ministries of Education elsewhere in the Global South, as they too grapple with the implementation of ESD programmes that reflect the culture and context of SD in their location.

9.2 EasSD: Implementation challenges on Mangaia

The three key barriers to the realisation of a place-based Manganian EasSD curriculum are:

1. Difficulty in producing EasSD style curriculum resources;
2. Teacher confidence in using a place-based Manganian EasSD pedagogy; and
3. Lack of teacher EasSD pedagogical content knowledge.

9.2.1 Difficulty in producing EasSD style curriculum resources

The three main categories of resources required to produce a new EasSD curriculum are cultural, place-based and environmental. The difficulties in obtaining these particular resources and initial ideas on how they might be provided are described.

Cultural Resources

Many oral histories are being lost and need to be recorded before it is too late. Moreover, many Manganian cultural print resources are not in a form suitable for student use. For

example, Manganian ethnographic and academic historical accounts of Mangania have been produced²⁴⁵ but are not in a form intended for senior secondary student use. In another example, Raumea Koroa's poems, described in section 7.5.2, have yet to be published in a form that students could use in the classroom, despite his family wanting them to be available for student use. A lack of funding and curriculum expertise to produce quality teaching resources that link, the poems to EasSD curriculum and assessment are the issues.

Teaero (1999) notes this "dearth of relevant literature on indigenous education" (p. 31) is a problem right across the Pacific. In the Cook Islands, the high number of expatriate educational advisers and teachers employed, seconded or contracted to support educational development exacerbates the tendency to draw on western teaching resources. Bali Haque, Principal of Tereora College explains:

Despite our best cultural intentions, most expatriate teachers predominantly use the western teaching resources they are familiar with to provide western learning experiences, the very reason we were recruited and employed.

Bali Haque

Altbach (1987) comments on a key cause of the problem. "Knowledge and information are generally channelled through the industrialised nations ... In short; the Global South finds itself in the classic position of dependency" (p. 302). This scenario impacts on teaching on Mangania, with teachers forced to use New Zealand textbooks:

There are very few books in Maori available, so students, thinking and processing information in their mother tongue, are instead at school forced to learn about topics like SD from a western perspective only in English. They miss out on learning about Manganian SD from a Manganian worldview.

Participant 60: Teacher

Although Manganian dialect language readers are being developed for use in primary classes (Scott & Newport, 2012 624), they are of little use in senior EasSD classes. Written teaching resources that explore the intricacies of *oraanga Mangania* at sufficient depth for

²⁴⁵ Sir Peter Buck, a resident commissioner on Mangania, wrote an ethnographic account of Mangania entitled *Manganian society* (Buck, 1934). William Gill, a missionary, wrote a 19th century account of life on Mangania entitled *From Darkness to Light in Polynesia* (Gill, 1894). More recently, Professor Reilly from Otago University has written historical accounts of life on Mangania, based on Gill's writings (Reilly, 2009).

senior school use, are simply not available. This creates difficulty for teachers when considering indigenous education for their students.

Outside educational experts often think that because we speak Manganian we know everything about Manganian culture. We do not. I always respond to them by asking them: Do all papaa have a detailed political and historical knowledge of Europe or New Zealand simply because they speak English?

Participant 95: Teacher

Backing this viewpoint Moekapiti Tangatakino, the Maori teacher and a *ta'unga*, believes:

Many Manganian teachers do not possess the depth of cultural and historical knowledge to teach students about *oraanga Mangaia*. They require localised teaching resources to build their own knowledge.

Moekapiti Tangatakino

Measures to counter indigenous language loss amongst Cook Islands teachers have been recognised nationally, with the renewed focus on recruiting teachers fluent in Cook Island Maori (Glasgow, 2010). Whilst a necessary first step, teachers must then be able to go the next step and use language to teach students the value of *oraanga Mangaia* and Manganian culture in conceptualising Manganian SD.

Moekapiti believes one way to overcome the lack of indigenous teaching resources is for teachers to take a more proactive response to classroom learning, whereby teachers and students together generate indigenous resources. Students could explore for themselves how Manganian culture contribute to SD and sustainable livelihoods on Mangaia, using the EasSD pedagogy outlined in chapter 9.

Kia riro rai teia au pe'e, imene, tua tei tataia e kiri i roto i te puka "Myths of the South Pacific" *ei apuanga ki te uki ou i te puapinga ngao o tei reira.*

Over time, the students and I can explore old Manganian knowledge found in Gill's book "Myths and Songs from the South Pacific" and then apply it to present-day Mangaia. Students can see for themselves the continuing relevance of our culture.

Moekapiti Tangatakino (Maori teacher)

Place-based resources

EasSD also requires place-based teaching resources. Prior to 2002, teaching in the Cook Islands was prescriptive, with the former Department of Education providing all the units of work. In 2002, an outcome based, descriptive curriculum was launched. Teachers were

expected to prepare their own teaching units and resources, a task that many teachers have struggled with. Tangi Matapo, Deputy Principal at Mangaia School, explains:

Teachers find it difficult to develop localised teaching programmes that reflect the intent of the curriculum. In the senior school, teachers resort to using New Zealand contextualised units of work that have been tailored to the experiences of New Zealand students. These contexts are usually foreign to Manganian students and place them at an educational disadvantage..

Tangi Matapo

A classroom teacher further elaborates:

Some teachers lack the capability, confidence, motivation and time to produce quality place-based teaching units. Teachers in this community have many responsibilities. They have to fish, plant taro and feed the pigs. They also have village, puna, church commitments. They tend to fall back on overseas textbooks that link directly to western curricula.

Participant 71: Teacher

Interestingly, many New Zealand teachers also do not produce their own teaching resources, relying on commercially produced resources; because of this, many Manganian teachers argue they are at a disadvantage and should be treated the same as their New Zealand counterparts.

Compounding the problem, falling school rolls mean fewer teachers are being employed. The remaining teachers are then expected to teach subjects, they were not trained to teach and have no specialist skills in. School Management at Mangaia School has attempted to overcome this problem by reducing the number of options for senior students.

A falling roll means fewer teachers with less overall subject expertise. We have taken the approach that it is best to have teachers teach subjects which they are comfortable with so that students receive a quality education. It does mean we have had to sacrifice student choice.

Sue Ngatokorua (Principal)

The challenges in providing place-based curricula, compound at senior secondary level, where learning becomes New Zealand centric, in response to the need for students to pursue New Zealand qualifications. The preprepared assessment opportunities currently available invariably have a New Zealand context. I have demonstrated it is possible to contextualise many of the assessments, as with the exemplar Y11 and Y12 EasSD programme, described in 7.8.2 and outlined in appendices 12 and 13. However,

contextualised units of work and actual assessment tasks still need to be produced, not a task many teachers find easy. One teacher explains:

The problem with developing localised programmes of study is the actual production and collation of resources into coherent units of work aligned to curriculum outcomes. It is not easy, especially where the internet is slow. I do collect newspaper articles with a Mangaian theme but they are not always suitable for the topic we are studying and it is time consuming.

For example, the impact of the pineapple industry on Mangaia would make a great case study of SD on Mangaia. Students could explore the impacts of the industry on the economy, jobs, culture and environment. Unfortunately, there are few people left on the island with a knowledge of the industry. There is information in various publications but it's difficult, and time consuming, to find and collate.

Participant 56: Teacher

Environmental resources

The lack of localised, environmental teaching resources available for ESD implementation is also a concern²⁴⁶. Existing environmental resources are technical in nature and would need to be extensively adapted for student use in the classroom. A 2007 government review, found the “capacity to support the integration of environment issues into formal education is limited, especially in the Outer Islands” (Cook Islands National Capacity Self-Assessment Project Management Unit, 2007, p. 36). Using TEK becomes even more problematic with much of it having been lost or inaccessible²⁴⁷.

²⁴⁶ Resource failures to educate towards sustainable environmental management are:

- Technical environment data and information needs simplification and translation into Cook Islands Maori for broader understanding at all levels;
- Lack of localised information in an easy to use format readily available for educators;
- Limited support and coordination from Government for NGOs involved in environmental education activities at the grass-roots level;
- High costs (in terms of value) of delivery of education, trainings and awareness programmes;
- (Limited) electronic multimedia facilities, equipment and software to produce locally relevant education awareness materials is limited;
- Limited translations of information into Maori language and relevant dialects.
(Cook Islands National Capacity Self-Assessment Project Management Unit, 2007, pp. 36-37).

²⁴⁷ Root Causes of a failure to use IK in sustainable environmental management are:

- General lack of commitment to preserve traditional knowledge, innovation and practices
- No consistent, systematic, ongoing programme to record traditional knowledge and practises related to environment management

9.2.2 Teacher confidence in using a place-based Māngaian EasSD pedagogy

Implementation of a place-based Māngaian EasSD pedagogy would put significant challenges on teachers and students. Both teachers and students have already found the transition from teacher directed to student centered inquiry learning, difficult. Principal Sue Ngatokorua explains:

Most teachers feel more comfortable with structured teaching approaches where they are in control of the lesson. Students also find the expectations of new student centered learning approaches challenging. Having always been obedient, passive learners students are not used to leading their own learning and problem solving.

Sue Ngatokorua (Principal)

For teachers some of the changes have been stressful:

For inquiry learning to work well, teachers, need to be willing to be wrong something many teachers in the Cooks Islands are not used to.

Participant 57: Teacher

For teachers, the requirement to engage students in a critical examination and evaluation of competing development paradigms along the SD continuum is challenging. Paradigmatic thinking, ranging from neoliberalism to socialism and technocentrism to ecocentrism, must be considered and debated. Moreover, such thinking must operate across culture and diverse worldviews. Sue Ngatokorua explains:

At Māngaia School, we have teachers with the knowledge and skills to operate in both western and Māngaian worlds. On one hand, the teachers have been trained to deliver a western New Zealand curriculum, inclusive of western knowledge, skills and values; on the other hand, they have been instilled with oraanga Māngaia, culture and traditions since birth.

However, our teachers have not been 'trained' to integrate or even compare and contrast these different knowledge systems. As a result, many teachers don't attempt to integrate local knowledge into the main curriculum. Māngaian

-
- Limited recognition of how traditional practitioners and institutional systems can contribute to, and fit with, current western institutional arrangements
 - Lack of policies for promotion and awareness of traditional knowledge and practices as part of any environment programme
 - Declining respect for the 'mana' or value of traditional knowledge and practises.
(Cook Islands National Capacity Self-Assessment Project Management Unit, 2007, pp. 40-41)

knowledge and culture is used only in the Maori class. It is not considered as a solution to economic, social and environmental questions that might be posed in the main curriculum. The biggest challenge for us as educators is to build bridges between the two different knowledge and value systems, to look for contemporary development solutions.

Sue Ngatokorua

The place-based Manganian EasSD pedagogy, proposed in chapter nine, provides teachers and students with a tool to navigate the eclectic mix of factors that contribute to sustainability on Mangaia.

However, my findings indicate while teachers see the value of a place-based bicultural Manganian EasSD pedagogy they are hesitant to use it without substantial professional support. Teairo (1999), in the Pacific context, argues the many Pacific teachers, having been trained overseas, find it easier to adopt western teaching pedagogies and do not easily adapt to new Pacific pedagogies. Joskin (2012), commenting on the introduction of a new outcomes based curriculum in PNG, states, “without appropriate professional development, teachers’ classroom practice is unlikely to align with the policy change” (p. 187).

Given the contestable, political and value orientated nature of Manganian SD, teachers will need to learn how to use the pedagogy to help students as Alton-Lee (2003) describes it “resolve cognitive conflict” (p. 8). In addition, they will need to offer students “sufficient and effective opportunity to learn” (ibid, p. 63) so that students become SD action competent in their own localities.

9.2.3 Teacher lack of EasSD pedagogical content knowledge

Effective delivery of an EasSD curriculum is dependent upon teachers possessing and having access to the necessary pedagogical content knowledge, both indigenous and western, required to teach students the principles of Manganian SD. With SD in its many forms at the forefront of Cook Islanders development thinking²⁴⁸, I decided to conduct a

²⁴⁸ Media coverage in the Cook Islands is dominated by reports on the progress of government and NGO development projects and SD sits at the centre of the government’s NSDP.

staff survey to ascertain teachers' understanding of the concept of SD. Some patterns emerged.

Although many teachers had a sound understanding of SD, unsurprisingly, teacher responses focussed on visible development on the island, for example, business development projects and infrastructure improvements and made little mention of the detrimental impact unrestrained economic development might have on society, culture or the environment. In addition, few teachers felt they had a good grasp of economics, in particular factors affecting SIDS. Many teachers also expressed their lack of understanding of ecosystem dynamics and the science of topical issues like climate change.

We understand the concept of SD as it is portrayed in the media but would need specific economic, biological, cultural and sociological knowledge to teach SD in any depth to students.

Participant: Teacher 10

This finding aligns with the 2007, government initiated, environmental review that noted there were limited teacher professional development programmes to enhance teachers understanding of environment issues (Cook Islands National Capacity Self-Assessment Project Management Unit, 2007). Finally, only a few teachers vocalised the part *oraanga Mangaia* plays in Mangaian SD. Instead, they viewed SD as a western construct, part of the development landscape they had become used to dealing with.

For EasSD teaching to be effective, teachers must possess the diverse, pedagogical content knowledge that surrounds a concept like SD, so that students are delivered quality teaching and learning experiences. Teachers therefore, must be armed with indepth understandings of economics, sociocultural studies and ecology.

However, with SD at the forefront of Cook Islanders and government thinking, teachers did recognise the importance of students understanding and being action competent in SD. Teachers, like other Mangaian²⁴⁹, recognise the desperate need for economic development to generate jobs and stem population loss but also worry about environmental damage.

²⁴⁹ Development is at the forefront of Mangaian thinking, as illustrated by the launch of the Mangaia Island and Puna Plans. (Te au Puna o Mangaia, 2014).

With a concurrent concern about the erosion of Māngaia culture, especially amongst the youth, teachers felt that a subject that addresses the impact of development on culture would not only be beneficial to the students but to Māngaians as a whole. One teacher summed up the consensus:

There is a genuine feeling of teachers and the community wanting students to learn about development and how it fits in with our traditional economy, culture and environment. We just do not feel confident to teach it, especially at senior curriculum levels.

Participant 84: Teacher

How stakeholders might support teachers and the school to implement EasSD, is the subject of the next section.

9.3 Stakeholder support for EasSD on Māngaia School

Quality stakeholder support would help realise a place-based Māngaia EasSD. The key stakeholders are:

1. The Cook Islands government and Cook Islands Ministry of Education; and
2. The New Zealand Aid programme and New Zealand education system.

And perhaps most importantly

3. The Māngaia community; and
4. Māngaia parents and the students themselves.

9.3.1 Cook Islands Ministry of Education

The Ministry of Education has a key role in ESD implementation. The Cook Islands government, through its NSDP plan, has already committed the nation to a pathway of SD, see chapter 5. Phase 1 of the plan, released in 2007 placed the spotlight on economic development. Phase two, released in 2011, was much more cognisant of the need to give attention to the sociocultural and environmental aspects of SD. The plan also championed a role for culture in development, stating:

Culture can act as a catalyst for economic growth, environmental protection, sense of self worth, belonging, pride and achievement.

(Government of the Cook Islands, 2011a, p. 32)

With these shifts in mind, it is timely for the Ministry of Education to consider its role in preparing students for a sustainable future, immersed in culture. The Ministry of Education has a lead role in transforming current Education “about” and “for” approaches to SD to a culturally responsive EasSD. A curriculum permeated by Cook Islands culture was envisaged, when the Cook Islands curriculum framework was released in 2002, but in practice has been difficult to achieve in the face of a persistent, neocolonial education system, especially at senior secondary levels. Ken Matheson, former Secretary of Education explains:

The idea was to thread Cook Islands values right through the curriculum but it proved difficult, with parents demanding a western education and the lack of funding to develop indigenous curriculum resources. Progress has been made, albeit slowly.

Ken Matheson
Former Secretary of Education

Lately, there are renewed efforts to make education culturally more relevant. The 2012 Cook Islands education evaluation outlined an urgent need for:

- Appropriate options for Pa Enea students who will stay on their home islands and that provide skills to support and develop local work opportunities and
- The acceleration of resource development for Cook Islands Maori.

(Scott & Newport, 2012, p. 50)

The same review noted there must be a shift to increase the “scope of subject choice and pathways for senior students” (ibid, p. 50). EasSD implementation would assist in achieving these goals.

9.3.2 Aid programme support

The benefits of a culturally responsive, place-based EasSD for students, as future leaders of the Cook Islands, must also be accepted by aid donors who wield considerable influence over educational policy²⁵⁰. However, there is a widespread belief that aid in the Pacific has ignored culture, instead promoting the hidden agendas of the donors (Baba, 1989; Thaman,

²⁵⁰ New Zealand and Australian aid currently provide most of the education sector funding in the Cook Islands, seven million from 2010 to 2012 (New Zealand Ministry of Foreign Affairs and Trade, 2011).

1992). Teairo (1999) believes the “aid-driven nature of educational innovation and reform” (p. 31) has acted as a barrier to indigenous education and the need for students to think about sustainable livelihoods that reflect culture.

The current New Zealand Aid Programmes development focus in the Pacific is on “sustainable economic development” (New Zealand Ministry of Foreign Affairs and Trade, 2012, p. 5) to create economic resilience. This singular economic focus, whilst part of a development solution, ignores the important contribution traditional livelihoods still play in providing food security and core development resilience ²⁵¹(Gegeo & Watson-Gegeo, 2001; Regenvanu, 2009). For Māngaians this is *oraanga Māngaia*.

Perhaps the New Zealand Aid Programme, in the Pacific, could look to give greater recognition to the role traditional livelihoods play alongside sustainable economic development, in providing resilience to Pacific Islanders. In the latest New Zealand Aid Programme strategic plan: 2015-2019 there remains little recognition of the role traditional livelihoods might provide in Pacific resilience and SD in general (New Zealand Ministry of Foreign Affairs and Trade, 2015). Aid programme support for Cook Islands and wider Pacific EasSD curricula would be a way of supporting Pacific development aspirations, whilst still achieving the New Zealand government goals of greater resilience in the Pacific.

The New Zealand Ministry of Education and NZQA must also play roles in Cook Islands ESD implementation. Both agencies have signed agreements with the Cook Islands Ministry of Education where they have made commitments to support Cook Islands educational aspirations (Ministry of Education: Te Tahuhu o te Matauranga, 2013; New Zealand Qualifications Authority, 2012). Practical support could be provided in the following areas:

- Fully resourced, contextualised, EasSD units of work along with preprepared, already moderated assessments that support existing achievement standards on the NZQA framework; and

²⁵¹ Especially those Pacific Islanders living outside the main Pacific centres.

- The production of brand new NZQA registered bilingual, Cook Islands specific EasSD achievement standards, along with prepared units of work, that have been tailored culturally and contextually to the unique multimodal nature of SD in communities like Mangaia²⁵².

Given the EasSD implementation challenges, discussed in section 9.2, I argue the provision of fully resourced all-inclusive EasSD units of work, along with pre moderated contextualised assessment tasks and teacher professional development for a place-based bicultural critical pedagogy, is a minimum for a Mangaian EasSD to become a reality.

Pragmatically, implementation could follow the strength-based approach discussed in chapters 7 and 8. Perhaps 3-5 new Cook Islands EasSD achievement standards could be registered on the NZQA framework to begin with. Logically, given financial and resourcing constraints and the challenge diseconomies of scale, it would be sensible to develop Cook Islands wide EasSD standards (or indeed wider Pacific wide EasSD standards should countries like Niue and Tokelau be interested). Potential themes that could then be contextualised to individual islands are:

- SD development on isolated ecologically fragile islands;
- The place of culture in stimulating economic development; and
- The place of traditional livelihoods in providing economic, cultural and environmental resilience.

There is considerable Mangaian interest in, and support for, an ESD curriculum that is place-based and culturally inclusive. Moekapiti Tangatakino, the Maori teacher, explains:

Getting our own sustainability standards²⁵³ on the NZQA framework would be great, students could learn locally but gain internationally credible qualifications, validating EasSD in the eyes of the parents and community.

Moekapiti Tangatakino

²⁵² In 2013, the Cook islands Ministry of Education in conjunction with NZQA produced three unit standards linked to the Cook Islands' Maori Curriculum (New Zealand Qualifications Authority, 2015) so the precedence has been set.

There is also support for the idea from the Cook Islands Ministry of Education. Ina Hermann, Director of Curriculum, explains:

Given our countries focus on SD, a contemporary bilingual ESD course, with matching NZQA assessments in context, would be sensible. Parents would back the idea, as students still obtain recognised qualifications. Moreover, students learning in their own island dialects would get a chance to express their talents.

Ina Hermann

With a strength-based implementation mind-set and stakeholder support from the Ministry of education and aid agencies, I believe a culturally responsive EasSD in the Cook Islands is doable.

9.3.3 The Manganian community

The strong ties, often kinship and village, between Mangaia School staff, students and the community is an advantage in implementing a Manganian EasSD. The community members I interviewed were keen to offer expert local knowledge and skills if it would benefit student learning. In the words of one interviewee:

We are only too happy to assist. We just need to be asked and we will be there to support.

Participant 11: Community member

They expressed the view that as Manganians they had a *kopu-tangata* (extended family) obligation to support all Manganian students to achieve academically. My interviews uncovered a wealth of knowledge sitting in the community across all the dimensions of SD. Community expertise to support EasSD programme development is available in the diverse aspects that contribute to holistic Manganian SD. The aspects can loosely be defined as

- Knowledge of oraanga Mangaia and traditional society provided by *ta'unga*;
- Knowledge of government development practice provided by government officials. For example, economic development project management;
- Knowledge of the local environment and its protection, provided by government workers and local conservation experts; and
- Knowledge of business, provided by local entrepreneurs.

Specific offers of help are outlined and explained in more detail in appendix 14.

In addition to local entrepreneurs, expatriate Mंगाians, with substantial business and development experience, have also offered to help students learn how to start up their own small businesses. During my second research visit, I was introduced to Daryl Rairi²⁵⁴, a Mंगाian now living in Rarotonga. Daryl specialises in project management. He told me:

I would love to help Mंगाian youth tap into development aid funding to startup their own businesses. I could help them apply for funding and then act as a business mentor. I could teach students about project management from planning, to implementation, to monitoring and finally evaluation. I am meeting this week, with the *Aronga Mana*, Island Council and school, to offer my services and outline how I can help. Encouraging economic development will not only benefit the island financially but also serve to bring the community together.

Daryl Rairi

I also meet David Teata, an expatriate Mंगाian artist, in New Zealand. David is shifting to Rarotonga to open an art business. He is keen to collaborate in business with the youth on Mंगाia and explained how:

In Rarotonga, I am planning to sell prints on dried banana paper. When I go to Mंगाia, I am going to see if any of the youth are interested in supplying this paper to me. I want to help grow business on Mंगाia. I would be happy to link this initiative into a school enterprise project so that senior students get a real taste of business.

David Teata

Mंगाian students living in their community already participate in oraanga Mंगाia and have a general awareness of the many development initiatives occurring around them. The tailored support offered by the community would provide students with deeper Mंगाian knowledge and the technical skills necessary to explore, and become action competent in, a culturally responsive and contextually relevant Mंगाian SD.

9.3.4 Mंगाian parents

In the wider Pacific, Teaero (1999) argues parents have accepted the neocolonial rhetoric that a western education is best for their children's future livelihoods. Parents are

²⁵⁴ Daryl completed a Diploma of Architecture and formally worked on infra structure development projects as a public servant.

suspicious of indigenous education, holding an “inferiority perception of anything local” (p. 32). They worry that their children will miss the perceived benefits of a western education, namely employment leading to financial security. These same parents often criticise Pacific teachers who promote IK in the classroom as being overly romantic in their desire to return to a bygone era (Thaman, 2009).

However, this case study illustrates that Mangaian parents will demand a bicultural education when they know their children are able to obtain valuable, internationally recognised qualifications, see section 7.3. Parents recognise the advantage in educating students for multiple livelihood pathways containing both indigenous and western knowledge. Livelihoods in which students can either stay on Mangaia to pursue *oraanga Mangaia* alongside small business, and/or compete successfully for jobs and careers in the global labour market. Either way, parents recognise the benefit students get from exposure to cultural knowledge and the chance to augment language fluency through strengthened identity as Mangaians.

Many parents on Mangaia, demanding their children be educated to walk in two worlds²⁵⁵, are keen to take up the Cook Islands Ministry of Education’s offer of more parental participation in “education policy and decision making” (Cook Islands Ministry of Education, 2010). Tangimokopuna George, the Chairperson of the School Committee stated:

Currently we have little input into the school curriculum. We welcome the chance to work in partnership with school leadership and the teachers to discuss the type of education, both western and Mangaian, that our children need for their, and ultimately Mangaia’s future well-being.

Tangimokopuna George

²⁵⁵ See section 7.5. A vision that Durie (2003) has for New Zealand Maori youth.

9.4 Discussion: EasSD implementation challenges in the Global South

Many of the ESD implementation challenges identified on Mangaia are also acknowledged in Hiebert's (2014) review of the state of ESD in 10 SIDS countries²⁵⁶. For example, in Guyana, Jamaica, Mauritius, Nauru, and Tonga, Hiebert reports it has been a struggle to integrate economic, environmental, social and especially cultural content, into meaningful ESD programmes particularly at senior school levels. As a result, the content remains trapped within traditional subjects, like science, social studies and economics, providing students little opportunity to explore SD holistically. The classroom delivery of topical sustainability issues, like citizenship, disaster preparedness, biodiversity and climate change, follows a similar pattern. The sustainability issues are only explored within the confines of narrow subject specific perspectives, meaning students do not get the chance to address the issues holistically and comprehensively (ibid). For example in Jamaica Collins-Figueroa, Phillips, Foster-Allen & Falloon (2007) report SD themes at secondary level focus narrowly on the environment rather than encouraging students to explore causative relationships between the different aspects of SD. Hiebert (2014) believes some of the key problems thwarting the delivery of quality EasSD style ESD are the lack of "time and other resources to focus on ESD despite prioritisation in principle" (p. 55).

Attempts to incorporate culture into notions of sustainability have proved particularly problematic, with Tilbury and Mula (2009) reporting²⁵⁷ efforts to link culture to ESD are often considered a "challenge rather than an opportunity" (p. 22). Michie (2014) explains the 1990s introduction of a culturally responsive curriculum, named Malama I Ka 'Aina, in Hawaii, was revoked because of disagreements over how IK should be integrated with western science. Proposals to expand the definition of western science to accommodate the integrity of IK met with opposition, from scientists, fearing such a move would trivialize science. On the other hand decisions to categorise IK using western science structures, led

²⁵⁶ The Commonwealth Secretariat funded Hiebert's review of 10 SIDS countries. The countries are Dominica, Guyana and Jamaica in the Caribbean. Maldives and Mauritius in the Indian Ocean and Nauru, Papua New Guinea, Samoa, Solomon Islands and Tonga in the Pacific.

²⁵⁷ Tilbury and Mula carried out a UNESCO funded review of culture in ESD in 7 countries (Canada, Jamaica, Kenya, Mexico, New Zealand, Pakistan and Wales) and two regions (Asia-Pacific and Sub-Saharan Africa).

to criticism that IK was being simplified to the “point of caricature” (p. 6). Michie reports this same debate, on how best to integrate IK into national curricula, is ongoing in South Africa, Australia, New Zealand and Canada.

Wheelahan (2010) has described this reluctance to take IK more seriously as “curriculum conservatism” (p. 107). A reaction where people, often from the Global South, believe ‘real’ knowledge originates externally from the western tradition “as something that is transmitted” (p. 107). Henry and Pene (2001), in the New Zealand Maori context, argue it is this domination of western knowledge and ideology that subjugates a Maori worldview in education. They explain this is why Maori have considered it necessary to form alternative educational systems, such as *Kura*²⁵⁸ and *kohanga reo*²⁵⁹, where Maori language and culture is valued and does not need to be defended. Ritchie et al. (2015), point out if a mainstream, culturally responsive ESD curriculum is ever to become a reality in New Zealand, a mind shift from all stakeholders will be required. They believe such a mind shift would require people to embrace Maori worldviews, as they look through new integrative, critical, contextual and transformative lenses to build bicultural notions of sustainability in New Zealand.

Many SIDS teachers point out, a key issue slowing the implementation of culturally responsive EasSD curricula has been the lack of readily available pedagogical content knowledge required for classroom programmes, especially at senior levels. The reasons cited are many and varied. Often resources are not available, for example in Maori medium schools in New Zealand there has been a limited range of science curriculum resources available in the Maori language (McKinley & Keegan, 2008). However, even when resources are available, they may not be well utilised. For example Hiebert (2014), reports in the Maldives, a large amount of Ministry of Education produced environmental resources remain unused. Although he notes UNESCO, in the Pacific, found that when teacher PD is provided, a much better use of ESD resources results.

²⁵⁸ Kura are Maori medium schools.

²⁵⁹ Kohanga reo are Maori medium pre-schools.

Despite these challenges, progress in ESD implementation is being made. Culture is now a feature of ESD policy in many SIDS countries, for example, the Kakala Research Framework in Tonga and the environmental management policy promoted by the Iwokrama Centre in Guyana, advocate the need for both indigenous and western knowledge when learning about SD (Hiebert, 2014). In the Pacific *talanoa*, a cultural response pedagogy is providing an impetus to explore culture and either rejuvenate old, neglected IK, or fashion new IK that could be used to provide solutions to contemporary sustainability. An example is the revitalisation of raii, in the Cook Islands, as a culturally appropriate response to the management of environmental resources (Hoffmann, 2002).

Live and Learn Environmental Education (LLEE), an Australian NGO that aims for a sustainable and equitable world free from poverty, has provided ESD resources and teacher professional development in the Maldives, Solomon Islands and Papua New Guinea (Live and Learn Environmental Education, 2015), SIDS organisations like The South Pacific Regional Environmental programme (SPREP) in the Pacific and the Jamaica Environmental trust (JET), are working with local communities to contextualise and indigenise understandings of SD by developing or adapting teaching resources to “connect sustainability and environmental values with local cultural values and practices” (Hiebert, 2014, p. 44).

New Zealand aid has funded ESD style programmes in the Pacific. For example, nine teaching units promoting traditional sustainable livelihoods were developed in Nauru, through the PRIDE project, as a way of fostering a return to traditional skills for those facing economic hardship after the collapse of the phosphate industry (ibid). The New Zealand aid funded Sustainable Livelihood and Education in the Pacific (SLEP) project, focussed on identifying the “skills, knowledge, and values that enable Pacific peoples to live sustainably in their communities” (ibid, p. 27). Results from the project, informed the development of the Tonga national curriculum framework, which attempts to align “ESD within the formal sector with local culture and values” (ibid, p. 28). ESD implementation initiatives are also emerging within SIDS countries themselves, for example, the Jamaica’s Joint Board of Teacher Education (JBTE) has started the Sustainable Teacher Environmental Education programme (STEEP) and the University of the South Pacific (USP) has included sustainability in teacher training programmes (Hiebert, 2014).

While ESD implementation is gradually occurring in the Global South, many stakeholders, especially parents, are yet to be totally convinced of its benefits.

9.4.1 Changing stakeholder perceptions of ESD in the Global South

Where contextualised learning cannot be linked to internationally recognised qualifications, parents in the Global South continue to demand a western education, assuming it to be superior (Ogbu, 1982). They view western education as a vital step towards well paid public service jobs. In South Africa, Breidlid (2009) reports there is teacher and parental concern that a localised, “more contextualised curriculum might leave the successful school leavers at a disadvantage internationally” (p. 147). Teairo (2009), commenting on the Pacific context, argues educational officials and teachers have been reluctant to acknowledge a place for IK and culture in education. Reinforcing this status quo is the preponderance of educational aid specifically targeted at the delivery of western education programmes to improve human capital to support government macro-economic development initiatives (Breidlid, 2009; Briggs, 2005; Sillitoe, 2000). Compounding this problem, is a proliferation of expatriate educational and development experts in the Global South, who, holding positions of power, choose to ignore IK either to preserve their own positions or simply through a lack of cultural awareness (Chambers, 1997).

However, my findings, outlined in section 7.3, indicate it may be possible to convince parents about the importance of EasSD once they understand the key benefits it confers. Hiebert (2014) believes countries will have to look at incorporating culturally responsive and contextually relevant ESD into assessment programmes to send a clear message to students and their parents of the importance of ESD; something I argued for in chapter 8.

A move from “Education ‘about’ and ‘for’ approach, to a culturally responsive and contextually relevant EasSD, could be a catalyst for students to better understand the continuing relevance of traditional livelihoods, knowledge, culture and values in their lives. Increasing the profile of culture and language would also serve to strengthen students’ own cultural identity in the Global South. If stakeholders have their minds opened to the important contribution culture in development might make towards sustainability in the Global South, they will be more willing to accept indigenous education in the classroom. Stakeholders might begin to understand that in persevering with education programmes

focused on constricted ideologies, containing only neoliberal, capitalist and materialistic thinking, they might actually be narrowing their opportunities to achieve sustainability in the Global South (Beckmann & Cooper, 2004; Stevenson, 2002).

The ongoing battle to recognise indigeneity in education is in part political. Teairo (1999) believes it is therefore necessary to politicise the curriculum to counter the prevailing, dominant, “functionalist view of education” (p. 32). Fortunately, this is precisely what I argue EasSD can do for the students themselves, by opening their minds to all viewpoints on sustainability, outlooks, from technocentric to ecocentric and crucially, the different worldviews underpinned by different cultural epistemologies.

9.5 Discussion: EasSD implementation support in the Global South

As Hiebert (2014), in his review of ESD in SIDS countries, points out Education Ministries must ensure the ESD curricula and pedagogies delivered to students, provides them the opportunity to explore the diversity of factors that determine sustainability in their particular community. In effect, the Education Ministries, and schools, of the countries that make up the Global South will need to ask the following questions, originally posed by Puamau (1999):

- a) What are the current curriculum goals? What should the goals be?
- b) What and whose values, philosophy, ideology does the curriculum profess? What and whose values or ideals should it promote?
- c) What knowledge, skills and attitudes should the curriculum emphasise?
- d) Who decides on content?
- e) What language should the curriculum be taught in?
- f) Whose interests will the curriculum serve?
- g) What are the social, educational, economic and political implications of such a curriculum? (p. 31)

This chapter has argued a culturally responsive and contextually relevant ESD curriculum is most likely to be realised when the following strategies are employed:

- A strength-based EasSD implementation approach is adopted;

- Education Ministries and aid agencies provide extensive professional development support to help teachers and schools in the Global South overcome their current “lack of clarity around how to ‘do’ ESD”²⁶⁰ (Hiebert, 2014, p. 3);
- Education Ministries and aid agencies commit resourcing to help teachers and schools implement EasSD;
- Qualification authorities and Education Ministries negotiate the delivery of internationally recognised qualifications that are aligned to culturally responsive and contextually relevant EasSD programmes;
- The expertise of community leaders is drawn on. More research is required that builds on the findings of this study to look at the willingness of indigenous communities, as stakeholders with a vested interest in their children’s educational future, to support schools to produce indigenous education resources²⁶¹ is required; and
- All stakeholders, most importantly, schools, communities, parents and students, are openly politicised so that they too understand the very real benefits of a place-based bicultural EasSD curriculum and pedagogy.

I argue only a place-based bi (or multi) cultural EasSD will ensure each community’s distinctive worldview and vision for sustainability is realised²⁶².

²⁶⁰ The contextualisation of teaching programmes requires significant teacher professional learning and development as Joskin (2012), in discussing the Papua New Guinea curriculum found.

²⁶¹ As argued by Teairo (1999), Altbach (1987) and Johnson (1992) in the Global South. .

²⁶² Western imposed ESD curricula will not achieve this aim.

Chapter 10 The need for EasSD in the Global South

10.1 Introduction

The chapter puts the findings from the case study on Mangaia into the wider context of SD and ESD across the Global South. Conceptions of SD in the Global South, from its western origins as an invention often justifying continued economic growth (Escobar, 2000; Sachs, 2013), to new multidimensional understandings of what SD might entail are explored. Thinking that contains a dynamic mix of indigenous thinking and culture, context relevant western knowledge and useful technology (Breidlid, 2013; Kawagley & Barnhardt, 1998; Maiava, 2001; Manteaw, 2012; O'Meara, 1990; Regenvanu, 2009), is investigated. This SD thinking lies within hopeful post-development settings.

Given this importance of culture and context, in shaping localised versions of SD across the Global South, the chapter argues current 'Education for' and 'Education about' ESD models of teaching and learning are inadequate. They help to perpetuate western models of education and development in the Global South (Hiebert, 2014).

Drawing on the findings of this study, the case is made for a culturally responsive, contextually relevant and locally adaptable EasSD curriculum and pedagogy in the Global South. EasSD that encourages students to use a critical pedagogy to explore the diversity of SD thinking, including those viewpoints that range from ecocentricism to technocentricism and span different worldviews, is described. It is an education that empowers students to articulate, and plan for, their own vision of sustainability.

10.2 Sustainable development in the Global South

10.2.1 Sustainable development origins as a western construct

Sustainable development was a western invention that came to prominence after the 1992 UNCED conference²⁶³ (Escobar, 2000; Sachs, 2013). Its core function has been to reconcile economic growth agendas, with increasing concerns about the state of the

²⁶³ Described in 2.7

environment (Adams, 2001; Bonnett, 1999; Carruthers, 2001). SD, by inventing plausible explanations for continued resource extraction from the environment, has justified ongoing demands for economic growth (Irwin & Peters, 2007). Effectively, it has been used as a tool to normalise neoliberalism and modernisation agendas (Escobar, 1995). Technocentric and anthropocentric development viewpoints have overshadowed and marginalised ecocentric thinking.

In this haste to operationalise SD along neoliberal lines, culture was side lined (Loomis, 2000). SD, as an agent of western development ideology, denied indigenous cultures opportunities to define their relationship with nature and the environment (Esteva & Sachs, 1992; Sachs, 2013; Shiva, 1992). Western SD discourse reinterpreted nature as environmental capital (Kopnina & Meijers, 2014; Sachs, 1997). Ecocentric alternatives to development, characteristic of many indigenous cultures of the Global South, were denied opportunities to express themselves.

As Leach (1998) explains, “The imposition of global orthodoxies and analysis over different environmental values and notions of sustainability can infringe not only on local livelihoods, but also on cultural freedom, in a deeply decivilizing process” (p. 103). Other commentators went further, arguing this failure to consider indigenous livelihoods and culture, when constructing notions of sustainability, has perversely contributed to under development (Carmen, 1996; Esteva & Sachs, 1992; Gould, 1993; Zachariah, 1985).

10.2.2 Sustainable development: Embracing culture and context

Conversely, my thesis findings demonstrate the importance of culture to SD in the Global South, with Manganian SD grounded in *oraanga Mangaia* and culture. These findings align with Nurse’s (2006) thinking that culture is much more than “just a fourth pillar to be integrated into the well settled notion of sustainable development. It is a basis for interrogating the meaning and practice of sustainable development at its epistemic core” (p. 36).

My thesis findings, match the experiences of indigenous peoples throughout the Global South, who have long recognised culture’s contribution to successful SD. For example, Pacific Islanders know the place of culture in providing food security and the livelihood resilience so pivotal to tangible SD (Gegeo, 1998; Gegeo & Watson-Gegeo, 2001; Loomis, 2000; Maiava, 2001; O’Meara, 1990; Purdie, 1999; Radcliffe, 2006a; Regenvanu, 2009;

Thaman, 2007). Outside the Pacific , the Yupiaq of Alaska (Kawagley et al., 1998) and the many indigenous peoples across the continent of Africa (Breidlid, 2013; Manteaw, 2012) recognise the need for culture to be sitting at the centre of successful development. Likewise, in rural India, Shiva (1992, 2000, 2005) has stressed the importance of local livelihoods in providing resilience.

My findings on Mangaia also highlight the context dependent nature of development. Mangaia, part of the Cook Islands, exhibits many of the economic and environmental challenges faced by SIDS²⁶⁴ (Crossley & Sprague, 2014; Hiebert, 2014). Economic planning must factor in the problems of small size, isolation and the environmental challenges that result from fragile island ecosystems. Attempts to transpose western economic development models into SIDS countries simply do not work (Briguglio, 1995; Douglas, 2006). For development to be successful in SIDS countries, it must draw on the cultural and contextual expertise of the local people (Hiebert, 2014). Extending this thinking, it is today's Global South students, as future leaders of their respective communities, who must be immersed in their own cultures and educated to become the agents of development change.

10.2.3 Sustainable development: Embracing western knowledge and technology

Although SD on Mangaia is centred on traditional livelihoods and culture, my findings indicate relevant western knowledge, and technology are needed to enhance development outcomes. These findings agree with Peet and Hartwick's (1999) findings, who explain there is an acceptance in the Global South that western science, technology, medicine, democracy, planning, productivity and machines have been positive in improving lives. In addition, western science can assist in explaining economic, social and environmental phenomena. Also western project management methodology can help drive development success. Peet and Hartwick argue good development is achieved by radical democracy together with critical modernism. Indigenous Global South actors, in acts of radical democracy²⁶⁵, draw on their own values, ethics and traditional livelihoods to drive preferred

²⁶⁴ Approximately fifty SIDS countries are found across the Pacific, Caribbean and Indian oceans (Hiebert, 2014).

²⁶⁵ When viewed from the still dominant western development standpoint.

development visions, but through a process of critical modernism, selectively draw on useful western knowledge and technology, to strengthen both development outcomes and culture (ibid).

In this scenario, empowered actors from the Global South, operating in a post-colonial environment, define development and notions of sustainability based on their own cultural values. They are then free to draw on all available knowledge and technology to fashion distinctive culturally sound solutions to the development challenges they face.

10.2.4 Sustainable development in a post 2015 world

Given SD is a western conception imposed on the Global South, the following question must be considered: *Should people in the Global South just abandon SD altogether?* The answer is no for two key reasons.

Firstly, there is a need by Global South development actors to understand the interconnected economic, social, environmental and cultural nature of development in hopeful post-development settings. Indigenous practice does not always equate to sustainability as slash and burn agricultural practice testifies, so sustainability is something that must be considered at all levels and within all cultures. Moreover, sustainability thinking should be at the forefront of all economic development. Industrialisation, agriculture or the selling of raw materials like timber will all have impacts on the environment and sociocultural dynamics. As Maiava and King (2007) explain, “intentional intervention as economic growth unwittingly stimulates immanent development, often with negative consequences, which in turn motivates further intentional but now ameliorative intervention” (p. 85), This was a theme illustrated throughout chapter 6 as Mangaian SD in a hopeful post-development setting was explored.

Secondly, SD is an increasingly popular development mode for all development stakeholders in the Global South. With the SDGs having replaced the MDGs in 2015 SD is set to stay, at least in the medium term. (United Nations, 2015a).

With aid policy and practice increasingly centered on SD, it is important development actors understand the concept in all of its guises. For example, the New Zealand Aid Programme (2015) vision clearly states, “The mission of the New Zealand Aid Programme is to support sustainable development in developing countries” (p. 2); and sustainability is a

cross cutting issue in all development projects. Development actors should not just accept western interpretations, of SD as the populist rhetoric of SD may in fact mask contrary, unsustainable practices centred on neoliberalism (Crossley & Sprague, 2014). They need to contribute their culture and relationships with nature to reach agreed visions for SD.

Development actors with comprehensive knowledge and understanding of SD across cultures, would be in a position to challenge externally imposed development norms and redefine SD for themselves and their communities based on their own values and culture. A place-based bi or multicultural EasSD would educate and empower students to do just this.

10.3 From ESD to EasSD

10.3.1 ESD, the SDGs and culture

The ratification of the 2015 SDGs and 2030 SD targets has implications for future ESD. Target 4.7 of Goal 4 of the SDGs, makes specific mention of the need for learners to “acquire the knowledge and skills needed to promote sustainable development ... through education for sustainable development” (United Nations, 2015a). The demands of the SDGs suggest people must improve their sustainability knowledge and understanding across a wide range of topics. For example target 12.8 demands that “people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature” (ibid). Target 13.3 demands improved “education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning” (ibid).

While Goal 4 makes specific demand for ESD and SDGs Goals 12 and 13 more general demands, Sarabhai (2015) argues education is a “key to achieving all the other 16 Goals” (p. 122). So post 2015 knowledge, understanding and action competence in SD will clearer be important.

The research demonstrates that an EasSD approach is best suited to exploring conceptions of SD in hopeful post-development settings. Where solutions to sustainability are open to question and negotiation and can originate within the cultures of all peoples, including those from the Global South (Sterling, 2014). The SDGs call for an education that provides students with an “appreciation of cultural diversity and of culture’s contribution to sustainable development” (United Nations, 2015a). Implementation of transformative

EasSD curricula and pedagogies, tailored to specific localised cultures in classrooms of the Global South, responds to that call.

EasSD can challenge the usefulness of continuing neocolonial forms of education by challenging “epistemological hegemony and cultural imperialism” (Snively & Corsiglia, 2001, p. 7) in the classroom. EasSD through demonstration of the usefulness of all knowledge, dismisses arguments that western science is epistemologically superior (W. Stanley & Brickhouse, 2001). Students taught the value of their own culture no longer unwittingly “accept western values and assumptions about political, social, economic, and ethical priorities” (p. 24).

In Africa, Breidlid (2009) points out western education led to beliefs that western epistemology and discourse were superior to IK. In the Western Pacific, Sillitoe (2000) argues, the “discrediting of existing knowledge and techniques (invariably subsistence-oriented and often environmentally well-adjusted and sustainable), and their replacement with scientifically informed and controlled technology, furthered outside hegemony” (p. 5). Neoliberal forces and discourse through “modern technology and the institutions of world capitalism and state power” (Carmen, 1996, p. 206), overwhelmed indigenous peoples. For these key reasons, I have argued that there needs to be a move from Education ‘about’ and ‘for’ to EasSD. EasSD promotes learning that encourages students to formulate their own culturally grounded visions of SD. Learning where students are given the space and time to vision SD that draws on all available knowledge. Knowledge that draws on the strengths of each of: a) culturally ground alternatives to development; b) local alternative grassroots participatory development strategies; and c) alternative modernities that engage with market economies and useful technology. The very process that hopeful post-development advocates argue occurs in the Global South, when local development actors are given the chance to lead their own development, see section 2.4. Maiava and King (2007) outline development that recognises:

Indigenous development is post-modern; the agency of development actors as active decision makers, not passive recipients or adopters, is acknowledged. People-led (rather than people-centred) indigenous development may be described as ‘what people are doing anyway’. (p. 87)

10.3.2 ESD to EasSD: A gradual shift

Herbert (2014) argues, despite UNESCO's promotion of ESD²⁶⁶, "ESD is not consistently making it into schools in a systematic or comprehensive manner" (p. 2). As an example, SD and the DESD have almost been unanimously ignored in African countries (2012). Breidlid (2009) argues the reason for this rejection is that planned ESD programmes in developing countries focus on "western needs and values ... (that are) ... removed from the day-to-day realities of local people" (p. 381)²⁶⁷.

While the Pacific rethinking education movement has challenged western only ESD, there are still concerns about the practicalities of a move towards EasSD style ESD (Hiebert, 2014). The move from a western centric Education 'about' and/or 'for' SD to an EasSD approach, as discussed in Chapter 10, is not easy but with the commitment of all development and education stakeholders, is possible.

Where ESD has been implemented in the Global South, it remains a mix of Education 'about', 'for' and 'as' SD, with variable commitment to the inclusion of culture and context into ESD programmes. Moreover, Hiebert (2014) reports there remains a propensity to promote ESD almost exclusively through one off experimental environmental activities, run by multilateral organisations outside education. He argues this has increased the confusion for teachers and students on what SD really is. Such one off environmental focused ESD events are "likely to have limited impact on students and trivialise important issues" (p. 23).

In a more positive light, Hiebert reports that in some regions ESD programmes have begun to look at including culture and context. In Tonga, a new Lakalaka Education Policy Framework, with a focus on culture, has resulted in a draft national curriculum entitled 'Quality Schooling for a Sustainable Future'. The new curriculum puts an emphasis on "Tongan culture and values; life skills; education for sustainable livelihoods; enterprise; and

²⁶⁶ UNESCO continues to believe education is "one of the most effective forces to bring about the changes in knowledge, values, behaviour and lifestyles required to achieve sustainability" (UNESCO Media, 2008, p. 39).

²⁶⁷ Despite the findings of numerous researchers indicating development is culture and context dependent (Gegeo & Watson-Gegeo, 2001; Maiava, 2001; Radcliffe, 2006a, 2006b). Findings reinforced by this research.

education for sustainable development” (ibid, p. 86). The curriculum recognises that *mo’ui fakapotopoto* (Tongan sustainable livelihoods) should sit at the core of SD and are “rooted in Tongan values” (Taufe’ulungaki, Johansson Fua, Manu, & Takapautolo, 2007, p. 2). In the Solomon Islands a new curriculum framework stresses the importance of culturally centred environmental, ethical and citizenship values for lifelong learning (Fito'o, 2012). Such values link to the social dimension of sustainability.

The Sandwatch programme²⁶⁸, which has successfully operated in a number of schools in SIDS, illustrate what is possible when the theme of sustainability is integrated into the curriculum. In the Cook Islands, two national, student centered Sandwatch conferences in 2007 and 2010 allowed students to share their culturally responsive interpretations of sustainability and debate what SD ought to mean in the Cook Islands (IUCN, 2010; Sandwatch, 2007). The conferences demonstrate it is possible for the curriculum to move towards EasSD. However, such programmes remain optional and when run still sit outside the core curriculum (Cook Islands National Capacity Self-Assessment Project Management Unit, 2007).

At the University of the South Pacific (USP) in Fiji, three ESD resources for schools have been produced. They are: Continuity and Survival in the Pacific (Unaisi Nabobo-Baba, Koya, Teaero, & Furivai, 2010), Pacific Stories of Sustainable Living (Koya, Nabobo-Baba, & Teadero, 2010) and An Annotated Bibliography of ESD literature in the Pacific (Furivai, 2009). At tertiary level, the USP offers ESD type courses but they currently remain in postgraduate, specialised areas like law and oceanic studies. At tertiary level in SIDS countries, this momentum towards an EasSD continues. The Caribbean Teachers’ Colleges are looking at producing joint ESD resources in response to the DESD. The University Consortium of Small Island States (UCSIS) is considering developing a master’s degree programme in small islands SD (Crossley & Sprague, 2014).

²⁶⁸ The Sandwatch project was launched by UNESCO in 1999 as a volunteer network of primary and secondary school students and teachers. Sandwatch seeks to develop awareness of the fragile nature of the marine and coastal environment and the need to use it wisely (UNESCO, 2011c). In 2011 The Cook Islands was recognised “regionally and internationally for its work in the area of Education for Sustainable Development” (Cook Islands Ministry of Education, 2011b, p. 11).

Decisions to move forward and embrace EasSD will in part be political. Aid donors with continuing beliefs in the superiority of western culture and thinking, either intentionally or unintentionally, will have to overcome cultural ignorance and the subsequent loss of aid project control with any move towards the acceptance of different world views (Breidlid, 2009; Sillitoe, 1998). Expatriate curriculum development contractors, concerned about retaining their educational expert status, will also have to cede significant power in the curriculum development process.

Hiebert (2014), in his SIDS review of ESD, points out there has been a shift from culture “interpreted essentially as cultural heritage” (p. 58), to culture as dynamic SD. Importantly, he reports there is a move within education to regard culture as an opportunity, a success factor rather than the challenge it perhaps was previously (ibid). This changing emphasis can be attributed, in a large degree, to the direct involvement of Pacific Islanders themselves in curriculum leadership and reform, espousing Pacific worldviews of SD (Thaman, 2007). My findings indicate this is precisely what Moekapiti Tangatakino is attempting to do at a local level on Mangaia, by drawing on Mangaian knowledge and culture to provide development solutions.

Manteaw (2012) argues that if ESD is to be taken seriously on the African continent, then there is an urgent need for a “pedagogical logic” (p. 376) that can transform learning to make SD “meaningful to people” (p. 382). In other words, ESD needs to be “consciously linked to local cultural, social, ecological and economic experiences” (ibid, p. 382). Chapter 9 outlines just one example of what Manteaw’s call for a new place-based, culturally responsive ESD pedagogy might look like. Moreover, this case study demonstrates a shift towards a culturally responsive EasSD is likely to enthuse key educational stakeholders and can become a reality.

Outcomes based curricula are increasingly common in the Global South, for example, in the Pacific. They provide the opportunity for students to engage in place-based, culturally relevant ESD that empowers students to “contribute positively to cultural, social, economic and political development” (Daudau, 2012, p. 174) whilst protecting and enhancing local environments. The flexibility of outcomes based curricula and the EasSD model, described in chapter 8, allows Ministries of Education in the Global South to “review the operationalisation of ESD in local policies and practices to ensure they remain relevant, comprehensive and balanced” (Hiebert, 2014, p. 4).

10.4 Education as Sustainable Development

If students are to build a true understanding of SD bound in culture and context, but open to the benefits of westernisation and intolerant of insidious western hegemony, I argue an EasSD style approach is necessary. As this case study demonstrates, Mangaian SD is an amalgamation of diverse parts; *oraanga Mangaia* immersed in *te ipukarea ia rangarangatū* at the centre with relevant western development ideology and technology at the margins. As globalisation permeates the Global South, this juxtaposition of indigenous and western knowledge and practice contends at the margins of the indigenous world.

EasSD facilitates fresh thinking²⁶⁹, providing space for often discarded indigenous ways of thinking to flourish. EasSD as “an essentially creative, reflexive and participative process” (Sterling, 2001, p. 61), where “learning is continual exploration through practice” (ibid, p. 61), facilitates the concurrence of different worldview thinking. Indigenous thinking that challenges prevailing, dominant, development paradigms allows students to consider alternative cultural models of development²⁷⁰.

The indigenous EasSD pedagogy outlined in chapter nine, responds to Gegeo and Watson-Gegeo’s (2001) call for a Pacific “indigenous critical praxis” (p. 58) capable of producing a Pacific vision of SD. Furthermore, it corresponds with Manteaw’s (2012) call for a “logical pedagogy” (p. 382) in Africa, as one in which “learners acquire a coherent narrative of the causes of Africa’s unsustainable present, and build learners’ capacities to pursue alternatives” (p. 382). The pedagogy presented, builds on Manteaw’s thinking by providing the means to interrogate, critically evaluate and begin to take action against entrenched western development frameworks where necessary²⁷¹.

²⁶⁹ Currently, critical thinking in the curriculum is valued only within the accepted paradigm of economic growth development. Critical thinking as innovative problem solving is lauded, for example, as new business ideas or the ability to engineer technical solutions that support economic development. Critical thinking, challenging dominant paradigms like capitalism, is not encouraged, ensuring western hegemonic forces continue to influence the thinking around development and education in developing countries (Abbiss, 2011).

²⁷⁰ In relation to mainstream development thinking.

²⁷¹ The concept of SD is integral to the development plans of most governments in the Global South, including the Cook Islands (Government of the Cook Islands, 2007b, 2011a). However, it can be reinterpreted along indigenous lines.

Importantly, the Manganian pedagogy provides the space to consider relevant western knowledge and technology when visioning SD. This concurs with Burnett's (2007) warning of not rethinking indigeneity romantically, through what he terms "essentialised notions of culture and identity" (p. 263). Burnett suggests modern Pacific life is increasingly one of "cultural and identic fluidity, heterogeneity and mobility" (ibid, p. 263). His concern is that an absolute focus on culture may "limit life chances" (ibid, p. 263) and a student's "right to know" (Willinsky, 1998, p. 252) about the western or global world. Burnett (2007) argues:

All educational ideas need to be submitted to critical inquiry including those based on cultural difference ... to clear a space for a more inclusive rethinking process, one that resists reductive culturalism, instead taking into account the nuances, fluidity, multiplicity and dynamism of contemporary Pacific lives and realities. (p. 271)

The Manganian EasSD pedagogy, by facilitating the consideration of all knowledge through student *uriuri manako* (contested debate), inspires student self-determination of their own and their communities' vision for SD, unhindered by western hegemony and romanticised notions of culture.

In addition, issues of sustainability, at global biosphere levels and local ecosystem levels, can be explored with lessons from one level potentially used to inform decision making at the other level and vice-versa. Existing educational discourse, that considers technocentric solutions to SD over ecocentric solutions, can be challenged (Huckle, 1991). Shiva (1992) explains how a western discourse might argue problems of resource scarcity must be overcome by the search for new forms of natural capital. The assumption being, that economic growth must continue unabated. Natural resource conservation is not considered. Whereas an ecosystem people's perspective does not separate development from nature, profit maximisation and capital accumulation are not the only measures of success. As Loomis (2000), from an indigenous Maori New Zealand perspective, states, "the pathway to ensuring the future well-being of humankind and the planet lies not in limitless growth, consumption and more market but in a creative reintegration of economy, society and ecology" (p. 903).

The strength of a place-based, bi multicultural EasSD pedagogy is in SD being defined through multiple cultural lenses, leading to different interpretations of the term ‘progress’ and different worldviews on the place of nature in people’s lives²⁷². An EasSD approach, in readdressing the singular focus on economic growth, explores more fully the causes, rather than just the symptoms, of environmental degradation. As Bonnett (1999) states:

Pollution and depletion are symptoms not causes. It is prevailing values and social/economic/political arrangements that give rise to them. Ultimately, this may lead to a need to reveal and examine motives which are inherent in our most fundamental ways of thinking about ourselves and the world, a metaphysical investigation. (p. 323)

10.4.1 EasSD promoting indigeneity

EasSD promotes indigenous peoples’ desire to define SD for themselves, in line with their own cultural values and knowledge. This desire to interpret SD culturally is occurring in Africa as part of the “African Renaissance” (Breidlid, 2009, p. 141) and in the Pacific as part of the RPEIPP (Sanga, 2012). In the Pacific, there is already the understanding that education must play a major role in contributing to models of SD that are based on a “uniquely Pacific world view” (Taufe’ulungaki, 2001, p. 5). Teasdale et al. (2005c), discussing the aims of the PRIDE project in the Pacific, state, “Each country is being encouraged to build its education plans on a stronger foundation of local cultures, languages and epistemologies” (p. 37). Thaman (1995) sums up Pacific thinking by arguing:

The cultural identity of indigenous peoples must be reaffirmed at school, beginning with a culturally inclusive and democratic curriculum which halts the “cultural and environmental bankruptcy ... (that is) ... an affliction which has been an obstacle to sustainable development in much of the modern world. (p. 732)

²⁷² For example, Vargas (2000) argues over consumption needs to be urgently challenged with a consequent move towards meeting the basic needs of all. He argues the resultant reduction in demand for environmental resources may well improve social cohesion.

Findings on Mangaian SD, support Thaman's thinking. Thomas (2009) sums up neatly, arguing that immersion in a culturally responsive EasSD pedagogy will assist students to formulate SD solutions that are culturally and contextually relevant.

Kawagley and Norris-Tull (1998), in discussing the Yupiaq of Alaska, purport IK improves students' understanding of SD by focusing on the interconnectedness and interdependence of the economic, social and environmental dimensions of sustainability. Kawagley et al. note:

Scientific knowledge is not segregated from other aspects of daily life and it is not subdivided into different fields of science. To design a fish trap, for example, one must know how the river behaves, how the salmon behave, and how the split-willow of which the trap is made behaves"(i.e., one must have an understanding of physics, biology, and engineering). (p. 138)

Pomeroy (1994) explains that students seeking both indigenous and western explanations of phenomena, accrete multiple epistemological and ontological ways of thinking about complex problems. Students "move from a more static multicultural view which maintains the structure of the institutions of science and culture as they are, to a more dynamic inter, or cross cultural view which requires deconstruction of the view of Western science as universal" (p. 68).

Coincidentally, this focus on indigeneity promotes social cohesion, a crucial element of SD, as in Yupiaq culture, community involvement in learning is valued. "The elders of the community are the repositories of traditional knowledge and they see it as their responsibility to educate the younger members" (Kawagley et al., 1998, p. 138) . This is analogous to my findings, where Mangaian argue they have cultural obligations to support Mangaian student learning, outlined in 10.3.3.

Indigenous students from the Global South, immersed in an EasSD pedagogy, are well positioned to "choose indigenous rather than Western solutions to their problems" (Friberg & Hettne, 1985, p. 220), where they are clearly superior. For example, Mangaian students begin to understand *oraanga Mangaia* livelihood strategies evolved to address the particular challenges to life on a small, remote, ecologically fragile island. In the wider

Pacific, concepts like citizenship²⁷³ can be rethought in terms of indigeneity. Fito'o (2012) explains that in the Solomon Islands cultural values aligned to genealogy, custom, and land rights, define citizenship as well as “western liberal notions of democratic or human rights” (p. 82). An EasSD pedagogy would allow students to compare and contrast conceptions of citizenship made at tribal level, with the notion of a person as a citizen of the Solomon Islands.

10.4.2 EasSD: Moving beyond the dual curriculum

Although the call to embrace indigeneity in development and education has been made across the Global South, progress has been piecemeal. Too often, culture was essentialised as a static anthropological nicety. Its twofold value was seen simply as a commodity supporting tourism and as a mechanism to strengthen student identity within a bigger neoliberal modernity focus. Consequently, in schools, culture and language have been marginalised into a single indigenous education class, so as not to interfere with the serious business of a western education supporting western development measures.

This separation of culture from mainstream education, through dual curricula, denies students any real opportunity to seek solutions to sustainability through culture. As Stanley and Brickhouse (2001) point out, students receive the implicit message that IK is only important in cultural studies that incorporate dancing, singing and ceremony. Moreover, the focus remains on learning about culture through an often patronising western lens rather than in culture itself.

The emergence of adjectival education (Indigenous, Peace, Environmental, Multicultural, Moral and Energy and Climate Change education) parallels the emergence of dual curricula (Manteaw, 2012). Adjectival education themes sit at the periphery of managerialistic curricula, in attempts to counteract and repair the damage done by aggressive, neoliberal, capitalistic approaches to living. As Manteaw explains the adjectival education themes only exist to “accomplish narrowly defined objectives, or to champion populist sentiments”

²⁷³ Citizenship is important when discussing the social dimension of SD.

(ibid, p. 378) within an already dominant development/education paradigm; ultimately they do not challenge its foundations²⁷⁴.

Manteaw (2012) argues this separation of western and indigenous “ideological motives” (p. 378) in the Global South has resulted in “pluralistic interpretations” (p. 378) of SD that are “protean and imprecise” (p. 378). The result has been indigenous peoples in Africa believing they have to defend culture and “overvalue our heritage” (Hountondji, 2002, p. 25), which Hountondji, an African philosopher, argues is unnecessary. In a similar vein, Sillitoe (1998), also discussing the African context, argues against any need to “idealise” (p. 227) culture, believing it has its own value.

In a positive sense, I argue dual curricula and adjectival education can be thought of as temporary educational states that are in transition to true bi and multicultural education systems. Systems, that in the context of EasSD teaching and learning, can take a hopeful post-development stance to fashion best fit development in a third thinking space, inclusive of both the best indigenous and western knowledge and technology.

10.4.3 EasSD: Drawing on multiple world views

The strength of EasSD is its ability to draw on multiple worldviews and knowledge, to provide students with richer pictures of what sustainability ought to be. IK and western science can be taught together as distinctive knowledge systems which have some overlap (Rikihana, 1996; Roberts, 1996). As Kawagley (1998) explains, western science and TEK can complement each other. IK, obtained by observation and modelling, can be integrated with western knowledge obtained by scientific method, using quantitative experimental techniques. In the case of the Yupiaq, “a Yupiaq world view invokes a more holistic view of science” (p. 141). As Snively and Corsiglia (2001) indicate, “Oral traditions may provide detailed observations of natural phenomena made over a lifetime” (p. 15), whereas western scientists “are often limited to reporting on short field trips” (p. 15).

²⁷⁴ In effect, they are analogous to Sterling’s concept of “Education about” and “Education for” SD.

By seeking out all knowledge, western science is deconstructed as universal; it merely becomes one science amongst many (M. Ogawa, 1989). Western science is now neither “infallible, or unchangeable”²⁷⁵ (W. B. Stanley & Brickhouse, 1994, p. 396). As Popper (1965) reminds us, “there are no ultimate sources of knowledge. Every source, every suggestion, is welcome; and every source, every suggestion is open to critical examination” (p. 27).

This real life thinking needs to be mirrored in education in the classroom. Venter, (1997) in discussing developments in South African education, states, “people need to accept there is no one unique truth which is fixed and found, but rather a diversity of valid, and even conflicting, versions of a world in the making” (p. 62). When diverse views are respected, students are free to inquire into the connections and differences between knowledge systems (Pomeroy, 1994). Rather than discarding knowledge because of its political source, students find themselves at liberty to value all knowledge. Ultimately, the students benefit by capturing a wider perspective of the world (M. H. Durie, 1996). The place-based Mangaian EasSD models presented in chapters 7 and 8 do just this, by providing a teaching and learning environment that reflects the multiple ontological reality of SD on Mangaia.

10.4.4 EasSD: Living locally and globally

EasSD learning by nature, drawing on multiple worldviews confers significant advantages to students from the Global South, whose families operate interchangeably as both ecosystem and biosphere people. They function as ecosystem people when engaging in traditional localised sustainable livelihood practices and biosphere people when participating in the global economy and drawing upon global resources. Participation in the global economy makes them partially responsible for the damaging environmental effects of uncontrolled economic growth on the biosphere. Puzzlingly, they can be both victims of development, being variously affected by climate change, loss of biodiversity and pollution, but also perpetrators of this same environmental damage at global and sometimes local levels. Kerr (2005), discussing SIDS, sums up nicely by observing that while people from

²⁷⁵ As Phillips and Burbules (2000) explain, “objectivity does not guarantee that a belief or viewpoint is true” (p. 42).

the Global South may live sustainably locally, they are often complicit in “exploiting unsustainable patterns of global consumption” (p. 519). A bicultural EasSD pedagogy, would be invaluable in navigating students through the “intriguing paradox” (ibid, p. 519) of simultaneously living as both ecosystem and biosphere people.

On Mangaia, many interview participants expressed a desire for Manganians to improve their own environmental record through twofold measures. Firstly, a return to traditional, environmentally sustainable relationships through, for example the reintroduction of *rangi*. Secondly, the adoption of some western conservation practices. In other words, Manganians want a bicultural approach to environmental protection. As Breidlid (2009) discussing the roles of indigenous and western knowledge, states:

While the two systems cannot be completely harmonized or even reconciled, the idea that the two systems might be able to complement each other constructively in achieving a more sustainable future is worth further examination. (p. 147)

In a wider sense, this ability to draw on multiple sources of knowledge benefits, as Durie (2003), discussing the New Zealand Maori educational context, argues, “Education is equally about preparing people to actively participate as citizens of the world as about being Maori.” (p. 200).

Moreover, Manganians can contribute to the global sustainability debate. On one hand, a knowledge of western science helps Manganian students make sense of global and local environmental issues. On the other, Manganian knowledge, culture and traditional livelihood practices would, if shared globally, contribute to the global sustainability debate. As Breidlid (2009) reminds us in the African context, the idea of the “absolute dichotomy between the two knowledge systems, the one living in harmony with nature and the other dominating it, is highly debatable” (p. 147).

10.5 EasSD pedagogy

The requirement to draw on multiple sources of knowledge, especially indigenous, when constructing best fit solutions to SD, makes a sole reliance on western pedagogies untenable. Culturally responsive western pedagogies tend to essentialise rather than problematise culture, leading to a patronisation and romanticisation of culture at

superficial levels (Abbiss, 2011). Some pedagogies go as far as creating new binaries in which there is an “evil West and a noble South” (Kiely, 1999, p. 38). Moreover, presenting indigenous learners with western pedagogies, places them in the awkward and problematic position of effectively acting as anthropologists exploring their own culture. While culturally responsive western pedagogies may benefit New Zealand’s western students, striving to gain a greater appreciation of different cultures, they become redundant when foisted upon indigenous peoples in the Global South.

Western social justice pedagogies emerged in response to the realisation that indigenous cultures have the right to challenge the inevitability of mainstream development, through the provision of alternative development thinking. As far back as the 1970s, Freire (1972), argued that students, including indigenous students, needed to adopt critical pedagogies to build conscientization²⁷⁶ as a challenge to oppressive forces. Bowers (1996), argued these critical pedagogies were needed to focus student learning on the issues of social justice. Gruenewald (Gruenewald, 2003) sees this as challenging, “the assumptions, practices, and outcomes taken for granted in dominant culture and in conventional education” (Gruenewald, 2003, p. 3).

However, Bower (2008), while arguing for critical pedagogies, was not convinced Freire’s 1970s version was apt for indigenous people wanting to explore their own versions of sustainability. Social justice means challenging culturally oppressive practices, but the assumption that indigenous peoples should do this using the “emancipated consciousness of Freire” (ibid, p. 327) is questioned by Bowers: *Do indigenous peoples ignore their own critical epistemologies in favour of the homogenising conscientization of Freire?* Ultimately, conscientization while conceptually helpful to the analysis of indigenous critical pedagogies, still advocates for transformative change as a “progressive force” (ibid, p. 325) in the western tradition, with Freire, as Bowers argues, calling for “each generation to rename the world of the previous generation” (ibid, p. 326). Hence, Bowers(2008) description of Freire’s “critical pedagogy of place” (p. 325) as an oxymoron²⁷⁷. In contrast, the place-based EasSD

²⁷⁶ Previously defined in chapter two.

²⁷⁷ Bowers (2008) explains, “To reiterate, the key reason that a critical pedagogy of place is an oxymoron is that the linguistic tradition of relying upon abstractions, including abstract theories that encode many of the same taken-for-granted assumptions that underlie both the idea of universal decolonization and the market

Mangaian pedagogy, framed in conjunction with Manganians, focuses on indigenous people's consciousness. It allows indigenous students to explore the culture and environment of the places they inhabit through their own cultural lens with "conservatism" (Bowers, 2008, p. 328) of culture, beliefs and values valid choices if desired. Moreover Freire's call to overturn capitalism (Bowers, 2008), denies indigenous peoples the chance to forge alternative modernities as they see fit.

In the more general sense, O'Sullivan (1999) argues, western critical pedagogies fail to recognize the importance of the environment, with their "pre-eminent emphasis on inter-human problems frequently to the detriment of the relations of humans to the wider biotic community and the natural world" (pp. 63-64). For Manganians, with their important relationship to nature defined through *akonoanga enua*, this provides another reason to reject the adoption of western critical pedagogies.

In summary, I have argued it is culturally fallacious to expose indigenous students only to western critical pedagogies as students need to draw on their own thinking, values, beliefs, livelihood practices and culture to formulate culturally appropriate solutions to SD. Bowers (2008) explains:

The pedagogy that strengthens the local traditions of intergenerational knowledge, skills and patterns of mutual support that enable members of the community to be less dependent upon consumerism, and thus to have a smaller ecological footprint, requires the teacher and professor to adopt the role of the mediator and to engage students in thick descriptions of the differences between their experiences in various cultural commons activities and experiences in the industrial/consumer culture. The mediator, unlike the critical pedagogy-oriented teacher, does not set out to decolonize or emancipate students from the intergenerational knowledge and skills that the critical pedagogy theorist has relegated to the realm of silence or has prejudged as backward. Rather, it is to encourage students to identify and to give voice to their experiences in the various cultural commons in their community as well as the corresponding industrial/consumer activities. The mediator does not give the answers in advance and does not assume at the outset that the teaching moment is also a moment of transformation. Rather the purpose of the mediator is to engage students in the process of thick description that leads to acquiring the language necessary for exercising the communicative competence required in the democratic process of deciding what needs to be

liberals' efforts to universalize the West's consumer dependent lifestyle, fail to take account of the intergenerational traditions of habitation that still exist in communities" (p. 333).

resisted, fundamentally changed or conserved and intergenerationally renewed.
(p. 332)

10.5.1 EasSD pedagogy: Encouraging critical, culturally inclusive thinking

The place-based, EasSD Manganian pedagogy, presented in this case study, endeavours to address the pedagogical challenges posed by Bowers above. It provides a pedagogical framework that concurs with both Gegeo and Watson-Gegeo's (2001) argument for an indigenous, critical praxis and epistemology and Thaman's (2007) plea for new Pacific pedagogies that focus on a Pacific style SD. It provides an example of what Manteaw (2012) calls a "logical pedagogy for sustainable development" (p. 382) when discussing the African context. Furthermore, it aligns with Loomis's (2000) call for new cultural learning frameworks that allow New Zealand Maori to address development from their own perspectives. Finally, it answers the calls by Escobar (2000), Rist (1997) and Sachs (2013) for new pedagogies, capable of imagining both postmodern alternatives to development and alternative development approaches, to ensure future sustainability²⁷⁸.

The EasSD pedagogy provides a transmodern or third thinking space (Turnbull, 2000), where the plurality of knowledge and ideology can be critically examined to construct best fit, localised solutions to SD. The pedagogy, in seeking out western knowledge, protects students' "right to know" (Willinsky, 1998, p. 252). Students' own contemporary solutions to SD are manipulated by neither western hegemony nor cultural essentialism. Instead, they are a result of rational thinking along the SD continuum and across cultural boundaries (Hopwood et al., 2005). Solutions can reflect both ecosystem and biosphere worldviews (Dasmann, 1998) and aim to be ecozoic (O'Sullivan, 1999). Indigenous students from the Global South learn development solutions do not have to originate from the west. Western hegemony can be firmly rejected. Students' own thinking, attitudes and values, politicize the curriculum as Hodson (2003) suggests, but not in a restrictive, essentialist manner.

²⁷⁸ In Escobar and Sachs terms *oruanga Mangaia* can be considered an alternative to development and Manganian grassroots, bottom up, participatory development thinking, as outlined in the Mangaia Island and Puna Plans 2014 – 2018 (Te au Puna o Mangaia, 2014), provides an example of alternative development thinking.

In summary, the Manganian EasSD pedagogy presented in this case study, provides a prototype for the beginnings of a framework that would allow students in the Global South to build their own and their communities own place-based, culturally responsive SD vision. After all, Manganians in their everyday life, invoke *uriuri manako and kimi ravenga* to problematise development when seeking out best fit SD solutions. Therefore, a Manganian pedagogy is best suited when constructing Manganian SD solutions in the classroom. This argument mirrors Gegeo and Watson-Gegeo (2001) belief that the Kwara'ae in the Solomon Islands employ their own "indigenous critical praxis" (p. 58) to address their own challenges. It also mirrors Maiava and King's (2007) finding that a hidden indigenous development, underpinned by indigenous thinking and epistemologies, operates successfully in Pacific communities engaging in hopeful post-development narratives and a healthy scepticism to antithetical thinking.

Ziai (2015) asserts, positively sceptical post-development approaches have recognised elements of modernity have been and will continue to be helpful in improving people's lives. The critical pedagogy presented, in this study, supports this approach to development as described below.

10.6 EasSD: Supporting hopeful post-development aspirations

SD on Mangaia is a dynamic and unique mix of *oraanga Mangaia* at the core, shaped by Manganian culture and values, interspersed with alternative modernities that in part draw on western development ideology, practice and technology. Similarly, in each community across the Global South distinct livelihoods, with varying degrees of sustainability, exist. Each has their own mix of culture, values, beliefs, sociocultural practice and degree of engagement with western development modalities and technology. The exact mix fluctuates from country to country, region to region, urban to rural, island to island, over time and even within the heterogeneity of communities, in response to the context and environments they face. In my Pacific experience, Pukapukans and Manganian Cook Islanders on pa enua, draw more on traditional livelihoods and culture than perhaps Cook Islanders living more westernised lifestyles on Rarotonga. In Vanuatu, people on remoter outer islands, may put greater emphasis on traditional livelihoods and *kastom* (culture) than ni-Vanuatu living more westernised lifestyles in Port Vila.

The increasing acceptance of a raft of viewpoints and worldviews on what sustainability might entail, has led to much more flexible non-deterministic notions of SD. A move welcomed by UNESCO (2013) in its updated definition of ESD and demanded by the newly confirmed SDGs demand (United Nations, 2015a)²⁷⁹. ESD programmes must be open to all thinking so students can explore and then formulate their own informed visions of SD. Jickling (1994), discussing ESD, states:

There is a debate going on between a variety of stances, between adherents of an ecocentric worldview and those who adhere to an anthropocentric worldview. For us the task is not to educate for sustainable development. In a rapidly changing world we must enable students to debate, evaluate, and judge for themselves the relative merits of contesting positions. (ibid, pp. para. 22-23)

In the context of this study, Jickling's argument can be extended to suggest ESD should also allow debate about the right mix of indigenous and western knowledge, values and technology needed to ensure sustainability. Mirroring real life, students should choose the mix of indigenous and western knowledge that provides the best development outcome (Manu, 2009; Moyo, 2009). Carter (2004), in viewing a postcolonial world, argues interpretations "reveal Western and non-Western borders to be profoundly ambivalent constructs" (p. 833). EasSD aims to mirror hopeful post-development thinking where people logically select the best knowledge, indigenous or western, to achieve the best development outcome.

This means western knowledge can be adopted to enhance solutions to SD. Equally however, western hegemony can be rejected on sound cultural foundations rather than political expediency and a perceived need to promote Pacific ways (Burnett, 2007). As Teairo (1999) argues, "a complimentary co-existence" (p. 42) between both indigenous and western knowledge is essential in classrooms, if students are to engage in balanced, real debate about their and their communities future development needs.

²⁷⁹ As Jickling (1994) reminds "the prescription of a particular outlook is repugnant to the development of autonomous thinking" (para. 20).

A culturally responsive EasSD, resists the managerlistic agenda in education that demands students “conform to the philosophy belief and perceived needs of the market” (Sterling, 2001, p. 12). On Mangaia, and more generally the Global South, I have argued an EasSD pedagogy, as outlined in chapter 8, would allow all knowledge, in particular IK and culture, to be examined without predetermination. In this way, Sterling’s (2001) vision of EasSD would result; one that:

Values and sustains people and nature, that recognizes their profound interdependence. Such a view is more holistic, participative and practical than the narrowly instrumental view that now dominates: in short, it is an ecological or relational view of education and learning. And it is a reflexive and postmodern view rather than a modernist view (p. 14).

EasSD aims to critically educate and empower, and so supports Escobar (1995) position that, as he puts it, “The subaltern do in fact speak, even if the audibility of their voices in the circles where “the West” is reflected upon is tenuous at best” (p. 223).

EasSD supports the agency of Global South development actors, as they engage in hopeful post-development narratives. Narratives that include what Maiava and King (2007) term indigenous development, which they describe as originating “within the indigenous culture, motivated by that culture and directed by cultural criteria” (p. 85). Narratives where development has moved past unhelpful binaries such as “modernity is bad ... (and) ...anti-modernity is good (Corbridge, 1998, p. 139). Development narratives that are “aware of the dangers of reactionary populism on the one hand while not overlooking the emancipatory potential of the radical democracy in post-development on the other” (Ziai, 2007a, p. 124).

As Dinerstein and Deneulin (2012), studying the Zapatistas in Mexico, Maiava and King (2007) found in Fiji, and I found on Mangaia, development is always a balancing act between a desire for material wealth and the happiness engendered by a healthy culture, society and environment. EasSD, by remaining open to all sustainability thinking, would be invaluable in assisting Global South development actors, in a hopeful post-development setting, to make development decisions that improve their lives while strengthening culture, their communities and protecting nature.

In this hopeful post-development space, students on Mangaia and the wider Global South, empowered with an understanding of, and action competence in SD, can seek out their own and their community’s sustainable future and livelihoods. As Julius Nyerere, former first President of Tanzania stated:

“people cannot be developed, they can only develop themselves” Julius Nyerere.

(Carmen, 1996, p. 206).

Chapter 11 Conclusions

11.1 Introduction

The chapter opens by outlining the contribution this study makes to the knowledge about SD and ESD on Mangaia and more generally, conceptions of SD and models of ESD in communities (indigenous and otherwise) across the Global South. The specific contributions are discussed under five broad headings:

- Indigenous conceptualisations of sustainable development that resonate within hopeful post-development narratives revealed;
- EasSD the impetus for students from the Global South to engage in culturally responsive and contextually relevant SD learning;
- Identifying the six key benefits of EasSD implementation;
- The beginnings of a culturally responsive place-based EasSD curriculum and pedagogical framework; and
- Outlining a strength-based EasSD implementation model.

Suggestions for further research are discussed. Some concluding remarks about how EasSD could help Mangaians conceptualise their own culturally and contextually centred vision for SD on Mangaia, are made. Finally, a brief discussion ensues on how EasSD could empower students, as future citizens and leaders of Mangaia, to achieve a Mangaian vision for SD.

11.2 Contributions

11.2.1 Contribution 1: Indigenous conceptualisations of sustainable development that resonate within hopeful post-development narratives

In the Mangaian context, this study demonstrates that localised notions of SD in the Global South are invariably multimodal, complex and dynamic. Traditional livelihoods²⁸⁰, embedded in culture, sit at the core of indigenous notions of SD as an ‘alternative to development’, providing partial food and material security along with important social and cultural resilience. Additionally, the desire to reap some of the mainly material benefits of

²⁸⁰ *Oraanga Mangaia* for Mangaians.

globalisation has steered most communities, in the Global South, down various pathways of grassroots, bottom up, alternative economic development activity that draws on the strengths of their own livelihoods and culture. The result being culturally inspired alternative modernities that sit at the margins of the global economy. These hopeful post-development spaces created are where indigenous peoples strive to hold onto, and sometimes reshape their values, culture and relationship with nature, through their own version of a radical democracy (Peet & Hartwick, 1999). They are also spaces where indigenous peoples in forms of critical modernism (ibid) and/or critical holism (Pieterse, 1999) adopt and adapt useful strands of western knowledge and technology that improves their lives.

In concordance with McGregor's (2007) research in Timor-Leste, Maiava and King's (2007) research in Fiji, Dinerstein and Deneulin's (2012) research in Mexico, Janzen's (2008) research in Uganda²⁸¹ and my research on Mangaia, notions of SD, in the Global South, are the result of culture and context impacting on people's lives. These localised notions of sustainability emerge at the interface where indigenous development interacts with intentional and immanent development (Maiava & King, 2007). These notions of sustainability are constantly being reinterpreted and reshaped in response to the internal and external forces that evolve within hopeful post-development narratives. The visions for SD that emerges from these different cultures and communities across the Global South, are unique but invariably aim to achieve some form of economic and cultural independence and "social and environmental equity" (Hopwood et al., 2005, p. 49).

11.2.2 Contribution 2: EasSD the impetus for students from the Global South to engage in culturally responsive and contextually relevant SD learning

Given the place-based nature of SD in the Global South, I have demonstrated the importance of implementing a transformative, culturally responsive, contextually relevant and environmentally aware EasSD. An EasSD that is culturally responsive in terms of enabling students to recognise the inherent sustainability and resilience of indigenous livelihoods and culture. An EasSD that is contextually pertinent in terms of getting

²⁸¹ All described in detail in section 2.4.

students to think about, and be capable of formulating development plans that might incorporate the strengths of culturally embedded economic activity and/or overcome the many localised economic challenges people face in the Global South. An EasSD that is environmentally aware in allowing students to gain deeper understandings of the ecozoic relationships indigenous communities, like Mangaia, have with land and reef ecosystems. EasSD also allows students to explore more fully the potentially deleterious impacts of poorly planned economic development activity on the local environment.

This study, using the case of Mangaian School, demonstrates that the simple importation of western centric education ‘about’ and ‘for’ ESD programmes into communities and schools in the Global South will not suffice, when striving to educate students to understand and build action competence in SD at local community level. Instead, it may serve to perpetuate mainstream western development ideology and the remnants of neocolonialism. For indigenous peoples in the Global South, demanding their version of self-determination, an empowering education that reflects the ‘real’ context and culture specific nature of development in their locality is vital if youth are to participate in and lead their communities’ future development. In summary, EasSD can provide an educational vehicle that allows students to explore their own indigenous communities’ notions of SD.

This potential for EasSD to upskill and focus the learning of students’ on building their own understandings of, and action competence in, SD will be of interest to governments and indigenous communities, throughout the Global South focussed on addressing the SDGs (United Nations, 2015b). The SDGs have put SD at the forefront of development thinking and action²⁸². SD as a concept is already in vogue, at least in rhetoric, permeating the policy of most governments and NGO across the Global South. Furthermore, it exists as a cross cutting theme in almost all aid agency vision and project delivery, including those channelled via both bilateral and UN coordinated multilateral programmes. This growing popularity of SD throughout the Global South means it will increasingly influence students’ future lives, directly or indirectly, through national and local development project planning.

²⁸² At Rio+20 - the UN Conference on Sustainable Development: “countries agreed to establish an intergovernmental process to develop a set of “*action-oriented, concise and easy to communicate*” sustainable development goals (SDGs) to help drive the implementation of sustainable development” (United Nations, 2014).

Culturally and contextually, SD savvy students are in a better position to achieve the sustainability goals of their own communities and the country as a whole.

The inclusive nature of EasSD, in terms of its ability to bring all viewpoints²⁸³ and worldviews²⁸⁴ to the SD debate, is the key to in opening students' minds to diverse development possibilities. This is an advantage for students, as future citizens and leaders of their respective communities, in settings where more hopeful post-development planning and action is occurring. This flexible, functional nature of EasSD means it can be tailored to the different education systems operating in different countries across the Global South. Students in communities with different aspirations and degrees to which they wish to engage with western centric development ideology and technology can be catered for.

11.2.3 Contribution 3: Identifying the six key benefits of EasSD implementation

The enormous challenges in implementing EasSD, outlined in chapter ten, raises a key question for all of the countries and communities that make up the Global South: *do the benefits of EasSD justify the enormous effort, cost and resourcing associated with its implementation?* This study demonstrates they would, for six important reasons:

1. Students could build culturally aware and contextually relevant SD action competence;
2. Students livelihood options could be broadened;
3. Students could learn to think critically and sustainably in bicultural settings as local and global citizens;
4. Students immersed in indigenous conceptions of SD are more likely to strengthen their language, culture and identity;
5. Students would more likely experience quality teaching and learning leading to improved academic outcomes; and
6. Students are likely to be empowered to lead their own culturally responsive and contextually relevant development.

²⁸³ Ecocentric to technocentric.

²⁸⁴ Across cultures.

Students could build culturally aware and contextually relevant SD action competence

EasSD could facilitate students building local understandings of, and action competence in, notions of SD that is reflective of their culture and context. This would require students drawing on their own IK, epistemologies, beliefs and culture while being able to critically adopt and/or modify helpful western knowledge, ideas and technology that enhance culture and existing livelihoods. Moreover, students' rejecting western hegemony that they consider adversely affects their culture. A place-based indigenous EasSD could support students to conceptualise SD as the result of a dynamic interplay of the economic, social, environmental and cultural factors inherent in their community.

Students' livelihood options could be broadened

EasSD is likely to broaden students' career thinking away from just a singular focus on educating themselves for the public service and/or western centric careers and jobs. Students, in an EasSD classroom environment, learn that a total dependence on the vagaries of often volatile labour markets is no longer necessary. Instead, students realise a mix of traditional livelihoods with some degree of participation in the market economy, may be an equally valid livelihood strategy. As Kerr (2005) argues, development pathways have tended to follow two divergent pathways:

- (1) Development focused on economic growth by means of:
 - (a) import substitution;
 - (b) the development of new export markets; and
 - (c) the pursuit of aid and remittance payments or economic rent as ends in themselves.
- (2) The encouragement of people centred development activity that is driven by participatory processes and aimed at meeting basic needs. (p. 509)

EasSD could help students' challenge the antithetical thinking that livelihood choices tend to follow either a traditional or a western trajectory. Instead, students could begin to imagine futures where partial participation in global economic and labour markets is now

possible alongside renewed opportunities to draw on the social, cultural and practical resilience that traditional livelihoods provide through increased food security and social cohesion. Moreover, students could understand that it may be possible to vary livelihood strategies over time with temporary migration to build a financial base, followed by a return to traditional livelihoods. In summary, EasSD allows students to build their human (both indigenous and western), cultural, political and social capital, thereby maximising their “capabilities, assets and activities required for a means of living” (Chambers & Conway, 1992, p. 9).

Students could learn to think critically and sustainably in bicultural settings as local and global citizens

EasSD could educate students to:

- Think critically and problem solve in traditional culturally based livelihoods;
- Think critically in western development frameworks to either accept, modify or reject western knowledge and ideology based on its ability to enhance local livelihoods and culture;
- Make sense of the complexity and diversity of SD thinking that spans ecocentric to technocentric outlooks, within and across culture, at both local and global levels; and
- Share culturally based SD knowledge with the global community to contribute positively to the global SD debate.

Students from the Global South who are able to think biculturally are in a better position to contribute to sustainability at both local and global levels. For example, indigenous peoples have a responsibility to act as guardians of their local ecosystems. However, the modern day participation of indigenous peoples in the international economy has made them not only victims, but also potential perpetrators of environmental damage and climate change. Therefore, indigenous peoples increasingly have a responsibility to understand and contribute to global, environmental protection as well. EasSD learning, at both global and biosphere levels, would help students to understand and potentially help address the tensions between global economic growth strategies and concerns for the future of the planet.

Moreover, examples of sustainability at local indigenous levels could be used to inform sustainability at global levels. Livelihoods that demonstrate reduced energy demands,

smaller environmental impacts, and improved social cohesion, could be showcased to global audiences. The different cultural approaches to resource allocation favoured by many indigenous communities in the Global South, could be shared with the global community to provide them with insights into practices like equitable resource distribution and taking only what you need as showcased by Shiva (2005) and Vargas (Vargas, 2000). These 'alternative' ways of thinking could be used to challenge examples of global over consumption.

In sharing globally those aspects of their livelihoods and culture that offer unique insights into sustainability practice, indigenous peoples are more likely to see themselves as equal partners in achieving global sustainability and less likely to view themselves as aid dependent, or as an under developed people striving to replicate the successes of the west. Indigenous communities by having intimate relationships with their local, often vulnerable ecosystems are effectively the 'global custodians' of that ecosystem and so already contribute to overall biosphere health. Furthermore, the example of Manganians raising funds to help the victims of the 2011 earthquakes in Christchurch, New Zealand, outlined in section 6.9, reinforces the viewpoint that people in the Global South should not be stereotyped as aid recipients only concerned with their own welfare. As global citizens, they actively support the welfare of all people in the global village.

Students immersed in indigenous conceptions of SD are more likely to strengthen their language, culture and identity

Students immersed in EasSD programmes would begin to understand the relevance of their culture to notions of sustainability. When students move beyond superficial explanations of culture to useful practical understandings, they begin to appreciate its true value. This is likely to build a genuine interest and respect by students for their own culture and language in the process strengthening cultural identity. , Students no longer need to be coerced into learning their culture for mainly political reasons.

Students begin to realise traditional livelihoods can be smart solutions to living sustainably, as argued by many indigenous writers and researchers (Breidlid, 2013; Kawagley et al., 1998; Maiava, 2001; Manteaw, 2012; Regenvanu, 2009; Shiva, 1992, 2005). Students conversant with their own communities worldviews could now view "the knowledge, skills, and values of Western science and technology in the context of societal roles (social,

political, economic, etc.), including the role of a hegemonic icon of cultural imperialism” (Aikenhead, 1997, p. 229) . Critically aware students, empowered to explore and challenge aspects of their own culture, would be less likely to succumb to the condescending discourse underpinned by romanticised notions of Pacific Island life²⁸⁵. Thaman (2007), speaking as a Pacific Islander, has already cautioned of the danger of Pacific Islanders falling into the western trap of idealising their own culture :

Let us not assume that our way of seeing the world is necessarily better and more sustainable – because in the Pacific Islands, for example, the modern, market driven ways of seeing the world have proved to be destructive of our cultures, and therefore unsustainable. As educators, we also need to be good role models for ESD in terms of what we do and how we do it. (p. 6)

A culturally responsive EasSD has the potential to strengthen student’s culture language and identity.

Students would more likely experience quality teaching and learning leading to improved academic outcomes

McKinley (2005) reports that under achievement by indigenous students has been the result of the cultural divergence occurring between home and school. A place-based EasSD could address this issue by providing learning experiences that build on students own knowledge, culture and language. When teaching is focused on events that are directly connected to students’ own lives, motivation to learn is increased (G Aitken & Sinnema, 2006; Cobern, 1994, 1995). Motivated students engaging in learning experiences that have relevance to their lives will demonstrate improved academic success (Brooks, 1999; Pomeroy, 1994). EasSD by its nature will provide these learning experiences and if supported by a quality teaching²⁸⁶ approach, could become a key strategy to improve

²⁸⁵ Escobar argues pro post-development advocates from the Global North and South have “romanticized local traditions and local social movements, ignoring that the local is also embedded in global power relations and that indeed many struggles today are about access to development” (Escobar, 2000, p. 12).

²⁸⁶ Alton-Lee (2003) outlined ten characteristics of quality teaching:

- Quality teaching is focused on student achievement for heterogeneous groups of students;
- Pedagogical practices enable classes and other learning groupings to work as caring, inclusive, cohesive learning communities;
- Effective links are created between school and other cultural contexts in which students are socialised, to facilitate learning;

student achievement and qualifications for students from diverse cultural backgrounds (Alton-Lee, 2003).

Students are likely to be empowered to lead their own culturally responsive and contextually relevant development.

As an educational tool, EasSD can support those development actors, including Manguians, in the Global South, with aspirations for self-determination backed by a radical democracy²⁸⁷. EasSD pedagogy can be used to challenge continuing neo-colonial forces in education and development in the Global South and the “the insurmountable arrogance of intervening in other peoples lives” (Pieterse, 1999, p. 161). EasSD could act as a catalyst in empowering students, as future community citizens and leaders, to lead their own grassroots, bottom up development. As Sillitoe’s (1998) outlines:

Development initiatives that pay attention to local perceptions and ways are more likely to be relevant to people’s needs and to generate sustainable interventions. (Sillitoe, 1998, p. 224)

-
- Quality teaching is responsive to student learning processes;
 - Opportunity to learn is effective and sufficient;
 - Multiple task contexts support learning cycles;
 - Curriculum goals, resources including ICT usage, task design, teaching and school practices are effectively aligned;
 - Pedagogy scaffolds and provides appropriate feedback on students' task engagement;
 - Pedagogy promotes learning orientations, student self-regulation, metacognitive strategies and thoughtful student discourse; and
 - Teachers and students engage constructively in goal-oriented assessment. (Alton-Lee, 2003, pp. vi - x).

²⁸⁷ Radical democracy aligns itself with ethical development and is part of a critical modernistic approach. Radical democracy suggests people have control over the resources and institutions that directly affect them. People know best how to live their own lives. What is needed is the ability to control one’s own life (Peet & Hartwick, 1999).

11.2.4 Contribution 4: The beginnings of a transformative place-based EasSD curriculum and pedagogical framework

EasSD: The beginnings of a curriculum framework

This study identifies the knowledge and skills required by students, to understand and become action competent in, SD, both locally and globally. They are indigenous language, culture and practice, western development ideology and technology, economics and business, vocations, and the local environment and society.

The study then outlines the five necessary parts of an EasSD curriculum, those being:

- Foundational knowledge upon which to build an understanding of place-based SD;
- Theme based environmental awareness programmes, that make students aware of the causative relationships between economic development activity and the health of local ecosystems and the biosphere;
- Vocational pathways programmes to upskill students so they are able to carry out the necessary technological and infrastructural development demanded by local communities;
- The use of SD as a cross cutting curriculum theme, to begin to build students' causative understandings of the relationships between the four dimensions of sustainability ; and
- EasSD as a specific bilingual subject at senior secondary level, where integrated understandings of SD that span different viewpoints (from ecocentric to technocentric) and different worldviews and cultures can emerge.

EasSD: The beginnings of a pedagogical framework

In chapter 6, this study revealed the important part indigenous critical thinking and problem solving²⁸⁸ plays in the operational success of traditional livelihoods that result in food and material security and community resilience. This finding is then extrapolated to make the argument that critical indigenous thinking, underpinned by an indigenous epistemology²⁸⁹, should form a necessary part of any indigenous pedagogy in EasSD classrooms. For students an indigenous critical pedagogy, becomes not only culturally apt

²⁸⁸ *Kimi ravenga i te titau* in the Manganian culture.

²⁸⁹ Analogous to Gegeo's description of an indigenous critical praxis described in section 8.4.

but also necessary, if learning is to be meaningful and capture the essence of the SD thinking, ideology and practice that surrounds them in their daily lives.

By aligning the findings about Māngaia SD to the development and education literature the study provides the beginnings of a theoretical construct for an indigenous, place-based, critical, EasSD pedagogy. The pedagogy consists of a third space where students are encouraged to think about SD in hopeful post-development settings. A thinking space where students are able to draw on both indigenous and western development ideology, technology and practice, to help construct solutions to SD. A space where, as Pieterse (1999) reminds, “the difficult whole’ is ill served by binarisms” (p. 75).

The pedagogy described is a thinking space where it is possible for students to explore how their own indigenous values and culture might influence solutions to sustainability and where students are also able to “incorporate and reinterpret aspects of Western knowledge and practice into their traditions as part of the ongoing process of globalization” (Sillitoe, 1998, p. 230). The third thinking space described is a place where alternatives to development are no longer “black-balled” (Sachs, 1997) but considered to be the basis of future sustainability. After all, as Sterling (2014) outlines:

ESD is not about ‘telling people what to do’; it is about harnessing the power of ownership of ideas, of enlightened self-interest, of self-organization, world view change and leadership as powerful keys to the kinds of deep systemic change and building of resilience that sustainable development requires. (p. 110)

11.2.5 Contribution 5: Outlining a strength-based EasSD implementation model

Three barriers to the realisation of a place-based, culturally appropriate EasSD curriculum are:

1. Difficulty in producing EasSD style curriculum resources;
2. Teacher confidence in using an EasSD pedagogy; and
3. Lack of teacher EasSD pedagogical content knowledge.

In chapter 9, I demonstrated how these challenges might be overcome with stakeholder support, as outlined below:

- Education Ministries and aid agencies facilitating tailored, cross-cultural professional development for teachers on the use of an EasSD pedagogy and understanding SD content knowledge. The aim being to upskill teachers to become EasSD competent;
- Education Ministries and aid agencies supporting the production of preprepared SD curriculum resources, including the provision of helpful links to community knowledge and skills, to help teachers and schools implement place-based EasSD programmes effectively;
- Qualification authorities and Education Ministries providing internationally recognised EasSD qualifications aligned to place-based, contextualised SD programmes; and
- Drawing on the livelihood and cultural expertise and knowledge of the community.

Drawing on Hopkins and McKeown's (2001) strength model of ESD implementation, I suggest students could explore current curriculum content through the transformative lens of the new EasSD pedagogy outlined in chapter 8. Using Mangaia as an example, students could use these new worldviews and perspectives to explore examples of real life, localised development provided by teachers, the community and/or their own knowledge about *oraanga* Mangaia and Mangaian culture. The EasSD pedagogy described could easily be tailored to different cultures, contexts and communities across the Global South.

The focus of EasSD programmes would be on place-based, student centred inquiry, exploring notions of sustainability at local levels in contrast to the delivery of imported ESD curricula from overseas. Given the challenges identified, implementation would be systematic. Using the Mangaian curriculum, discussed in chapter 8 as an example, over time the curriculum and pedagogy would move in emphasis from 1 towards 5 (recognising all curriculum and pedagogical types will exist throughout a school at any given time), as outlined below:

1. Western - New Zealand context;
2. Western - Cook Islands context;
3. Dualist - Western with Cook Islands Maori as a separate subject;
4. Western ESD - inclusive of a western social justice and diversity narrative; and
5. Mangaian EasSD.

Such a proposal would necessitate the breakdown of current dual curricula models; whereby dominant western education curricula, reinforcing mainstream development

dogma, and culture, as a commodity to be exploited and/or as a tool to maintain or forge cultural identity, are taught in silos.

Importantly the study identifies that when all stakeholders²⁹⁰ clearly understand the six identified benefits of EasSD, outlined in 11.1.2, their support for EasSD increases.

11.3 Suggestions for future research, policy, planning and practice

Indigenous conceptions of SD - With SD increasingly taking centre stage in the Global South ‘development mind-set’, as evidenced by its prominence in government and aid donor development planning and the 2015 launch of the SDGs (United Nations, 2015a), it is timely to carry out more research on indigenous conceptions of SD²⁹¹ across the Global South. In particular interpretations of sustainability that are conceptualised ‘within’ the culture rather than those that might originate externally and are ‘about’ the culture would be helpful. With this in mind, it would be beneficial to encourage and support a greater number of indigenous researchers to be able to articulate what SD represents from their own community’s worldviews.

Given that most Global South communities engage with the global economy, research is also required to explore how notions of sustainability emerge in local grassroots communities where people are grappling with the juxtaposition of an indigenous development interfacing with externally driven intentional and the resultant immanent development. It would be interesting to examine specifically how indigenous conceptions of SD evolve alongside a demand for culturally inspired alternative modernities in fluid hopeful post-development settings.

EasSD - Given the diversity of indigenous place-based conceptions of SD that likely exist across the Global South research that investigates the type and form of culturally and

²⁹⁰ Education ministries, aid donors (and overseas qualification systems where relevant), schools, teachers, communities, parents and finally students.

²⁹¹ Although there is increasing interest in the critical role culture plays in localised notions of sustainability in many cases the recognition is tenuous with culture viewed only as an add-on, something that Nurse (2006) strongly argues against.

contextually relevant ESD programmes, in schools is needed. Such research would be helpful in informing the theory, policy and ultimately the practice around ESD implementation across the Global South. It would assist curriculum developers to align learning programmes to the reality of the development issues affecting the students in their daily lives. The research could build on the EasSD curriculum and pedagogical frameworks suggested in this study with particular foci on the advantages of implementing place-based culturally responsive EasSD programmes, similar to the type outlined in this study, over ‘Education about’ and ‘Education for’ SD in schools.

Extending the results of this study studies that explore the degree to which the six potential benefits of EasSD identified for Manganian students might also apply to students in other communities across the Global South would be helpful.

EasSD implementation challenges and solutions - According to Hiebert (2014) more research is needed to understand the state of ESD implementation in SIDS countries, a key part of the Global South. Building on the findings of this study, and in line with Hiebert’s call, more research is needed to determine which countries are attempting to produce culturally and contextually relevant EasSD programmes and the progress they are making. Research that explores EasSD implementation strategies, in particular strength-based models would be beneficial. At the practice level, studies that investigate resource and capability challenges and how these might be overcome especially studies that look at how schools could draw on community expertise when planning programmes is vital.

This thesis demonstrates there is considerable support for a place-based culturally responsive EasSD once stakeholders, in particular parents, teachers, the community and the students themselves, understand the benefits for students. It is helpful if further research determines stakeholder support in other countries that make up the Global South.

Equally, studies are needed, which take a step back to look and look at the reasons why some countries in the Global South persist with ESD programmes from the Global North. Factors to explore span ideological arguments that there is a need to embrace global economies and culture right through to the more practical barriers that stall EasSD style implementation. Studies that explore how aid donor policy, planning and practice supports, or hinders, the delivery of culturally and contextually relevant ESD for its students is valuable.

More EasSD specific research would not only contribute to UNESCO's 2006 vision for an ESD, which is:

- Interdisciplinary and holistic;
- Values-driven;
- Critical thinking and problem solving;
- Multi-method;
- Participatory decision-making;
- Applicability; and
- Locally relevant in addressing local as well as global issues.

(UNESCO, 2006a, p. 17).

11.4 Concluding remarks

Through a combination of *maroirot*²⁹² and *kimi ravenga*²⁹³, Mंगाians have always strived to build better lives for their families and community. The following Mंगाian proverb, provided to me by Ngametua Toko, a *ta'unga*, conveys the Mंगाian attitude to development and life. It reads:

E ko i to rima i roto i te enua e ora ai koe

Put your hands in the soil (plant) and you will live (eat).

This desire by Mंगाians to lead their own development, described in sections 6.4 and 6.5, is an integral part of the new Mंगाia Island and Puna Plans 2014 – 2018 (Te au Puna o Mंगाia, 2014). Michael Papatua, the new Principal²⁹⁴ at Mंगाia School, articulates the hopes Mंगाian people have for SD and development in general:

²⁹² Hard work and determination.

²⁹³ A problem solving attitude.

²⁹⁴ Newly appointed Principal in 2015.

*Ko teia au manakonakoanga ou e mea puapunga rava kia akatinamou ia te reira ki runga
I te oraanga o te iti tangata Mangaia mate kimi ravenga atu I tetai au ravenga taporoporo
I vao mai I to tatou akau I te tauturu I teia au manakonakoanga. E mea puapunga rava
oki teia me ka inangaro tatou I to tatou enua e te iti tangata kia matutu te tupuanga.*

Development that puts *oraanga Mangaia* and culture at its centre, while seeking out environmentally sustainable, partial participation, in the global economy is a priority for our people if we are to survive.

Michael Papatua

Gegeo (1998) describes this hopes of indigenous peoples as “thinking about and articulating development in their own terms” (p. 309)²⁹⁵. As Escobar (1995), discussing development, points out, “the desire to formulate alternatives at an abstract, macro level” (p. 222), must be resisted. Instead, as Rahman (1993) concludes, “if the people are the principal actors, the relevant reality must be people’s own, constructed by them only” (p. 17). However, given the competing development agendas faced by peoples from the Global South, achieving development outcomes that result in economic, environmental, social and cultural sustainability is not an easy task.

I have argued a culturally responsive, place-based, EasSD could assist Manganian students, as future citizens and leaders of the Manganian community, to make sense of their own development landscape and build the necessary knowledge and action competence to achieve a Manganian vision for SD. In other words, EasSD could support students to achieve rich and satisfying lives; sustainable livelihoods that Friberg and Hettne (1985) believe can preserve and strengthen “cultural identity, self-reliance, social justice and ecological balance” (p. 220). The EasSD I have described for Manganians could be tailored to upskill students from any community and location across the Global South so that they too are empowered to lead their own development. After all, a key aim of the SD movement, when it first emerged out of Agenda 21 in 1992, was the participation and empowerment of local people (France, 1997).

Manganians already recognise the important part education should play in development as evidenced by the demand for an “appropriate school curriculum that addresses the island’s

²⁹⁵ Whether it be leading their own and their community’s development at either village, island, region or country level. Here the term self-determination is not referring to a desire for independence but local development autonomy within the nation state.

current development needs” (Te au Puna o Mangaia, 2014, p. 10). As Michael Papatua explains:

Ko ta tatou au tamariki ka inangaro ia ratou kia apii ia kia riro mai ei au tutara no te akatupuanga I teia au manakonakoanga no Mangaia Enua. Ko teia au manakonakoanga nei ka inangaroia te reira kia atui ki runga I te peu maori, te ao rangi e pera te iti tangata Mangaia note akatupuanga I teia au manakonakoanga. Me raveia teia ka tupu meitaki to tatou iti tangata e to tatou basileia.

Our students must be educated to lead future Mangaian development. Development that provides prosperity for all Mangaians; while being culturally, environmentally, and socially sustainable.

Michael Papatua

I have argued that a culturally responsive place based EasSD could be the educational catalyst that helps achieve the Mangaian SD vision that is:

Kimi i te oraanga meitaki/matutu/rangarangatū no te Mangaia e te akono akaperepere ma te taporo poro i te ipukareā.

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Appendix 1 -Massey University full ethics confirmation letter



MASSEY UNIVERSITY

19 May 2011

FILE

Mr Paul Beumelburg
6 Walker Place
WHANGANUI

Dear Paul

Re: **HEC: Southern B Application 11/27**
Education as sustainable development: Transformative education on Mangata

Thank you for your letter dated 19 May 2011.

On behalf of the Massey University Human Ethics Committee: Southern B I am pleased to advise you that the ethics of your application are now approved. Approval is for three years. If this project has not been completed within three years from the date of this letter, reapproval must be requested.

Please note that travel undertaken by students must be approved by the supervisor and the relevant Pro Vice-Chancellor and be in accordance with the Policy and Procedures for Course-Related Student Travel Overseas. In addition, the supervisor must advise the University's Insurance Officer.

If the nature, content, location, procedures or personnel of your approved application change, please advise the Secretary of the Committee.

Yours sincerely

Dr Nathan Matthews, Acting Chair
Massey University Human Ethics Committee: Southern B

cc: Dr Rochelle Stewart-Withers
School of People, Environment & Planning
PN331

A/Prof Huija Tomkins-Jahnke
Te Uru Mātaurua
PN900

Mrs Mary Roberts, HoS Secretary
School of People, Environment & Planning
PN331

Massey University Human Ethics Committee
Accredited by the Health Research Council

To: Kinenge
K. Furdumun

Southern Ethics Office, Massey University, Private Bag 1122, Palmerston North 4442, New Zealand
T +64 5 350 5113 F +64 5 350 5115 T 016 291 962
E ethics@massey.ac.nz www.massey.ac.nz

Appendix 2 -Cook Islands Research Permit

PERMIT TO UNDERTAKE

Research in the Cook Islands

This is to certify that: Mr Paul Seumelbug

Has permission from the Foundation for National Research to do a research in the Cook Islands from: August - September 2011

On the island of: Rarotonga and Mangaia

The topic of research is: Development and education: An exploration on the role of schooling in equipping Cook Islands students with the knowledge and skills to be able to conceptualise and contribute to sustainable development, and lead sustainable lives.

The Cook Islands Associate Researchers are: Sharyn Pain, Secretary to the Minister of Education.

The following special conditions apply to this research:

Donate three copies of the final findings to the Office of the Prime Minister by 28th February 2012.

Permit Issued on: 27th April 2011

ISSUED BY:
**COOK ISLANDS
NATIONAL RESEARCH UNIT**
Office of the Prime Minister
Private Bag, Rarotonga
Cook Islands

Receipt Number: NIL

Reference Number: 19/11

Signed: 

For enquiries concerning this permit, please quote the Name of the Researcher and the Reference Number to the Chairperson, Foundation for National Research, and Office of the Prime Minister, Rarotonga, and COOK ISLANDS. Phone (682) 21 150, Fax (682) 20 876, or Email: mae@pnar.gov.ck Website: www.pnarfi.e.gov.ck

Appendix 3 -Research letter of approval from Mangaia School

Mangaia School YEARS 1 -12
P.O. Box 7
Mangaia
Cook Islands

Phone: (682) 34022
Fax: (682) 34295
Email: mangaia.school@mangaia.nct.ck



Tuesday, 22 February 2011

To Whom It May Concern:

Mangaia School Committee and Mangaia School staff and students are happy to support Paul Beumelburg's research.

His research my topic is:

Development and education: An exploration on the role of schooling in equipping Cook Islands students with the knowledge and skills to be able to conceptualise and contribute to sustainable development, and lead sustainable lives.

We will support him over the course of his study and assist him, where possible, with his research. We hope that his findings will be useful and assist us as we continually plan to improve the educational opportunities that we are able to offer our students here on Mangaia.

Regards

A handwritten signature in black ink, appearing to read 'Sue Ngatokorua'. The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Sue Ngatokorua
Principal
Mangaia School

Appendix 4 -Schedule of interview questions

1. Interview schedule with teachers

- a. Discuss personal details – age, qualifications, initial and continuing interest in teaching, teaching background, personal teaching philosophy including beliefs in the function of education those being vocational, and socialisation, liberal and/or transformative;
- b. Explore the relevance of the concept of sustainable development for student’s lives on Mangaia. Discuss the social, economic and environmental dimensions of sustainable development in relation to Mangaia. Relate sustainable development and sustainable livelihoods to the school curriculum, the Cook Islands Education Master Plan and Cook Islands National Sustainable Development Plan. Interpret the place of the National Cook Islands vision in the curriculum;
- c. Explore the relevance of the concept of sustainable livelihoods for student’s lives on Mangaia and relate this to the curriculum. Determine what skills are needed and might be needed by students to be able pursue a sustainable livelihood. Consider both indigenous and western knowledge and skills;
- d. Determine understanding of UNESCO Education for Sustainable Development initiative in the Cook Islands. Explore the current integration, if any, of the concept of Education for Sustainable Development into the curriculum. Identify curriculum areas where implementation or partial implementation occurs. Determine current successful initiatives including those involving the community. Determine imaginings and ideas yet to be developed. Discuss potential barriers to implementation;
- e. Explore the place of indigenous epistemology and knowledge in contributing to concepts of ESD. Discuss the use of *Te Akapa’anga Kopapa Kura Apii o te Kuki Airani* (The Cook Islands Maori curriculum) across other curriculum areas. Explore the place of indigenous concepts in Social Studies, Science and other curriculum areas. Thoughts on the new enterprise and financial literacy curriculum;
- f. Discuss the integration of different epistemologies and knowledge, indigenous and western, into a curriculum area;
- g. Explore the use of indigenous pedagogies in the curriculum. Discuss outcomes based curriculum. Discuss practical problems including access to resources. Discuss local community aspirations and input into curriculum;
- h. Discuss the importance of Mangaian local context in curriculum; include cultural, spiritual, social structural, custom, language, historical, geological, and ecological aspects;
- i. Discuss the importance of fluency in Mangaian, Cook Islands Maori and English as a gateway to the curriculum. Ask if any one language more important than the others;

- j. Discuss the importance of critical thinking as distinct from problem solving. Examine ideas of a Pacific critical indigenous praxis in the curriculum. Critical thinking in terms of critical pedagogies and a social critical inquiry approach to learning;
- k. Consider the challenges of dehegemonisation of neo – colonial and neo-liberal influences in the school curriculum. Critical thinking as conscientization challenging prevailing ideologies e.g. neoliberalism, materialism, globalisation and technological determinism. Discussion of the rethinking education initiative in the Pacific;
- l. Discussion of curriculum from the perspective of ecosystem people and the perspective of biosphere people point of view. Discussion of ecocentric versus technocentric views of development. Discuss the politicisation of the curriculum;
- m. Discuss how schooling supports, might support, the development of the Cook Islands being led by Cook islanders; and
- n. Consider the support teachers require to successfully implement education for sustainable development and sustainable livelihoods concepts and practices into the classroom

2. Interview schedule for Ministry of Education, government departments, non- government organisations and development agencies

Same topics as for the teachers schedule above but views will be canvassed from the perspective of the organisation the participants represent. In terms of actual or potential support discussion will centre on the support the organisation should, could or is providing.

3. Interview schedule with students

- a. Personal details – age, qualifications, favourite subjects, things you enjoy at school, things that could be improved;
- b. Determine student’s hopes for their future. Consider students personal goals. Explore student’s hopes for their family including family goals. Consider students views on their hopes for the Mangaia;
- c. Explore student’s personal expectations of schooling in terms of achieving their academic and other goals;
- d. Consider knowledge the concept of sustainable development, Consider economic, social and environmental issues? Relate these to Mangaia. Consider local issues e.g. economic development, isolation, government support, support via aid versus self-determination, and specific issues such as the effect of the Pine and Eucalyptus Trees on the islands natural resources of Mangaia those being water, soil productivity and coral reef protection;

- e. Consider knowledge of the concept of sustainable livelihoods? Discuss ideas of how students see themselves supporting themselves and their families consider paid employment, fishing, planting taro, small business what skills do I need to learn at school;
- f. Explore student's ideas of leading development in Mangaia and the Cook Islands.
- g. Determine students ideas on what is good about Mangaia and what might need to be improved.
- h. Consider views on what need to know about your own island its culture, social structures, custom, language, history, geology, ecology. Determine students' interest in knowledge about the past. Consider legends, oral history, and the writings of Gill, Mamoe and Sir Peter Buck.
- i. Obtain viewpoints on what students need to know about the world and the contributions could Manganians make to global issues such as global warming and the potential for rising sea levels, poverty in the world, and protecting the environment.
- j. Examine the importance of Manganian, Cook Islands Maori and English language to students and their importance in accessing indigenous epistemologies and knowledge.
- k. Explore students views on migration do they see themselves staying on Mangaia, moving to Rarotonga, or moving to New Zealand? If they do go to Rarotonga or New Zealand explore reasons for going and determine views on whether they see themselves returning.
- l. Is there a conflict between learning about what is necessary to live successfully on Mangaia versus what is necessary to live successfully in Rarotonga or New Zealand?
- m. Discuss ideas of students being taught the skills of critical thinking so they are able to challenge prevailing ideologies. Discuss the issues of transformative education.

4. Interview schedule with community members

- I. Personal details – age, qualifications, interest in education including beliefs in the function of education those being vocational, socialisation, liberal and/or transformative.
- II. Explore the relevance of the concept of sustainable development for student's lives on Mangaia. Discuss the social, economic and environmental dimensions of

sustainable development in relation to Mangaia. Relate sustainable development and sustainable livelihoods to the school curriculum, the Education Master Plan and National Sustainable Development Plan for those who work with these documents. Interpret the place of the National Cook Islands vision in the curriculum.

- III. Explore the relevance of the concept of sustainable livelihoods for student's lives on Mangaia, and relate to the curriculum. What skills are needed and might be needed by students to be able pursue sustainable livelihoods. Consider both indigenous and western knowledge and skills.
- IV. Discuss the integration of different epistemologies and knowledge, indigenous and western, into curriculum area in the school.
- V. Explore the use of indigenous topics in the curriculum. Discuss actual and potential support including providing access to resources. Discuss local community aspirations and input into the school curriculum.
- VI. Discuss the importance of Mangaian local context in curriculum; include cultural, spiritual, social structural, custom, language, historical, geological, and ecological aspects.
- VII. Discuss the importance of fluency in Mangaian, Cook Islands Maori and English as a gateway to the curriculum. Are any languages more important than the others?
- VIII. Discuss ideas of students being taught the skills of critical thinking so they are able to challenge prevailing ideologies. Discuss the issues of transformative education.
- IX. Do you see your children/ the youth of Mangaia staying on Mangaia, moving to Rarotonga, moving to New Zealand? If they do go to Rarotonga or New Zealand why would they go and do you see them returning.

Appendix 5 -Information sheet in Mangaian

Apīianga no te oraanga akapuapinga e te taporoporo i te ipukarea

Education as Sustainable Development: Mangaia, Cook Islands

Tumu Manako Ma'ata

Apīi i te au tamariki e te mapu o Mangaia kia riro te reira ei meitaki rai no ratou e te iti tangata Mangaia. Kia riro teia apīi ei taporoporo, ei apaipai, ei akaora, ei koukou i te reira, na roto i te mana, te marama e te aroa o te Vaerua Tapu o te Atua.

Tuatua Akamarama,

Kia orana tatou katoatoa i te aroa ma'ata o to tatou Metua Tapu. Ko Paul Beumelburg toku ingoa. Kua akaiipoipo au i taku vaine, ko Sylvia Poila. Ko tona mama ko Metuamoeroa. E tamaine a Metuamoeroa na Teremoana e Turiongo Vaipo o Ivirua. Ka akametua taku vaine ia Periki e Teremoana Poila o Oneroa. E toru a maua tamariki, ko Tolau, Poila e Turiongo. E puapīi ana au i te apīi Tereora, pera katoa i te apīi Niua i Pukapuka i te mataiti 1990 e te 1991. E puapīi e te puapīi maata ana au i Nuti Reni.

Te inangaro nei au i te kimi matatio na roto i te au uiuianga, e te uriuri manako, kia rauka mai tetai marama e te kite mei roto mai i te iti-tangata o Mangaia. Kia riro teia ei tauturu iaku no runga i te kimikimianga i tetai marama, te kite e te pakari noku uao rai, kia rauka iaku tetai pepa i te pae apīi (doctoral thesis). Te kimi e te titau nei au i te reira pepa na roto i te apīi Massey University, Palmerston North i Nuti Reni nei.

Ko toku Akakoroanga

Ka kimikimi e te akara matatio au i te au manako tuketuke o te iti-tangata Mangaia. E pera katoa ea'a tikai to ratou manako no runga i te apīi-anga o te au tamariki apīi o Mangaia. Pera katoa ea'a tetai au ravenga ta ratou ka rauka i te tauturuanga i te reira, na roto i te taokotai-anga i te au manako o te au tamariki apīi kia inangaro e kia mareka ratou i te noo ki Mangaia.

Ka inangaro katoa au i te kite e, ka akape'ea i te apīi e te akamaroiroi i ta tatou au tamariki kia noo, e te kimi ravenga kia rauka ia ratou ua'o rai te oraanga meitaki i Mangaia. Ko tetai ea'a tikai tetai ravenga na roto i te Apīi...kia aruaru, kia mataora te tamariki i te rave i ta ratou au akonoanga, te pe'u e te oraanga enua o Mangaia, tapiri atu te reira ki te kite e te marama o te Papa'a, kia riro te reira ei meitaki e te mataora no to ratou oraanga.

Na roto i teia kimikimi matatio i te kite e te marama e rauka mai ei tetai au ravenga o'u e te tukeke, kia marama atu ta tatou au tamariki apīi e te mapu, na roto i te tauturu e te taokotaianga a te iti-tangata o Mangaia. Kia riro te au apīi-anga tuketuke e te apīi o'u o teia tuatau, i te arataki e te tauturu e te akamarama i ta tataou au tamariki apīi e te mapu.

I te pae openga ra, ka riro katoa te au manako kite e te marama te ka rauka mai mei roto i teia akakoroanga no tatou i te tauturu i te au puapīi, pera katoa te Tipatimene o te Pae Apīi, kia meitaki roa atu, te au ravenga i te apīianga i te au tamariki apīi e te mapu o Mangaia. Na roto i teia au apīi kite e te marama, kia akamaroiroi te au manako o te au tamariki apīi e te au mapu i te kimi i tetai ua

atu tu angaanga ta ratou ka anoano, me i Rarotonga me kore ra i teia nei ao no te mea kua irinaki e kua marama ratou i te rave i te reira.

Patianga kia Kotou

Ko te mea mua ka akamarama atu au i toku akakoroanga na roto i tetai au uipaanga te ka rave au i rotopu ia kotou. To kotou tuatau teia no te uiui mai i tetai na atu uianga taau i anoano. Me ka inangaro koe i te piri mai ki roto i teia akakoroanga noku, ka rekareka au i te reira. Ina ra me ka inangaro koe i te reira ka na mua roa koe i te tata mai toou ingoa ki runga i tetai pepa ei akairo e kua inangaro koe i te reira (consent form). E te tuatau e uriuri manako ei taua, i tetai taima ka opu mai au i toou reo ki runga i te matini (tape recorder). Tei iakoe te tika i runga i ta taua uriurianga manako. Me kare koe e mareka ana, ka akamutu ta taua uriuri manako.

Ko te au tangata taku ka aruaru no runga i teia Akakoroanga

Tuketuke te au Tangata taku ka umuimu au, te au Arataki o te au Oire, te pae o te Ture e pera katoa te pae Evangelia. Te au metua tane e te metua vaine, te au Puapii, te au mapu e te tamariki apii.

Ka timata au i te tuatau e uriuri manako ei au, ka riro te reira e mea muna ngaro i rotopu iaku e te au tangata taku ka tuatua atu. Ina ra tetai taima kare e rauka te reira. Tei iakoe i te akara mai i te reira.

Ko tetai te akapapu atu nei au e ko au, e ko toku uri reo ua, te nga tangata ka tata i te au manako ta tatou ka tuatua i runga i te pepa. Kare roa e ingoa o te tamariki apii e taiku ia.

Akamarama-anga ia koe me inangaro koe i te piri ki roto i teia Akakoroanga noku

- *Me kare koe e inangaro i te pa'u mai i taku uianga, tei ia koe te reira;*
- *Ia taua e uriuri manako ra, me e ui-anga taau, tei ia koe te reira;*
- *Me ka inangaro koe kia taiku ia toou ingoa, me kare ra, tei ia koe te reira;*
- *Me oti ta taua uriurianga manako, me ka inangaro koe i te kite e, eaa ta taua tuatua, tei ia koe te reira; and*
- *Me ka tuatua koe na roto i te tape recorder, me kare koe e mareka, tei ia koe te reira, akamutu.*

Teia te ingoa o te au taeake te ka tauturu mai iaku no runga i teia Akakoroanga

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Aremauku	

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If you have, any questions about the study please feel free to contact any member of the advisory group or either of my supervisors.

Committee Approval Statement

This project has been reviewed and approved by the Massey University Human Ethics Committee: Southern B, Application 11/27. If you have any concerns about the conduct of this research, please contact Dr Nathan Matthews, Acting Chair, Massey University Human Ethics Committee: Southern B, telephone 06 350 5799 x 8729, email humanethicsouthb@massey.ac.nz.

Appendix 6 -Information Sheet in English

Apiianga no te oraanga akapuapinga e te taporoporo i te ipukarea

Education as Sustainable Development: Mangaia, Cook Islands

Information Sheet

My name is **Paul Beumelburg**. I am married to Sylvia Poila Beumelburg whose mother is Metuamoeroa daughter of Teremoana and Turiongo Vaipo of Ivirua. Sylvia's Uncle and Aunt are Periki and Teremoana Poila of Oneroa. We have three children, Tolau, Poila and Turiongo. I am a former schoolteacher and school principal who taught at Tereora College in 1990 and Niua School on Pukapuka in 1990 and 1991. I am interested in interviewing Cook Islanders for the fieldwork part of my doctoral thesis in development studies. I am enrolled with Massey University, in Palmerston North, New Zealand.

Description of Study

The purpose of this study is to explore the views of Mangaians, on how they see Mangaia School best supporting students to gain the skills and knowledge to stay and live on Mangaia. I am also interested on how students can be educated so they are able to help improve life on Mangaia. The government uses the term sustainable development to mean improving life and has a National Sustainable Development Plan that aims to do this for all Cook islanders. Views on how students might develop the skills and knowledge to be able to live on both Mangaia and/or Rarotonga or New Zealand will also be asked for.

The study will investigate how new ways of teaching could result in students getting a good education. The findings will help teachers and Ministry of Education officials to continue to improve education for Mangaian students. The study is interested in what type of education encourages students to use local Mangaian culture and western knowledge to improve life on Mangaia. It is also interested in what type of education allows students to understand the national Cook Islands culture, obtain a good job and do well in either Rarotonga, New Zealand or Australia if so desired.

Invitation

I will explain this study in more detail at *uipaanga* (meetings) where you will be welcome to ask me questions.

If you are interested in participating in this study, I welcome your views. You are welcome to ask any questions you have about your participation in the study. If you agree to take part in this study, you will be asked to sign a consent form. You will be asked to participate in one to two interviews, lasting about one to one and a half hours each.

Should you consent to take part in this study, you have the right to refuse to answer any particular question. With your permission, I should like to record the interviews but you

have the right to ask that the recording be stopped at any time and that what has been recorded up to that time be deleted.

Participant Identification and Recruitment

I am looking to interview a range of people, including village leaders, community members, parents, teachers and students. I will interview people either individually or in groups.

While every effort will be made to keep confidential, the identity of individuals who do not wish to be named this cannot be guaranteed. While the official view of the principal and senior management will not be kept confidential, they may choose to keep their own personal view confidential should they wish to contribute a personal opinion.

Data Management

To ensure privacy, I will ensure that my interpreter and I are the only ones to record the data. Data will be destroyed once it is no longer required or returned to participants who ask for it. Actual names will only be used where participants specifically request this. Names of school children will not be used under any circumstances.

Copies of the final thesis will be available from the Massey University Library in Palmerston North, New Zealand. In the Cook Islands, a copy of the thesis will be available from the following:

- Foundation for National Research, Office of the Prime Minister;
- Ministry of Education;
- Cook Islands Public Library; and
- Mangaia School

The following is a list of your participant rights

You are under no obligation to accept this invitation. If you decide to participate, you have the right to:

- Decline to answer any particular question;
- Withdraw from the study at any time;
- Ask any questions about the study at any time during participation;
- Provide information on the understanding that your name will not be used unless you give permission to the researcher;
- Be given access to a summary of the project findings when it is concluded; and
- Ask the recorder to be turned off at any time during the interview.

Project Contacts

My contact details are:

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If you have, any questions about the study please feel free to contact any member of the advisory group or either of my supervisors.

Committee Approval Statement

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Appendix 7 -Individual participant consent form

I have read the information sheet and have had the details of the study explained to me. My questions have been answered to my satisfaction, and I understand that I may ask further questions at any time.

- I agree/do not agree to the interview being sound recorded.
- I wish/do not wish to have my recordings returned to me
- I agree to provide the information on the understanding that it will only be used for the purpose of the study.
- I agree to participate in this study under the conditions set out in the Information Sheet.

Signature: Date:

Full Name
(printed)

Appendix 8 -Student consent form

I have read the information sheet and have had the details of the study explained to me. My questions have been answered to my satisfaction, and I understand that I may ask further questions at any time.

- I agree/do not agree to the interview being sound recorded;
- I agree/ do not agree to a photograph I have taken depicting sustainable development being included in the thesis;
- I wish/do not wish to have my recordings returned to me;
- I agree to provide the information on the understanding that it will only be used for the purpose of the study; and
- I agree to participate in this study under the conditions set out in the Information Sheet.

Signature:

Date:

Full Name
(printed)

Appendix 9 -Parent consent for child form

I have read the information sheet and have had the details of the study explained to me. My questions have been answered to my satisfaction, and I understand that I may ask further questions at any time. I understand that my child has the right to withdraw from the study at any time.

- I agree/do not agree to the interview being sound recorded for my child.
- I agree/ do not agree to my child taking a photograph depicting sustainable development being included in the thesis
- I agree for my child to participate in this study under the conditions set out in the Information Sheet.

Signature: Date:

Full Name of parent (printed)

Appendix 10 -Small business ventures on Mangaia

Mangaian oil

Coconut oil is produced and sold as a moisturiser or massage oil under the brand “Mangaian oil” in attractively labelled bottles²⁹⁶. The coconut oil is popular with both New Zealand Cook Islanders returning home and tourists alike. The oil was originally sold in 200ml used soft drink bottles mainly to expatriate Mangaian. A successful application to a NZ aid project fund supporting Pacific community development allowed the business to expand. Basins to boil the grated coconut, electric coconut graters and attractive 250ml bottles to package and market the oil were provided through the project. With increased demand for Mangaian oil, the current producers have scope to expand.

Te Toki Purepure a Mangaia and Mangaian carving

The carving of *Te Toki Purepure a Mangaia* (ceremonial adzes) to sell by three carvers in all cases started as an interest in reconnecting with Mangaian history as the carvings have distinctive patterns, which tell stories. Tuaiwa Mautairi, *kavana*, of Veitatei as well as carving himself teaches two keen young carvers; Xavier, a school student and Simona a young agricultural worker the art of carving.

Initially *toki* were carved for family, important visitors and functions. Realisation there may be an economic benefit in carving led to carvings being made and sold to order, mainly to expatriate Mangaian. Business has continued to expand, by word of mouth, to a stage where demand exceeds supply with adzes now sold on Rarotonga for both a tourist and local Cook Islander market and even exported overseas, *Tuaiwa* explains:

Te Toki Purepure a Mangaia are now increasingly in demand by expatriate Mangaian, as an alternative to the usual 21st birthday key.

Tuaiwa
Mautairi

²⁹⁶ Firstly, coconut flesh is grated and boiled. Secondly, the oil is decanted off. Finally, perfume is added.

Tuaiva has previously been contracted to decorate the entranceways of hotels in Rarotonga with carvings. Tangi Vaipo, the *kavana*, for Ivirua, was commissioned by the Cook Islands government to carve a storyboard wall made of native hardwood. The carving was a gift to mark the 40th anniversary of the Pacific Islands Forum²⁹⁷. Another carver Alan Tuara carves adzes and then sells them at the Moana Gems: Pearl and Art gallery in Rarotonga (J. Tuara & Newnham, 2012).

Ei ko'atu

Ei ko'atu (stone necklace) are unique to Mangaia and are often used for gifts. The *ei ko'atu* are also sold at local markets and *Te Marae Kapau Tara* on Rarotonga. Ngametua Toko who makes the stone necklaces explains:

When selling my focus is on New Zealand Mंगाians returning home to Mangaia at Christmas as they are better customers than tourists usually buying a dozen or two, whereas tourists usually only want one.

Ngametua
Toko

²⁹⁷ The carving was presented to the Pacific Islands Forum Secretariat in Fiji. The carving depicts “the historic migration of our ancestors on the seven vaka that departed from Avana passage in the district of Ngatangia, in Rarotonga in 1350 AD” (Cook Islands News, 2011).

Appendix 11 -Mangaia School NCEA results 2011

Mangaia School NCEA results 2011						
Unit standards	244	total passed				
Of those:	46	Subfield Motor Industry and Subfield Construction trades				19%
	73	Tourism class				30%
		30	Domain: Cook Islands Tourism			12%
		43	Sub Field: Home and Life Sciences			18%
Level 2 and Level 3 Achievement standards						
	88	total passed (both internal and external)				
Of those:	75	Domain Cook islands Maori				85%
	There were no Level 1 achievement standards taken					

Appendix 12 -Year 11 Manganian Sustainable Development studies

Module	Context	Achievement standard
<p>One: Small business development on Mangania</p> <p>Kimi ravenga (themes for exploration)</p> <ul style="list-style-type: none"> • How do decisions affect sustainable resource use? • What are the commercial and/or non-commercial goals; • Determine price and non-price marketing strategies; • What is the effect of the business and/or business expansion on family, the community and Manganian culture? And • The place of <i>taeake arua</i>. 	<p>Small businesses are:</p> <ul style="list-style-type: none"> • <i>Te Toki Purepure a Mangania</i>; • <i>Ei pupu</i>; • <i>Mairi</i>; • Noni juice; • <i>Mamio</i>; • Vanilla; • Vegetable growing; • Baking; and • Fishing. <p>Issues are:</p> <ul style="list-style-type: none"> • potential for over supply versus making / producing to order; • Differences in markets for locals, Manganians overseas, tourists and global markets; and • perishable goods 	<p>Economics (AS90984) 1.2</p> <p>Demonstrate understanding of decisions a producer makes about production</p> <p>5 credits</p> <p><u>Achievement criteria for excellence</u></p> <p>Demonstrate comprehensive understanding of decisions a producer makes about production.</p> <p>Definitions: Producer refers to a particular individual or firm that supplies a good or service.</p> <p>Decisions refer to the decisions the producer makes that relate to production (e.g. goals, resource use, productivity, business expansion, price and non-price marketing).</p> <p>Production refers to the process of transforming inputs into goods or services.</p>

<p>Two: Governance group planning, for example:</p> <ul style="list-style-type: none"> • Developing the Island administration annual plan; • Aid project planning and management; and • Church rebuilding. 	<p>Mangaia Island Administration Annual Plan</p> <p>Current aid projects are:</p> <ul style="list-style-type: none"> • Mangaia Historical and Cultural Society application to the Pacific Development and Conservation Trust for restoration of the Resident Agent's house; • Keia fencing project in conjunction with the Global Environmental Fund; • The Wetland Taro Irrigation Project operated by the Keia puna, through the Mangaia Growers and Livestock Association; • The Seacology funded building of a viewing platform at Lake Tiriaa; • The maire farming trial on Mangaia; and • The feasibility study carried out on the eradication of the myna bird to protect the Tangāteo <p>Potential future aid projects are:</p> <ul style="list-style-type: none"> • A Mangaia kingfisher protection programme operated through the Te Ipukarea Society Programme; and • Future applications to the newly established Social Impact Fund Funding 	<p>Economics (AS90987) 1.5</p> <p>Demonstrate understanding of a government choice where affected groups have different viewpoints 4 credits Internal</p> <p><u>Achievement criteria for excellence</u></p> <p>Demonstrate comprehensive understanding of a government choice where affected groups have different viewpoints.</p> <p>Government refers to any governing body at a national, regional or local level (e.g. central government, city council, school board of trustees).</p> <p>Choice refers to an economic decision that involves limited means and/or scarce resources.</p>
<p>Kimi ravenga (themes for exploration)</p> <ul style="list-style-type: none"> • Identify options and compromises by collecting information from groups with differing viewpoints; • Ranking options by weighting different costs and benefits; and • Justifying a recommendation by providing detailed explanations of the weightings given to different costs and benefits. 		

<p>Three: Mangaian economy</p> <p>Kimi ravenga (themes for exploration)</p> <ul style="list-style-type: none"> ● Buying locally versus importing goods; ● Industry cooperation for example: <ul style="list-style-type: none"> ○ agriculture and tourism supporting each other ○ tourism and craft industry supporting each other; ● Influx of Solar eclipse gazers a combined Mangaia community initiative; ● Privatising public services on Mangaia; ● Remittance culture; ● Extending tere party fundraising to venture capital initiatives; ● Accessing aid money as a to support global initiatives; and ● The place of <i>tataake arua</i> 	<p>Contexts</p> <ul style="list-style-type: none"> ● Primary growers supplying goods to market; ● Fishing; ● Friday and Wednesday markets; ● Shops; ● Links between craft producers and tourism industry; ● Government contribution to economy via jobs and services; ● Island administration stimulus to private enterprise on Mangaia; ● Potential for agricultural export and flow on effects; ● Remittances; ● Aid projects; ● Puna and church fundraising; ● Import substitution; and ● Return of New Zealand/ Rarotonga Mangaians for Christmas 	<p>Economics (AS90988) 1.6</p> <p>Demonstrate understanding of the interdependence of sectors of the New Zealand²⁹⁸ economy</p> <p>3 credits Internal</p> <p><u>Achievement criteria for excellence</u></p> <p>Demonstrate comprehensive understanding of the interdependence of sectors of the New Zealand economy.</p> <p>Definitions:</p> <ul style="list-style-type: none"> ● Interdependence refers to the two-way relationships that exist between different sectors, and ● Sectors of the New Zealand economy refer to the household, producer (primary, secondary and tertiary), financial, government, and overseas sectors.
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²⁹⁸ Students can substitute the Mangaian economy for the New Zealand economy.

<p>Four: Introduction of invasive species and protection of biodiversity on Mangaia</p>	<p>Issues are:</p> <ul style="list-style-type: none"> • The impact of forestry on the <i>kainga</i> and <i>tanu mamio</i>; • hunting of fruit bat effects on the ecosystem; • Collection of <i>pauiua</i>; and • Effect of the introduction of the myna bird on biodiversity 	<p>Science (AS90951) 1.12</p> <p>Investigate the biological impact of an event on a New Zealand ecosystem</p> <p>Credits 4 Internal</p> <p><u>Achievement criteria for excellence</u></p> <p>Investigate, comprehensively, the biological impact of an event on a New Zealand ecosystem.</p>
<p>Kimi ravenga (themes for exploration)</p> <ul style="list-style-type: none"> • The place of rauai; • The role of the aronga mana, puna and tapere; and • The effects on Oraanga o te enua (Biodiversity on Mangaia) 	<ul style="list-style-type: none"> • Fishing; • Sharing food; • Land tenure; • Colonisation; • Globalisation; • integration of new understandings; and • introduction of new technology 	<p>Social Studies (AS91039) 1.1</p> <p>Describe how cultures change</p> <p>Credits 4 External</p> <p><u>Achievement criteria for excellence</u></p> <ul style="list-style-type: none"> • Comprehensively describe how cultures change; and • Compare changing traditions and the influence of westernisation.
<p>Five: Oraanga Mangaia</p> <p>Kimi ravenga (themes for exploration)</p> <ul style="list-style-type: none"> • Describe the processes that led to the change and contrasting points of view about the change; and • Explain why the processes that led to the change were important for the individuals/groups/society(s) involved. 		

<p>Six: Voices of Mangaia: An example of social networking</p>	<p>Issues are:</p> <ul style="list-style-type: none"> • The place of the face book page, voices of Mangaia, in informing and connecting Mangaians to Mangaians overseas; • Mangaian diaspora and its role in Mangaian development; • Mangaian language versus English; and • Discussion topics: <ul style="list-style-type: none"> ○ Land tenure ○ Development on Mangaia ○ Mangaians coming home. 	<p>Social Studies (AS91040) 1.2</p> <p>Conduct a social inquiry</p> <p>Credits 4 Internal</p> <p><u>Achievement criteria for excellence</u></p> <p>Conduct a comprehensive social inquiry.</p>
<p>Kimi ravenga (themes for exploration)</p> <ul style="list-style-type: none"> • Collect detailed information about contrasting points of view that relate to the inquiry; and • Points of view include opinions and beliefs of individuals/ groups/ society(s). 	<p>Context</p> <ul style="list-style-type: none"> • Formation of Mangaia by volcanic action; • Uplift of coral reef to form makatea; • External processes of erosion and weathering caused by wind and rain; • Cave formation; and • Silt deposition resulting in fertile valleys, 	<p>Science (AS90952) 1.13</p> <p>Demonstrate understanding of the formation of surface features in New Zealand</p> <p>Credits 4 Internal</p> <p><u>Achievement criteria for excellence</u></p> <p>Demonstrate comprehensive understanding of the formation of surface features in New Zealand.</p>
<p>Seven: Mangaia: The oldest island in the pacific</p>	<p>Context</p> <ul style="list-style-type: none"> • Formation of Mangaia by volcanic action; • Uplift of coral reef to form makatea; • External processes of erosion and weathering caused by wind and rain; • Cave formation; and • Silt deposition resulting in fertile valleys, 	<p>Science (AS90952) 1.13</p> <p>Demonstrate understanding of the formation of surface features in New Zealand</p> <p>Credits 4 Internal</p> <p><u>Achievement criteria for excellence</u></p> <p>Demonstrate comprehensive understanding of the formation of surface features in New Zealand.</p>
<p>Kimi ravenga (themes for exploration)</p> <ul style="list-style-type: none"> • Naming of land marks; and • Naming of Mangaia’s ecological zones. 	<p>Context</p> <ul style="list-style-type: none"> • Formation of Mangaia by volcanic action; • Uplift of coral reef to form makatea; • External processes of erosion and weathering caused by wind and rain; • Cave formation; and • Silt deposition resulting in fertile valleys, 	<p>Science (AS90952) 1.13</p> <p>Demonstrate understanding of the formation of surface features in New Zealand</p> <p>Credits 4 Internal</p> <p><u>Achievement criteria for excellence</u></p> <p>Demonstrate comprehensive understanding of the formation of surface features in New Zealand.</p>
<p>Eight: Innovation on Mangaia</p>	<ul style="list-style-type: none"> • Selling Te Toki Purepure a Mangaia for 21st keys; • Stone necklaces; • Mangaian oil; and 	<p>Business studies (22847) Unit standard</p> <p>Demonstrate knowledge of enterprising behaviour, innovation, and entrepreneurship in</p>

<p>Kimi ravenga (themes for exploration)</p> <p>Demonstrate knowledge of enterprising behaviour, innovation and entrepreneurship in business contexts on Mangaia.</p>	<ul style="list-style-type: none"> • Ei pupu 	<p>business contexts</p> <p>Credits 2 Internal</p>
<p>Nine: Marketing Mangaian products</p> <p>Kimi ravenga (themes for exploration)</p> <ul style="list-style-type: none"> • Marketing 	<ul style="list-style-type: none"> • Stone necklace • Mangaian oil (label) • Unique Mangaian products 	<p>Business studies (AS90840) 1.4</p> <p>Apply the marketing mix to a new or existing product</p> <p>Credits 3 Internal</p> <p><u>Achievement criteria for excellence</u></p> <p>Comprehensively apply the marketing mix to a new or existing product.</p>
<p>Ten: Market day on Mangaia</p> <p>Plan, carry out, and review a business activity</p> <p>Kimi ravenga (themes for exploration)</p> <ul style="list-style-type: none"> • Aroa taake versus market forces on Mangaia 	<ul style="list-style-type: none"> • Making and selling <i>Menemene</i> jam; • Catching and selling <i>ūgū</i>; • Catching and selling fish; and • Making and selling craft from tourism class. 	<p>Business studies (AS90842) 1.4</p> <p>Carry out and review a product-based business activity within a classroom context with direction</p> <p>Credits 6 Internal</p>

Appendix 13 - Year 12 Māngaian Sustainable Development studies

Module	Context	Achievement standards
<p>One Work towards a sustainable future</p>	<p>Contexts are:</p> <ul style="list-style-type: none"> • Preserving natural ecosystems, e.g. Lake Titiriri and the Seacology project; • Investigating sustainable business practices eg motels using local materials, local foods and renewable energy sources; • Use of pesticides & herbicides in alongside roadside where pupu live; • Ecotourism on Māngaia; • Housing on Māngaia as it relates to a sustainable future. Using renewable energy sources and considering water supply in housing construction. Using local materials including local untreated timber versus imported materials; • Tangā'eo (Māngaian kingfisher) conservation; • Healthy eating and the reduction of junk food on Māngaia; and • Recycling on Māngaia 	<p>AS90810 2.1</p> <p>Plan, implement and evaluate a personal action that will contribute towards a sustainable future</p> <p>6 credits Level Two Internal</p> <p><u>Achievement criteria for excellence</u></p>
<p>Kimi ravenga (themes for exploration)</p> <ul style="list-style-type: none"> • Explore an aspect of sustainability, either environmental, social, economic and/or cultural. 		<p>Plan in detail, implement and critically evaluate a personal action that will contribute towards a sustainable future.</p>

<p>Two Consequences of human activity</p> <p>Students must demonstrate understanding of links between the biophysical environment and human activity in relation to a sustainable future.</p>	<p>Contexts are:</p> <ul style="list-style-type: none"> Commercial pineapple growing; Waste management on Mangaia; Tourism on Mangaia; Rauī (establishment of marine reserves) energy production and consumption on Mangaia; Water use on Mangaia; Commercial fishing on Mangaia; and Effect of invasive species on Mangaian environment, e.g. Acacia, rats, myna bird and pigs. 	<p>AS90811 2.2</p> <p>Describe the consequences of human activity within a biophysical environment in relation to a sustainable future</p> <p>4 credits Level Two Internal</p> <p><u>Achievement criteria for excellence</u></p> <ul style="list-style-type: none"> Discuss consequences of human activity within a biophysical environment in relation to a sustainable future; and Human activities are those that change the biophysical environment.
<p>Kimi ravenga (themes for exploration)</p> <ul style="list-style-type: none"> Explore the impact of business on the environment. 	<p>Possible contexts are</p> <ul style="list-style-type: none"> Rauī; Land tenure; Role of Aronga mana; Harvesting pauua and Taeake aroa versus market exchange 	<p>AS90813 2.4</p> <p>Describe values and associated behaviours in relation to a sustainable future</p> <p>3 credits Level Two Internal</p> <p><u>Achievement criteria for excellence</u></p> <ul style="list-style-type: none"> Discuss values and associated behaviours in relation to a sustainable future;
<p>Three - Puapinga</p>		

<p>Kimi ravenga (themes for exploration)</p> <ul style="list-style-type: none"> ● Explore Māngaia values and culture in relation to sustainability. 		<ul style="list-style-type: none"> ● Analyse your values and associated behaviours and discuss their implications ● For a sustainable future; and ● It is not their values or behaviours that are being assessed here but their ability to discern (describe, explain or discuss) which values and behaviours would support a sustainable future.
<p>Four - The impact of climate change on Māngaia</p>	<ul style="list-style-type: none"> ● Work cooperatively to develop in detail, present and critically evaluate a strategy or design for sustainability in response to a given future scenario; and ● Questions to consider: <ul style="list-style-type: none"> ○ What's happening now in Māngaia with respect to climate change? ○ What sustainable practices is Māngaia currently using in regard to the environment? ○ What plans or strategies is Māngaia Island council working on with respect to climate change and sustainability? ○ What national policies and action has the government got in place? ○ What has been the response globally to climate change i.e. UN policy? 	<p>AS90815 2.6</p> <p>Work cooperatively to develop and present a strategy or design for sustainability in response to a future scenario</p> <p>3 credits Level Two Internal</p>
<p>Five -Kimi ravenga (themes for exploration)</p> <p>Climate change and its effect on Māngaia</p>		

<p>Mangaian indigenous knowledge</p>	<ul style="list-style-type: none"> • Mangaian knowledge could include but is not limited to art and design, crafts, cultivation and food gathering and dance. 	<p>US17162 version 2 Carry out an investigation into an aspect of Pacific indigenous knowledge with direction</p> <p>5 credits Level One Internal</p>
<p>Kimi ravenga (themes for exploration)</p> <ul style="list-style-type: none"> • Explore the impact of Mangaian knowledge on oraanga Mangaia and sustainability 	<p>Mangaian cultural values include but are not limited to respect, responsibility, loyalty, maintaining reciprocal relationships, mana, compassion, humility, willingness to help.</p>	<p>US26538 version 1 Present information on an aspect of Pacific culture with direction</p> <p>3 credits Level One Internal</p>
<p>Mangaian culture and values</p>		

Appendix 14 -Expert knowledge the community is prepared to share with staff and students.

Knowledge of oraanga Mangaia and traditional society provided by *ta'unga*;

<p><i>Aronga mana</i></p>	<p>For example, Kavana and <i>ui rangatira</i> are available to explain traditional culture, beliefs, custom and decision-making structures.</p>
<p><i>Ta'unga</i> The knowledge people in the six <i>puna</i></p>	<p><i>Ta'unga</i> are available to advise on all aspects of <i>oraanga Mangaia</i>, language and cultural history. For example Rauaua Mauriati, a teacher explained:</p> <p>Tere, a rangatira, talks to the children about the importance of Mangaia culture. The students love listening to him.</p> <p>Johnson (1992) argues that local people who own the IK must be consulted about the knowledge to ensure it is interpreted accurately.</p>
<p>Teremoana Atariki Mayor of Mangaia</p>	<p><i>Tere</i> has visited senior students to explain the different roles that the Island Council and <i>aronga mana</i> play in development on Mangaia. He is available to continue such visits.</p>

Knowledge of government development practice provided by government officials, including the roles of economic development and protection of culture;

<p>Helen Henry Island Secretary</p>	<p>Helen as a guest speaker has explained to senior students the aims and operation of the government funded Island Council. She is available to continue such visits. She also welcomes student participation in the publically invited Island Council development planning sessions so they gain a better understanding of Mangaia's development priorities.</p>
<p>Taoi Nooroa Tourism officer</p>	<p>Taoi explained how the old resident commissioner's house has been turned into a community and tertiary learning centre and museum to highlight Mangaia's history. He welcomes school student participation in the learning centre.</p> <p>Previously when the centre could not find an old canoe or tapa for the museum, examples were made with senior students participating in the projects. He believes it would be great if the students could integrate this type of work into their school programmes and get credits towards their school qualifications.</p>

Knowledge of the local environment and its protection provided by government workers and local conservation experts;

<p>Anthony Whyte Head of Electrical and Water divisions</p>	<p>Students visit the power station where Anthony explains to them how their electricity is generated from diesel. In the past he has run a wind renewable energy project with students. He is also available to teach students the thinking behind the government’s focus on renewable energy. He is keen to develop practical renewable energy projects with students if requested. Anthony is keen to share his expertise on water supply on Mangaia. This is particularly pertinent given the recent drought on Mangaia. He welcomed senior students’ participation in some of the water projects believing this was the best way for students to learn.</p>
<p>Alan Tuara Local Conservation expert</p>	<p>Alan is keen to teach students about the flora and fauna of Mangaia in the context of understanding Mangaia’s diverse ecosystems and developing a better appreciation of raii and conservation.</p>

Knowledge of business provided by local business people, who are keen for students to learn the skills required to start and successfully run small business on Mangaia.

<p>Ngametua Papatua Carpenter</p>	<p>Ngametua explained to me that there is a demand for carpenters on Mangaia. He stated “Previously I have taught students carpentry, woodcarving and portable sawmill operation during school work experience classes. I have even employed some boys in my carpentry business in the holidays they love the hands on opportunity to build houses.</p>
<p>Miria Ruatoe Grower</p>	<p>I would love to teach students agricultural skills. With the high demand for vegetables, there are plenty of opportunities to become a grower on the island.</p>
<p>Ngametua Tangatakino Fisherman</p>	<p>I ran a deep sea fishing workshop last year and there was considerable interest from students. I would keen to help students get into the fishing business where currently the demand for fish far exceeds supply.</p>