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`Osi kia Velenga:
An educational quest for academic success in literacy
for Tongan students in New Zealand

Maryanne Feifai Pale

A thesis submitted in complete fulfilment of the requirements for the degree of Doctor of Philosophy in Education, The University of Auckland 2013.

Abstract

This study focused on a group of 101 Tongan students within the middle and upper levels of primary schools in New Zealand. It examined the hypothesis that explicit vocabulary instruction, using an educational intervention, can positively impact on Tongan students' reading comprehension and contribute to the improvement of their reading achievement.

The implementation of the educational intervention in this study yielded increased instances of teacher instruction and student participation within guided reading lessons that linked to elements of defining and elaborating on vocabulary. In addition, the achievement scores of the Tongan students, using the Supplementary Tests of Achievement in Reading¹ (STAR) assessment, demonstrated positive and statistically significant gains in stanines². Notably, over two phases marked statistically significant gains (with large effect sizes) at stanines above initial levels that were observed at baseline for the Tongan students in this study thus supporting the acceptance of the hypothesis to be true.

It is argued that the identity of a Tongan learner needs to be set apart from that of a Pasifika learner, English language learner (ELLs), an English Speaker of Other Language (ESOL), and a bilingual learner, in order to adequately address the learning needs and the learning interests of the Tongan learner. By this means, the *Ako Conceptual Framework* was developed by the researcher within this study to offer culturally relevant notions and fundamental concepts to the considerations for the

¹ A New Zealand standardised test in reading (explained in detail in *Chapter 5*).

² A stanine is a method of scaling test scores on a nine-point standard scale with a mean of 5 and a standard deviation of 2.

development of culturally responsive pedagogies³ in the education of Tongan students in New Zealand and abroad. In addition, the *Ako Conceptual Framework* observes Tongan strengths-based principles, values and educational concepts that are of relevance to the quest for academic success of Tongan students. It is argued that the current New Zealand Government initiatives aimed to support the identity of the Pasifika learner neglects to inform specific practices that could transform the Tongan students', and other ethnic-specific groups, experiences of low achievement or underachievement within New Zealand schools into successful outcomes.

³Pedagogy is the method and practice of teaching particularly as an academic subject or theoretical concept.

Acknowledgements

Ko e koloa `a Tonga ko e fakamālō is a well known Tongan saying which means *Tonga's wealth is in the form of expressing thanks*. Accordingly, I would like to take this opportunity to offer my gratitude to all who have supported me throughout the course of this study. To God be all the glory and honour! I give thanks unto God for His love and grace upon my life. I am truly grateful for His faithfulness.

To my academic mentor and primary research supervisor *Dr Meaola Amituanai-Toloa*, your academic guidance, cultural perspective and continuous support contributed tremendously to the start and the completion of this study. Your time, teachings and leadership are invaluable for which I am truly grateful. This course of study prevailed against rising tides and you steered me in the right direction. I am indebted to you for your kindness. *Mālō `aupito*.

To my secondary research supervisor *Professor Stuart McNaughton*, you played a prominent role at the start and the completion of this study. I am utterly grateful for the opportunities that you provided me with which led me onto this journey. Thank you for your academic guidance, professional support and your inspiring leadership. I am indebted to you for your generosity. *Mālō `aupito*.

To the *Principals, the Tongan bilingual teachers and the Tongan students*, whom I cannot name individually due to confidentiality and privacy reasons, thank you all for providing me with the opportunity to work alongside each of you in the navigation of this study. This study would not have been possible without your permission and your willingness to participate and share your knowledge. I truly appreciate the support that was shown. *Mālō `aupito*.

To the *New Zealand Ministry of Education*, as a recipient of the *Pasifika Research Study Award* for two years in a row, I am deeply grateful for the financial assistance that I received. Mālō `aupito.

To *Honourable Lupeolo Halaevalu Moheofo Virginia Rose Tuita*, I am honoured and humbled for your ongoing support and love. Mālō `aupito. Tu`a `Eiki `ofa atu.

To *Dr `Ana Taufē`ulungaki, Dr Linitā Manu`atu and Dr Melenaitē Taumoefolau*, I am grateful for the time and advice that you each provided me with during the course of this study. Your leadership and inspiration are truly appreciated. Mālō `aupito.

To all the staff members of the *Woolf Fisher Research Centre* and the *School of Curriculum and Pedagogy*, *Dr Libby Limbrick, Professor Judy Parr, Dr Margaret Kitchen, Dr Constanza Tolosa, Dr Sue Gray, Maree Jeurisse* and *Dr Rebecca Jesson*, your support and the sincerity of your words have made the journey through this course of study a pleasant experience. Mālō `aupito.

To *Deon Kāne and Nancy Baker*, thank you for granting me with the permission and the license to use a copy of the late Herbert Kawainui Kāne's painting '*Kalia of Tonga*' in this thesis. I am honoured and I truly appreciate it. Mālō `aupito.

To artist *Martin Leung-Wai*, thank you for sharing your artistic skills which helped to bring the *Ako Conceptual Framework* to life in the visual sense. I truly appreciate your time and support. Mālō `aupito.

To my fellow PhD graduates and PhD candidates, *Dr Papali'i Moeimanono Fouvaa, Dr Mo`ale `Otunuku, Dr Binh Tran, Dr Kane Meissel, Seini Taufā, Sue Bedford* and the doctoral students in the *School of Curriculum and Pedagogy*, I have appreciated the conversations and learning experiences that I have shared with each of you. Best wishes to you all. Mālō `aupito.

To the staff members at *Pasifika Success, Sofi and Meryl Ulugia-Pua, Tim Baice, Netti Collins* thank you for your support and kindness. I am truly grateful. Mālō `aupito.

To *Reverend Siosiua Mōlia Tu`itupou and family, Reverend Mōsese Manukia and family, Reverend Mōsese Vakasiuola, the late Siosiua Finau, Mele Finau, Lavinia and Mohetonu Lōsaki, `Ilafehi Lātūselu, the kalasi `aho* and the members of the *Onehunga Tongan Methodist Church*, I am blessed and thankful for all your prayers. Mālō `aupito.

To my mehikitanga (aunty) *Poaki Folau Pale Taumoepeau*, my uncle *Manu `o Pangai Misinale* and all my extended family members in Tonga, New Zealand, Australia and the United States of America, thank you all for your ongoing support, love and prayers. Mālō `aupito pea `oku ou `ofa lahi atu kiate kimoutolu.

To my dearest parents *Lauloe and Sinai Kakala `Akanesi Pale*, thank you both for your unconditional love, your endless encouragement and your unwavering prayers over my life. I have learned from you both that when you give to someone or to a task, that you give it your absolute best and to do so with gratitude. Thank you both for keeping me motivated, determined and grounded in faith. I honour both your sacrifices and hard work over the past years with this piece of work. I truly appreciate you both. `Oku ou `ofa lahi atu kiate kimoua. Mālō `aupito.

To my younger sister *Loleine Poaki Pale-Finau*, you have strengthened me in all my endeavours for which I am deeply grateful. Thank you for being a consistent source of empowerment in my journey. You are my blessing and I truly appreciate you. To my brother-in-law *Tala`ofa Finau*, thank you for your kindness and support over the years. I truly appreciate it. Mālō `aupito pea `oku ou `ofa lahi kiate kimoua.

To *Ikamafana and `Alisi Tameifuna, Sāmiuela and my late Melenaite Langi, `Isileli and Selemana Misinale, George and Sina Ma, `Ofa Blake, Tautalanoa and Kilisitina Lili Pome`e, Kalolo and Geri Pale* and all my Aunties and Uncles, thank you all for loving me as your daughter. Your guidance is much appreciated. I am truly blessed. Mālō `aupito pea `oku ou `ofa lahi atu kiate kimoutolu katoa.

To *Benjamin and Melenaite Tameifuna, Fapiola Vea, Heleine Langi, Brian and Lata Langi, Hāloti and Sinai Pauni, Manase Lua, Amanda Pritchard, Serra Petaia, Celia Ma, Lally Ma, Julie Pahulu, Sophie Jillings, Seini Taufua, Heimataura Fulivai and Christina Hale*, my life is a wonderful journey with you all in it! Thank you for doing this journey with me and for looking out for me as your sister. I am completely grateful to you all. Mālō `aupito pea `oku ou `ofa lahi atu kiate kimoutolu katoa.

To *Dr Karlo Mila, Yolande Ah Chong, Jannitta Pilisi and Michael Savelio, Fatima Leung-Wai, Lupini Israel Fakatulolo, Sina Wendt-Moore, Carmel Sepuloni, Repeka Lelaulu, Anne Fitisemanu, Pania Schwenke, Rowena Bryce, Vera Tesese, Iliganoa Moore, the PACIFICA Auckland Central Branch, `Anapesi Ka`ili, `Alipate and `Emeline Afeaki Mafile`o, Malia Talakai, Mepa Taufua-Vuni and Dagmar Dyck*, thank you all for your leadership, support and encouragement. I am absolutely grateful for your kindness and generosity. Mālō `aupito pea `oku ou `ofa lahi atu kiate kimoutolu.

To *Grace Taylor, Daren Kamali, Ramon Narayan, Doug Poole, Luti Richards, Marina Alefosio, Olive Asi, `Elina Tukunga*, all the past and present members of the *South Auckland Poets Collective* and all my friends in New Zealand and abroad, thank you for your friendship, love and support. Your creativity, inspiration and zest for life are empowering. *Mālō `aupito pea `oku ou `ofa lahi atu.*

In closing, I would like to acknowledge my family members who were there for me at the beginning of this study; however, during the course of this study, I had to travel to Tonga to farewell each of them as they passed on. Their words of wisdom and love continue to live on in my heart. *Rest in love Aunty Ane `Ahofolau Pale, Aunty Mele Tautala Pale, Aunty Melenaite Lolohea Langi and Uncle `Epeli Eddie Misinale.* Thank you all for paving the way ahead for my generation and the next.

*We step forth onto a path led by heavy laden footsteps
fulfilment
improvement
we overcome life's testing's*

*We are determined souls who breathe life into words written on paper
inspired by elders
who walk in the shoes of a change maker
try
climb
prepare to take flight*

*Molded with encouragement as we continue to strive
new generations trudging through global soils
Tonga mo`unga ki he loto
hope lines the depths of our hearts
as we too reach out to the stars*

*Tangata Pasifika in a canoe of a different kind
we continue to paddle against the high tides
arrive
thrive
let the tears of those who came before us
nurture the foundation that we stand on*

*Tangata Pasifika
Tangata Pasifika
hear our ancestors cry*

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Dedication

In loving memory of my late paternal Grandparents:

Uata Vaihola and Mele Feifai Pale

In loving memory of my late maternal Grandparents:

Siofilisi and `Ana Fokikovi Misinale Tangulu

In honour of my 90 year old mehikitanga (aunty):

Poaki Folau Pale Taumoepeau

In honour of my parents:

Lauloe and Sinai Kakala `Akanesi Pale

A special dedication:

To my nieces, *Mele`ofa Abigail Hadassah Finau* and *Maryanne `Ana Serenity Finau*, you both entered this world during the course of this study thus making my academic journey all the more worthwhile. Thank you both for the joy and laughter that you each bring into my life. May this piece of work be a reminder that you are both anchored in your Grandparents migrant dreams and that we will always be here to help navigate your quest for knowledge, understanding and enlightenment. Stand faithfully in prayer. Be gracious in deeds. Flourish in love. I love you both xox

*“Trust in the Lord with all your heart,
lean not on your own understanding.
In all ways acknowledge Him
and He will make your paths straight.”
Proverbs 3:5-6*

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Glossary

Tongan words	English translations
ako	to teach, to learn
ako`i	to instruct, to teach
faifolau	journey or voyage
fetu`u	stars
fohe`uli	steering oar
kafa	the sennit which is a type of cordage made from fibres of the coconut husk
kalia	a traditional Tongan double hull canoe
kauvaka	the crew members on board a sea vessel
lalava	lashing
la`ā	sun
mahu`inga	essential, important, valuable, vital, worth
manupuna	birds
matangi	wind
māhina	moon
moana	the ocean
ngāue`aki	to work with
poto	to be clever, skilful
talanoa	to talk, to discuss
vakai	to see, to observe
vā	space between or space apart, attitude, feeling, relationship towards each other
`aonga	useful, helpful, effective, worthwhile, necessary
`eikivaka	a captain or navigator
`ilo	knowledge, to see, to find, discover, to be conscious, be aware of, to recognise, to know

Preface

*I am a voice
within a choral of voices
chanting across the moana
Ko e `Otua mo Tonga ko hoku tofi`a
© Maryanne Pale*

The hierarchy of the Kingdom of Tonga consists of three social classes: the *Tu`i Tonga* and *hou`eiki* (the King of Tonga and the Tongan royal family) who are of highest rank, the *nōpele* and *matāpule* (the Tongan nobles and chiefs) who are next in rank followed by the *tu`a* (the commoners who are the general people of Tonga). In this light, I am recognised as a *tu`a*, the lowest of ranks in the social hierarchy of the Kingdom of Tonga.

My late grandparents were from the villages of Vaini, Tongatapu and Tefisi, Vava`u. My parents emigrated from Tonga to Auckland City, New Zealand in the late 1970's to begin a new life whereby my only sibling, my younger sister, and I were born a few years after. I was introduced to the New Zealand education system first as a young student who learned how to speak in English upon entry to kindergarten. The Tongan language is my native tongue.

As a young student, my Tongan cultural values and beliefs were not recognised within the New Zealand classroom context and back then I exhibited what is identified among Pasifika students in New Zealand today as the *culture of silence*⁴. Upon reflection, the cultural gap between the home and school for Tongan students, and more generally Pasifika students, were prevalent when I was a young student and it is still evident today across the education sectors in New Zealand.

⁴ Silence is an active and a living component of Pasifika culture as explained by Tuafuti (2013).

More recently, I am grateful to have received the opportunity to embark on this study which allowed me to address the learning needs of Tongan students attending schools in New Zealand. My experiences as a New Zealand University trained teacher, a Reading Recovery trained teacher, a University academic mentor and an emerging researcher have enabled me to understand the complexities involved in the quest for academic success. However, it was my experiences as a young Tongan student, born and raised in Auckland City, New Zealand, that have enabled me to experience and understand the concept of cultural dissonance within the New Zealand education system. The aims and rationale of this study are outlined in *Chapter 1*.

Upon engaging in this study, I felt that it was important to source an approach to the understanding and theorising of the education of Tongan students in New Zealand that was from, and utilised aspects of, the Tongan language and culture in order to develop a culturally inclusive approach and structure that will address issues of reading among Tongan students, and to discover a culturally responsive pedagogy⁵ with which to find a solution for a specific problem, in this case, reading comprehension. Thereby, within the parameters of this study, I developed the *Ako Conceptual Framework* which goes beyond a coherent way of thinking about the education of Tongan students given that teaching is a highly complex profession that draws on many kinds of knowledge systems.

Tongan students who were born in New Zealand have parents or grandparents or great-grandparents, who might have emigrated from Tonga to New Zealand. Other Tongan students who were born in Tonga or who were born in other countries outside

⁵ The method and practice of teaching particularly as an academic subject or theoretical concept.

of New Zealand may have left their country of birth to reside with their families in New Zealand. In view of that, the concept of leaving familiar shores (e.g. Tonga) to embark on a journey into new shores (e.g. New Zealand) was the reason that I selected and used the ancient art of Tongan navigation in *moana* (ocean) voyages as a metaphor to help contextualise and theorise the education of Tongan students in New Zealand. In addition, descriptions of the construction of the *kalia* (a traditional Tongan double hull canoe), were also applied as metaphorical representations to help contextualise and theorise the education of Tongan students.

The *Ako Conceptual Framework* was informed by and validated by Tongan strengths-based principles, values and educational concepts as well as the metaphorical representations of the ancient art of Tongan navigation in *moana* voyaging and the construction of the *kalia*. The main conceptual propositions that the *Ako Conceptual Framework* offers are organised under the following fundamental concepts:

- *Taumu`a `oe ako* (purpose for teaching and learning)
- *Founga ako* (knowledge systems)
- *Feinga ako* (learning endeavours)
- *Vā* (the space where social connections and professional relationships can be formed, nurtured and maintained)

The fundamental concepts are presented along with detailed descriptions of the *Ako Conceptual Framework* in *Chapter 4*.

The Tongan proverb *`Osi kia Velenga* was used to head the title of this thesis due to its relevancy to the ancient art of Tongan navigation and also due to its appropriateness to education. It is also known as *`Osiki `a Velenga* and both versions of the Tongan proverb have the same meaning. *`Osi kia Velenga* is the version of the

Tongan proverb that was selected for the title of this thesis due to its common use in the written and spoken forms of the Tongan language.

Māhina's (2004) literal translation of the Tongan proverb *`Osi kia Velenga (or `Osiki `a Velenga)* is "Giving one's all to Velenga" (p. 102). In the Tongan language it means "*`oku `uhinga ki he fai tukuingata `o ha ngāue*" which translates in English as "*when someone is expected to give their utmost to a task*" (p. 102).

Similarly, the connotation provided by the *`Ofisi ako `o e Siasi Uesiliana Tau`atāina `o Tonga* (2009) for the Tongan proverb *`Osi kia Velenga (or `Osiki `a Velenga)* is "*finished desire*" (p. 11). In the Tongan language, the proverb is described as "*ko e fai ha ngāue ke `Osi`osingamālie ai hoto ivi*" (p. 11) which, in English translates as *to carry out any work using all your strength or will*.

Furthermore, the proverb *`Osi kia Velenga (or `Osiki `a Velenga)* was described by the New Zealand Ministry of Education (2007) as:

"... the power that a particular ambition or desire holds over one and implies that it is only through seemingly never-ending work that the ambition can be achieved. ... Encouraging learners to persevere and do the best they can in learning..." (p. 101).

The word *`Osiki* is defined as "*to get through the whole of, to do (or use or learn) the whole of or all of*" (Churchward, 1959, p. 566). The word *`Osiki* derives from the root word *`osi*. *`Osi* is defined as "*end, after; done; finished; gone; used up; no more*" (Tu`inukuafe, 1992, 204). The word "*a*" is used to introduce the subject (*Velenga*). The word *kia* means "*to*" (Churchward, 1959, p. 262). Furthermore, the term

Velenga has been identified as the name of an ancient Tongan god who was associated with navigation and voyaging (Māhina, 2004).

Thereby, this study reclaims the strength-based principles, values and educational concepts of a Tongan learner which are distinct from those which have been identified as a “*Pasifika*” learner within the field of education in New Zealand. In so doing, my hope is that this study challenges the culture of silence within the classroom context thus allowing the voices of Tongan students to resonate within the education sectors in New Zealand and abroad.

Although I was born and raised in New Zealand, the *moana* (ocean) keeps me connected to my *fonua* (land, people of the land); the *lea-fakaTonga* (Tongan language) keeps me connected to my *kainga* (village, community); and the *anga-fakaTonga* (the Tongan way of life) helps to guide me into the future. My hope is that this study will encourage all to understand the richness of the Tongan past and to be empowered by the courage and inquisitiveness that the Tongan ancestors exhibited in their search of new horizons during their moana voyages. Hence, the art of ancient Tongan navigation can be seen as taking a vessel from one location to another; and in the context of this study, the education of Tongan students can be seen as the art of taking students from one achievement level to the next.

Mālō `aupito.

Chapter 1 Introduction

1.0 Chapter overview

This chapter introduces the frame of this study by firstly highlighting its significance. In following, the research aim and the hypothesis are presented. Additionally, the research questions and the rationale for this study are described in this chapter and in closing the structure of this thesis is outlined.

1.1 The significance of this study

This study is significant in a number of ways. Firstly, it addresses the importance of vocabulary instruction in English literacy development of students and more specifically in English reading comprehension. In so doing, this study demonstrates that explicit vocabulary instruction, using appropriate and specific interventions, can improve reading comprehension and reading achievement.

Secondly, this study focused on a group of 101 Tongan students within the middle and upper levels of primary schools in New Zealand by profiling their reading achievement before and after the use of an educational intervention. This study supports the argument for ethnic specific studies to develop more useful and meaningful data in the quest to address the learning needs of different ethnic groups of Pasifika students not only in New Zealand but also in Pacific Island countries generally.

Thirdly, this study demonstrates that a culturally inclusive approach to vocabulary instruction, including the development and use of the *Ako Conceptual Framework*, can yield positive outcomes for the reading achievement of Tongan students. Additionally, the *Ako Conceptual Framework* offers the following fundamental concepts: *Taumu`a*

`oe ako (purpose for teaching and learning), *founga ako* (knowledge systems), *feinga ako* (learning endeavours) and the *vā* (the space where social connections and professional relationships can be formed, nurtured and maintained), as contributions to the considerations in developing culturally inclusive approaches a culturally responsive pedagogies in order to help raise the achievement of Tongan students and in general Pasifika students in New Zealand and abroad.

Lastly, this study highlights that there is a lacuna in research literature across local, national and international regions for the vocabulary development and reading achievement of Tongan students. Hence, this study is significant as it is the first to focus specifically on the vocabulary instruction and reading achievement of Tongan students attending New Zealand schools with the use of a culturally inclusive approach. Therefore, this study contributes culturally relevant knowledge systems and new information to the field of education in New Zealand.

1.2 The research aims and hypothesis

The research aims for this study were to theorise and find an approach that may contribute to raising the academic achievement of Tongan students in the areas of vocabulary development and reading comprehension.

The hypothesis for this study was that explicit vocabulary instruction, using an educational intervention, can positively impact on Tongan students' reading comprehension and contribute to the improvement of their reading achievement.

1.3 The research questions

1. What are the knowledge and beliefs of Principals and Tongan bilingual teachers regarding English vocabulary instruction and English reading comprehension for Tongan students within Tongan and English bilingual classes?
2. How will an educational intervention contribute to improving English reading comprehension for Tongan students?
3. What concepts might contribute to the development of a Tongan specific conceptual framework that would help to navigate, understand and theorise the teaching and learning of Tongan students in New Zealand?

1.4 The rationale for this study

The Tongan ethnic group (a minority ethnic group in New Zealand) is included under the pan-ethnic term Pasifika (also known as Pacific or Polynesian) group in New Zealand. The Pasifika group is recognised as a priority group for educational research and policy development in New Zealand. There has been a long standing concern among educators, Pasifika parents and others about the relatively low achievement levels and underachievement of Pasifika students across all sectors in education in New Zealand which serves as the fundamental premise for conducting this study.

Existing research literature have reported that the low achievement and the underachievement of Māori and Pasifika students, for example, in English reading comprehension are prevalent in New Zealand schools thus contributing to the rationale for this study (Amituanai-Toloa, 2005; Amituanai-Toloa & McNaughton, 2008; McNaughton, MacDonald, Amituanai-Toloa, Lai & Farry, 2006; Ministry of Education,

2006). In addition, the typical picture of Pasifika students in low decile schools in New Zealand has been low progress, consistent with longitudinal studies with groups of students in the United States who are linguistically and culturally diverse (Phillips, McNaughton & MacDonald, 2004; Stanovich, 1986).

Educational gap in achievement between Māori and non-Māori or between Pasifika and non-Pasifika students have been recognised as an ongoing educational focus for the New Zealand Government in the past decades. The Programme for International Student Assessment (PISA) survey, for example, is an initiative of the Organisation of Economic Cooperation and Development (OECD) which measures the abilities of 15-year-olds in mathematics, science and reading. The survey is undertaken every three years by the OECD. The first cycle of the PISA survey was conducted in 2000. In 2012, 65 countries participated, including New Zealand. May, Cowles and Lamy (2012) reported that in PISA 2012, New Zealand's average score in reading (as well as in mathematics and science) declined since PISA 2009. New Zealand's performance in these subjects also declined relative to other countries. However, New Zealand's average achievement in reading (as well as in mathematics and science) remains above the OECD average. New Zealand's average score for reading in PISA 2012 (512 points) was higher than the OECD average (496 points) (May, Cowles & Lamy, 2012). However, New Zealand's average reading score in PISA 2012 was lower than PISA 2009 (521 points) and it was also lower than PISA 2000 (529 points). More specifically, when split into minority groups, the average score in reading for Māori students was 469 points in 2012 and 480 points in 2006. In addition, the average score in reading for Pasifika students was 446 points in 2012 and 453 points in 2006 (May, Cowles, Lamy, 2012). Thus, there appears to be a trend of gradual decline in both groups.

The New Zealand Government aims to encourage more use of individual student achievement data, further support the quality of teaching, and promote high-level leadership in the education sector. May, Cowles and Lamy (2012) assert that more action will be needed if New Zealand is to return to its previous position in the next PISA survey. Thus ethnic specific research in the field of literacy development for students in New Zealand could be one of the methods that might provide insight to raising academic achievement particularly for Māori and Pasifika students. For example, an ethnic specific study conducted by Amituanai-Tolosa (2005) examined the effectiveness of teaching reading comprehension in English among Samoan students in South Auckland, New Zealand.

Amituanai-Tolosa (2005) identified that Samoan students undergoing education in English experience some cultural loss, and that strategies for teaching reading comprehension, for example incorporation, should go beyond word use. Her assertion is that texts should appeal to the student's sense of self worth, and to the concept of cultural home. Thereby, teaching strategies must aim to restore, foster and promote these concepts that nourish the heart and enable the mind to grow (Amituanai-Tolosa, 2005). In her study, she found that the Samoan bilingual teachers focused more on English vocabulary instruction, with the belief that building up the vocabulary knowledge of Samoan students can have a positive impact on their reading comprehension. The teachers believed that the student's lack of English vocabulary knowledge was an issue related to the underachievement of Samoan students in reading comprehension. Her study found that the achievement of Samoan students in bilingual classes was positively influenced by an educational intervention that boost 'instructional density' in teacher instruction. It demonstrated that literacy in English for Samoan students in bilingual classes could develop to levels similar to those of Samoan students

who were in mainstream classes. She concluded that it is possible to develop more effective teaching of English vocabulary that impacts directly on the reading comprehension achievement of Year 4-8 Samoan students in bilingual classes. Hence, Amituani-Tolosa's (2005) ethnic specific research contributed to the rationale for this study by highlighting that vocabulary and vocabulary instruction could indeed be significant areas to focus on for the literacy development for Tongan students.

1.5 The educational intervention

For this study, an educational intervention was used to test the hypothesis that explicit vocabulary instruction can positively impact on Tongan students' reading comprehension and contribute to the improvement of their reading achievement. The educational intervention included collaborative discussions with participants, the development and provision of supplementary teaching resources and in general the data collection process. These are explained further in *Chapter 5*.

1.6 The structure of this thesis

This thesis is presented in eight chapters. In this chapter, the significance of this study, the research aim, the hypothesis, the research questions and the rationale for this study are outlined. Further details will be elaborated on in the chapters that follow which will provide further background and context for this study.

Chapter 2 introduces and connects readers to the background and context of Tongan students by providing succinct cultural insights relevant to the Tongan culture and society. *Chapter 2* outlines specific areas that were deemed relevant and pertinent to the aim of this study thus and it begins by differentiating the Tongan learner from the pan-ethnic term *Pasifika*. *Chapter 2* is organised under the following sub-headings:

Pasifika: A pan-ethnic term, Pule`anga fakaTu`i `o Tonga (The Kingdom of Tonga), Tongan people in New Zealand, Tongan language in New Zealand and Tongan strengths-based principles, values and educational concepts.

The literature review presented in *Chapter 3* illustrates and highlights key factors that have informed this study. It also indicates that there is a lacuna in research literature for which this study attempts to address. *Chapter 3* presents the literature review under the following sub-headings: vocabulary and vocabulary development; components of vocabulary instruction with links to reading comprehension; fostering word consciousness in the classroom; socio-cultural theory; pedagogical content knowledge; a culturally responsive pedagogy; bilingualism and bilingual students; bilingual education in New Zealand; New Zealand Government initiatives aimed at raising Pasifika student academic achievement in New Zealand; and literacy instruction for Pasifika students.

In order to contextualise this study, the *Ako Conceptual Framework* is presented in *Chapter 4*. It includes descriptions under the following sub-headings: defining the term ‘ako’, rationale, proposed fundamental concepts, micro and macro levels, metaphorical representations of Tongan navigation in moana voyages, and metaphorical representations of the kalia.

The methodology for this study is presented in *Chapter 5*. It explains the technical aspects of this study including descriptions of the research design, participants, measures, procedures, data collection and data analysis.

The results from the quantitative and qualitative analyses of this study are presented in *Chapter 6* and *Chapter 7*. *Chapter 6* presents the results from *Phase One* (first year of data collection) of this study. *Chapter 7* presents the results from *Phase Two* (second year of data collection) of this study.

In closing, *Chapter 8* presents the discussion and conclusion for this study. Subsequently, the implications and limitations are addressed with an outline of the future prospects research.

Chapter 2 Background and Context

2.0 Chapter overview

To help contextualise this study, this chapter offers succinct cultural insights into the background and context of Tongan students. Readers are cautioned that this chapter does not attempt to define the identity of a Tongan student or a Tongan person nor does it intend to homogenise Tongan people into a generalisation or a stereotype. Instead, this chapter offers cultural insights as a necessary starting point in working towards understanding and theorising about the education of Tongan students in New Zealand for this study.

In order to set apart the Tongan learner from the pan-ethnic term *Pasifika*, this chapter begins by highlighting that the use of the pan-ethnic term *Pasifika* can be problematic and challenging. Subsequently, succinct cultural insights into the background and context of Tongan students are presented. These include: *Pasifika*: A pan-ethnic term, the Pule`anga Fakatu`i`o Tonga (The Kingdom of Tonga), the Tongan population in New Zealand, the Tongan language in New Zealand and the Tongan strengths-based principles, values and educational concepts. In closing, a summary is presented at the end of this chapter with the key points linked to aspects of inquiry for this study.

2.1 Pasifika: A pan-ethnic term

The pan-ethnic term *Pasifika* is used by many to refer to a collective of people that are of Pacific Island ethnicity (e.g. Tongan, Samoan, Cook Island, Fijian and/or mixed heritages of Pacific Island ethnicity). Other pan-ethnic terms linked to *Pasifika* are: Pacific Islander, Pasefika, Pacifica, P.I., Pacific Nations person and/or Polynesian

(Airini et al. 2010). According to Ferguson, Gorinski & Wendt-Samu (2008), pan-ethnic terms such as *Pasifika* in the New Zealand context include a variety of combinations of ethnicities, recent migrants or first, second, third, fourth, and subsequent generations of New Zealand-born Pasifika peoples. The pan-ethnic term *Pasifika* has been in New Zealand's education vocabulary since the early 1970's (Airini, Anae, Mila-Schaaf, Coxon, Mara & Sanga, 2010; Anae, Coxon, Mara, Samu & Finau, 2001; May, 2011; Tongati`o, 2010) and it is used by the New Zealand Ministry of Education to identify the learners grouped as Pacific Island or Polynesian (Ministry of Education, 2008).

Researchers have advocated the use of the pan-ethnic term *Pasifika* (e.g. Airini, et al. 2010) while others have reservations about the use of the pan-ethnic term *Pasifika* and/or a general name to describe ethnic groups from South Pacific nations as it can be problematic and challenging. Existing research literature makes references about *Pasifika* learners; however, readers are cautioned that *Pasifika* consist of distinct and diverse populations on many levels including language, culture, religion, health and education (Ferguson, Gorinski, Wendt-Samu & Mara, 2008).

This study highlights that there are other general terms that are widely accepted and used across educational research literature that group students (including Tongan students) when addressing their learning needs, for example, English Language Learners (ELLs), English Speakers of Other Languages (ESOL) and bilingual students (as shown in *Chapter 3*). Due to a dearth in research literature on the reading achievement of Tongan students, this study draws on research literature that has identified learners under the pan-ethnic term *Pasifika* and other general terms including ELLs, ESOL and bilingual learners; all of which Tongan students are included under.

This study argues that the identity of a Tongan learner needs to be set apart from that of a *Pasifika* learner, an ELLs, an ESOL learner, and a bilingual learner, in order to adequately address their learning needs and their learning interests. This study is in agreement with Manu`atu's (2000) assertion those pan-ethnic terms like *Pasifika* paradoxically serves to perpetuate the marginalisation of Tongan students and maintain the status quo. Thereby, the remainder of this chapter focuses on cultural insights into the background and context of Tongan students in support for the argument for more ethnic-specific research and culturally responsive pedagogies, to address the learning needs and the learning interests of Tongan students in New Zealand and abroad.

2.2 Pule`anga Fakatu`i`o Tonga (The Kingdom of Tonga)

The Kingdom of Tonga, also known as the Friendly Islands, is a Polynesian sovereign state and an archipelago comprising of over 150 islands scattered across more than 32,000 km of *moana* (ocean) (Poulsen, 1977; Völkel, 2010). As shown in *Figure 1*, the Tongan archipelago lies in the South Pacific approximately between 18 degrees and 23 degrees south latitude and 173 degrees and 176 degrees west longitude, southeast of Fiji, southwest of Samoa and about 1,700 km northeast of New Zealand (Ferdon, 1987; Lātūkefu, 1980; Kaeppler, 1971).



Figure 1. The location of the Kingdom of Tonga in the South Pacific

As shown in *Figure 2*, the *Kingdom of Tonga* includes three main groups of islands: the Tongatapu group (southern), the Ha`apai group (central) and the Vava`u group (northern). The Tongatapu group includes Tongatapu island where the capital Nuku`alofa is situated, `Eua, some smaller islands north of Tongatapu of which `Eueiki and Atata are inhabited, and the uninhabited island `Ata about 160 km south of Tongatapu (Völkel, 2010). The Ha`apai group consists of mainly small islands and centres between the Tongatapu group and the Vava`u group (Völkel, 2010). The Vava`u group includes Niuatoputapu and Niufo`ou which are also called the Niuas are shown in *Figure 2* (Völkel, 2010).



Figure 2. Map of the Kingdom of Tonga

The Kingdom of Tonga is one of a small number of countries in the world to have successfully resisted European colonisation or foreign power thus maintaining its political independence (Lātūkefu, 1980). Traditional Tongan society (prior to European contact) was described as one of the most stratified chiefdoms in Polynesia (Völkel, 2010). From `Aho`eitu (the first Tu`i Tonga), the three lines of Kings in Tonga were subsequently formed: the Tu`i Tonga, Tu`i Ha`atakalaua and the Tu`i Kanokupolu dynasties (Ledyard, 1999; Wood-Ellen, 1999). Other chiefly title holders were (and still are in this present day) specifically identified as *hou`eiki* (aristocrats), *nōpele* (nobles), and *`eiki si`i* (lesser chiefs) (Wood-Ellen, 1999).

Historians and archaeologists assert that Pasifika people were explorers and voyagers of the entire South Pacific well before the initial contact with European explorers. For example, Tongan navigators and voyagers were in trade with other South Pacific nations such as Samoa, Fiji, `Uvea, Rotuma, Wallis and Futuna, Niue and other neighbouring islands prior to European contact. According to Ferdon (1987), by historic

times, the Tongan two-way voyaging accomplishments may have exceeded those of any other Polynesian people in the Pacific and certainly approached those of their northern Western Micronesian neighbours. For it was not just the size and capacity of the sea-vessels that the Tongan exhibited that impressed the early European explorers but their sailing ability as well and sufficient data suggests that at least in historic times the Tongans' sailing prowess was considerable which saw Tonga's maritime empire established and maintained for several years (Ferdon, 1987). This is explained further in *Chapter 4*.

The first few recorded encounters that Tongans had with European explorers were while they were on a voyage in 1616. A Dutch expedition, under the command of William Cornelisz Schouten and Jacob Le Maire, encountered Tongan voyagers (men and women) who were on board a traditional double hull canoe (Poulsen, 1977: Statham, 2013; Suren, 2001; Völkel, 2010). In following, another Dutch explorer, Abel Jansen Tasman, recorded his encounter with Tongans when he anchored in Tonga in 1643 (Poulsen, 1977: Statham, 2013; Suren, 2001: Völkel, 2010). Furthermore, 130 years after Abel Jansen Tasman arrived in the Kingdom of Tonga, Captain James Cook accompanied by Captain Furneaux anchored in the Kingdom of Tonga (Poulsen, 1977: Statham, 2013; Suren, 2001: Völkel, 2010). It was in these first few encounters (between the European explorers and the Tongans) that the traditional Tongan canoes were sighted and recorded by the European explorers and missionaries (see Poulsen, 1977; Statham, 2013, West, 1865). Accounts about the Tongan way of life and in particular the hierarchical social structure within the Kingdom of Tonga were recorded by European explorers and missionaries upon contact with the Tongan people.

Today, the Kingdom of Tonga's hierarchical social structure continues to consist of three social classes: the *Tu'i Tonga* and *hou'eiki* (the King of Tonga and the Tongan royal family) who are of highest rank, followed by the *nōpele* and *matāpule* (the Tongan nobles and chiefs) who are next in rank, and the *tu`a* (the commoners who are the general Tongan people).

King George Tupou I, the first king of modern Tonga and a Christian convert, introduced the constitution in 1875 along with the *sila`o Tonga* (see *Figure 3*) after unifying the three main island groups, Tongatapu, Ha`apai and Vava`u. From 1900 to 1969 the British protectorate shielded the Kingdom of Tonga from other colonising powers and in 1970 all powers were restored to the Kingdom of Tonga.



Figure 3 Ko e sila`o Tonga (Tongan coat of arms)

In *Figure 3*, the three swords represent the three dynasties or lines of the kings of Tonga: *Tu'i Tonga*, *Tu'i Ha`atakalaua* and *Tu'i Kanokupolu*. The dove with the olive branch symbolises the wish of God's peace to reign in Tonga forever. The three stars symbolise the main island groups of Tonga: Tongatapu, Vava`u and Ha`apai. The crown symbolises the ruling monarchy, the King of Tonga. The text on the scroll along

the bottom states: *Ko e `Otua mo Tonga ko hoku tofi`a* which means ‘God and Tonga are my inheritance’.

Queen Sālote (1918–1965) led the Kingdom of Tonga into the twentieth century with her vision to preserve the nation’s culture and heritage (Wood-Ellen, 1999). Her vision lives on today as the Tongan culture is still an integral part of the school curriculum in Kingdom of Tonga and the Tongan language remains as the official language in the Kingdom of Tonga, although English as the second official language is taught in schools subsequent to the Tongan language. The Tongan language, culture and heritage are also seen preserved and used among Tongan diasporas in New Zealand and abroad.

In 2010, the Kingdom of Tonga took a decisive step towards becoming a fully functioning constitutional monarchy, after legislative reforms paved the way for its first partial representative elections. Today, King Tupou VI currently is the reign of the Kingdom of Tonga and the nation remains as the only kingdom in the South Pacific.

2.3 Tongan people in New Zealand

In 2013, the Samoan ethnic group remained the largest Pacific ethnic group at 48.70% of the Pacific peoples population (144,138 people) in New Zealand. Other Pacific ethnic groups with large populations included: Cook Islanders with 61,839 people (20.9% of Pacific peoples population), Tongan with 60,333 people (20.40%) and Niuean with 23,883 people (8.10%) (Statistics New Zealand, 2014). Although Tongan people were identified as the third largest Pacific ethnic group in New Zealand, the percent growth for Tongan people living in New Zealand decreased from 24.00%

growth within the period of 2001–2006 to 19.50% growth within the period of 2006–2013 (Statistics New Zealand, 2014).

Lee (2003) states that people of Tongan ethnicity maintain their Tongan identity in countries other than Tonga, through their interactions and relationships with immediate and extended family. Tongan people living in New Zealand were reported to be more likely to live in a family situation and in some cases Tongan families were more likely to live in multi-family households (Statistics New Zealand, 2007). More specifically, 70% of Tongans lived in a family unit in New Zealand in 2006 (Statistics New Zealand, 2007) and 45% of Tongans were reported living in extended family situations compared with 41% of Pasifika people and 14% of the New Zealand population (Statistics New Zealand, 2007). 19% of Tongan adults in New Zealand owned or partly owned the dwelling that they live in compared to 22% of the Pasifika population and 53% of the New Zealand population (Statistics New Zealand, 2007). In terms of education, 71% of New Zealand born Tongans had formal qualification compared to 60% of the overseas born Tongans (Statistics New Zealand, 2007). In this light, Tongan students can be seen as been reared in homes that have systems of support already put in place for their education by their family. In addition to maintaining their identity is their Christian faith. The Christian faith is prevalent in Tonga as well as in the lives of Tongan diasporas around the globe. More specifically, 90% (42, 813) of the Tongan population in New Zealand identified an affiliation to at least one religious denomination and 98% of that figure identified Christianity as their faith (Statistics New Zealand, 2007). The three most common Christian denominations identified by Tongans in New Zealand were: Methodist (45%), Catholic (21%) and Latter Day Saints (12%) (Statistics New Zealand, 2007). Tongan children reared in Christian homes learn prayers and how to read the Bible in the English language and/or in the Tongan

language, and they also attend church and biblical classes as part of their family practice (Wolfgramm-Foliaki, 2006). Tongan students thereby arrive at formal education in New Zealand with family literacy practices already embedded – these are practices that can be linked into the classroom context.

Furthermore, the kinship structure of Tongan people provides insight into the socialisation process of Tongan students as their child that begins in communal activities. The kin term reflects the appropriate roles required by principles of status which predetermine each person's course of action in any family social activity, regardless of other statuses held in society (Kaepler, 1971). Thereby, the Tongan kinship structure begins within the *`api* (household, nuclear family) and it extends to the *fāmili* (close relatives of the family) and then to the *kāinga* (distant relatives, village members and community). The *tamai* (father) is the head of the *`api*, the *mehikitakanga* (the father's sister) or the *fahu* is held in high rank over the *fāmili* and the *`ulumotu`a* (usually the eldest brother of a person's father or the eldest brother of a person's grandfather) is considered as the head of the *fāmili* or *kāinga* (Crane, 1978; Kaepler, 1971; Völkel, 2010). The *kāinga* is the clan, the village (or community) whereby the *nōpele* (noble) of the village is the head (Crane, 1978).

The Tongan kinship structure is significant as it illustrates that a Tongan child is born into a culture which emphasises the importance of the self in relation to others, a Tongan person's role in the *`api*, *fāmili*, *kāinga* and in the Tongan hierarchical social structure differs and has holds varying rank(s) and responsibilities. In this light, Tongan children are connected to a system of support that can be traced back to ancient Tongan ancestry. Understanding the Tongan kinship structure and the socialisation process of Tongan students within the *`api*, *fāmili* and *kāinga* will contribute to the understanding

of Tongan culture and identity, principles and values thus offering knowledge systems to help bridge the cultural gap between the home and school which may lead to bridging the gap in achievement for Tongan students.

2.4 Tongan language in New Zealand

The key role of language is in the shaping of people's thinking, influencing their worldviews and in transmitting, reinforcing and consolidating their values which cement and promote healthy relationships thus strengthening communities (Taufe`ulungaki, 2009b). The Tongan language is thereby inextricably bound to the social and cultural contexts of maintaining the *anga-fakaTonga* (the Tongan way of life). According to Thaman (2009a):

“The Tongan language is highly culturally determined and value-laden. It is ideal for communicating beliefs, emotions, sentiments and attitudes, which is highly functional and practical in the class of Tongan culture, where interpersonal relationships are of central importance.” (p. 6)

The Tongan language is comprised of several levels of vocabulary and usage that reflect Tonga's hierarchical social structure (Kaepler, 1971; Ministry of Education, 2007). This honourific system, called the language of respect, distinguishes between three sociolinguistic language levels: *lea fakaTu`i* (regal language used to address the King of Tonga), *lea fakahou`eiki* or *lea fakamatāpule* (chiefly language used to address the royal family, nobles and chiefs), and the common *lea fakaTonga* used among the general Tongan people (Völkel, 2010; Ministry of Education, 2007; 2012a).

A description of the richness, depth and scope of the Tongan language is captured by Taufe`ulungaki (2009b):

“I listened to elders and young people alike express their views, visions, hopes, thoughts and aspirations in poetry in stories, in metaphors, in images and symbols which resonated with their past, their environment, their ancestors and their values. The metaphors, images and symbols reflected their desires for maintaining relationships, keeping connections intact, and for achieving coherence, stability, sustainability and endurance of their communities. The images used were tangible manifestations of the values which the communities held dear.” (p131-132)

The Tongan alphabet consists of the following letters: a, e, f, h, i, k, l, m, n, ng, o, p, s, t, u, v and the fakau`a (´). The pronunciations of the Tongan alphabet are different to that of the English alphabet. For example, the letters *p* and *t* in the Tongan alphabet are pronounced as the letters *b* and *d* of the English alphabet respectively. The written Tongan language includes special conventions which include the fakau`a (glottal stop in the form of an inverted apostrophe), the toloi (macron in the form of a line above a vowel), the fakamamafa pau (definitive accent) and the fakamamafa he lea fie pipiki (the stress mark on a word preceding an enclitic) (Wood-Ellen, 1999; Ministry of Education, 2007; 2012a).

The two conventions used in this study along with the Tongan spelling are the fakau`a (glottal stop) and the toloi (macron). The fakau`a (´) is a consonant and the inclusion of the fakau`a in a word can differentiate its meaning with another word that might have a similar spelling pattern. For example: the words *tui* and *tu`i* are two

different words that have unrelated meanings. The toloi (macron) is used in the Tongan language to indicate the pronunciation of a long vowel. For example: ā, ē, ī, ō and ū.

In 2006, 61% (28,186) of Tongan people were able to hold an everyday conversation in Tongan (Statistics New Zealand, 2007). When comparing the New Zealand born Tongans with the overseas born Tongan population, differences in the proportions by age group of those who were able to speak Tongan were prevalent. For example, in New Zealand it was reported that a higher proportion of overseas born Tongans (81%) than New Zealand born Tongans (40%) were able to speak Tongan (Statistics New Zealand, 2007). The difference could be due to the fact that the opportunities to utilise the Tongan language in New Zealand is heavily reduced in comparison to the opportunities for language use in the Kingdom of Tonga.

In support of the preservation and use of the Tongan language in New Zealand, steps have been taken by the New Zealand Ministry of Education and community groups (across New Zealand) to support the learning of the Tongan language within the classroom contexts (Ministry of Education, 2000; 2007; 2010; 2012a). In addition, Tongan community groups have helped to successfully set up early childhood centres (language nests based on the Māori kōhanga reo principle), bilingual units within primary schools, bilingual classrooms in other sectors of education and Tongan language activities such as Tongan speech competitions across education sectors in New Zealand (Coxon, Anae, Mara, Wendt-Samu and Finau, 2002). Furthermore, across the education sectors in New Zealand, the Tongan language is either used as the sole medium of instruction, or used in conjunction with the English language as dual medium of instruction. Alternatively, the Tongan language is taught as part of the curriculum at some schools in New Zealand.

At a community level, the establishment of the New Zealand's national Tongan language week was launched in 2011. The annual event is a weeklong celebration of the Tongan language and its association with its link to Tongan cultural and heritage thus emphasising that the Tongan language is highly valued by the Tongan community in New Zealand.

The New Zealand Ministry of Education has published a number of documents which support the learning of Tongan language and they include: the *Tongan language framework of guidelines for the learning and teaching of the Tongan language in schools* (Ministry of Education, 2000); *Tongan in the New Zealand Curriculum* in 2007 (Ministry of Education, 2007); also *Faufaua: An introduction to Tongan* in 2010 (Ministry of Education, 2010a) and *Ko e fakahinohino ki he lea Faka-Tonga: the Tongan language guidelines* (2012a). Teachers of students with Tongan ethnicity were encouraged to develop their own teaching programmes using these New Zealand Ministry of Education publications. The effort to preserve the Tongan language in New Zealand is a testament to the value and significance that the Tongan language has to the Tongan people. In contrast, a Tongan language policy has not yet being established in New Zealand for formal education.

2.5 Tongan strengths-based principles, values and educational concepts

It is pertinent to recognise that Tongan students begin formal education with various principles, values and educational concepts about family, culture, knowledge and learning (Ferguson, Gorinski & Wendt Samu, 2008; Taufe`ulungaki, 2009; Wolfgramm-Foliaki, 2006). By this means, teachers, educators, researchers and policy developers will begin to understand the different strengths which Tongan students bring

to the classroom and which thereby could be helpful in developing pedagogies that are transformative and more importantly, culturally responsive.

In this study the Tongan principles, values and educational concepts are identified as *strengths-based* to highlight the point that across multiple contexts, (e.g. within the home, in educational contexts, socio-political contexts), they promote a positive and an optimal perspective or approach to fostering social relationships, finding solutions and constructing knowledge. According to Sanders and Munford (2010):

“The strengths perspective has been influenced by wider theoretical frameworks including critical social theory, which challenges us to examine notions such as power, to appreciate how knowledge is constructed and requires that we understand the culturally specific origins of knowledge.” (p. 31)

The Tongan strengths-based principles and values that this study highlight are recognised as part of the *anga-fakaTonga* (the Tongan way of life) and the *faa`i kavei koula `a Tonga* (Tonga’s pillars or the four golden strands) (The Tongan Working Group, 2012; Funaki, 2001). The Tongan strengths-based principles and values include: *faka`apa`apa* (acknowledging and returning respect), *anga fakatōkilalo* or *loto tō* (humility), *tauhi vaha`a/vā* (nurturing and maintain relationships) and *mamahi`i me`a* (one’s loyalty and passion). Furthermore, the Tongan strengths-based principles and values that govern social relationships between the Tongan hierarchical social classes are *faka`apa`apa* (respect), *fatongia* (obligation) and *mateaki* (loyalty). Over all, these same principles and values were strengthened even more by *`ofa* (love) and the acceptance of Christianity (Lātūkefu, 1980). These same principles and values

contribute to the understanding of the socialisation process of a Tongan child prior to formal education and throughout their lives.

The Tongan educational concepts which this study highlights are Thaman's (2009b) descriptions of *ako*, *`ilo* and *poto* and Manu`atu's (2000) descriptions of *mālie* and *māfana*. Thaman (2009b) identifies and describes three important educational concepts and their derivatives: *ako* (to teach, to learn), *`ilo* (to find, to recognise, to discover, to know and to understand) and *poto* (to be clever, skilful, to understand what to do and be able to do it). She explains:

“Poto in Tongan education (ako) may be achieved through the appropriate use of `ilo. Therefore, poto may be defined as the positive application of `ilo (knowledge and understanding), and the educated person (tokotaha poto) as the one who applies `ilo with positive and successful results.”
(Thaman, 2009b, p.72)

Thaman (2009b) asserts that modern education is valued not so much as something that is good in itself, but for its instrumental value in the betterment of families, communities and ultimately their country. In addition, the traditional conception of *poto* is still prevalent in Tonga today as well as Tongan families that raise their children with Tongan strengths-based principles, values and educational concepts in other countries such as New Zealand.

Manu`atu (2000; 2009) identified two Tongan concepts in relation to the education of Tongan students: *māfana* (warmth) and *mālie* (beauty), both of which she considers as constitutive of good social relationships which are key to good pedagogy and learning. She asserts that Tongan students need to have a connection with what they

are being taught in order to be motivated and to feel energised to learn. More specifically, she describes *māfana* as a positive energy which moves people and *mālie* is the positive feeling that takes place as a consequence of learning (Manu`atu, 2000; 2009). *Māfana* and *mālie* were identified by Manu`atu as concepts that are central in Tongan ways of thinking about teaching and learning because together, they offer a useful Tongan theoretical framework in which achievement in the broader context can be analysed.

The Tongan strengths-based principles, values and educational concepts highlighted in this section re-affirm the knowledge systems that Tongan students are raised with prior to their formal education by way of the *anga-fakaTonga* (Tongan way of life). These Tongan strengths-based principles, values and educational concepts therefore, are crucial for this study because of their provision of invaluable insight into the theorising of the education of Tongan students and the development of a culturally inclusive approach to the vocabulary development and reading comprehension of Tongan students in New Zealand schools.

2.6 Chapter summary

This chapter highlights the importance of knowing and understanding the myriad of relationships that Tongan students are connected to when in a large socio-political context that is rich in cultural history, knowledge systems and traditional *anga-fakaTonga* (the Tongan way of life). It is in understanding these relationships which invariably contribute to the socialisation process of Tongan children and their education.

As noted in this chapter, the Tongan language is inextricably bound to the social and cultural contexts of maintaining the *anga-fakaTonga*. In spite of figures showing that less Tongans (born in New Zealand) speak the Tongan language in comparison to Tongans who were born overseas but reside in New Zealand, attempts to preserve and maintain the use of the Tongan language in New Zealand are prevalent which is beneficial for the Tongan students attending New Zealand schools that are from homes where the Tongan language is the first language that they have observed and learned.

Furthermore, the Tongan strengths-based principles, values and educational concepts highlighted in this chapter offer teachers, educators, researchers and policy developers, invaluable insights into the socio-cultural contexts of Tongan students. These insights can add value to the consideration of, cultivating classrooms that are culturally inclusive and developing culturally responsive pedagogies to enhance student participation in the classroom and academic achievement. To reiterate, this study argues that the identity of a Tongan learner needs to be set apart from that of a Pasifika learner, ELLs, an ESOL learner, and a bilingual learner, in order to address a Tongan learner's learning needs and learning interests.

The next chapter provides a review of research literature relevant to this study. Given the dearth in research literature regarding the reading achievement of particularly Tongan students in New Zealand, the next chapter presents local, national and international research which are based on students such as Tongan students who have been grouped under the following general categories: Pasifika learners, English Language Learners (ELLs), English Speakers of Other Languages (ESOL) and bilingual learners.

Chapter 3 Literature Review

3.0 Chapter overview

As a reminder, the research aims for this study were to theorise and find an approach that may contribute to raising the academic achievement of Tongan students in the areas of vocabulary development and reading comprehension. In addition, the hypothesis for this study was that explicit vocabulary instruction, using an educational intervention, can positively impact on Tongan students' reading comprehension and contribute to the improvement of their reading achievement. Thereby, this chapter adds to the succinct cultural insights into the background and context of Tongan students that were highlighted in the previous chapter, by providing descriptions of existing and current knowledge, theoretical constructs from research literature that have informed the fundamental premise of this study.

The sections of this chapter consists of the following: vocabulary and vocabulary development; bilingual education in New Zealand; components of vocabulary instruction with links to reading comprehension; fostering word consciousness in the classroom; socio-cultural theory; pedagogical content knowledge; a culturally responsive pedagogy; bilingualism and bilingual students; bilingual education in New Zealand; New Zealand Government initiatives aimed at raising Pasifika achievement in New Zealand and literacy instruction for Pasifika students. In closing, a summary of the key points from the literature review is presented with references made to this study.

3.1 Vocabulary and vocabulary development

Vocabulary and vocabulary development are important to teaching students literacy skills that they can utilise particularly in reading and reading comprehension. Vocabulary is one of five essential components of reading instruction that is essential to successfully teach students how to read, others being: *phonemic awareness* (students ability to think about sounds of language and to manipulate those sounds in various ways e.g. to blend sounds), *phonics* (the ability to decode written words in texts e.g. attending to prefixes or letter patterns) and word study, *reading fluency* (the ability to read words quickly as well as accurately) and *comprehension* (National Reading Panel, 2000).

The New Zealand Oxford dictionary identifies the term *vocabulary* as a derivative of the medieval Latin term *vocabularius* and is denoted by Deverson and Kennedy (2005, p. 1262) as:

1. the body of words used in a language or a particular book or branch of science
etc. or by a particular author
2. a list of these, arranged alphabetically with definitions or translations
3. the range of words known to an individual

Newtown, Padak and Rasinki (2008) stated that the English term *vocabulary* is built on the Latin word for *voice* and literally means *an oral list of words*. Newtown, Padak and Rasinki define *vocabulary* as a body of words used in a particular language where a part of such a body of words is used on a particular occasion or in a particular context. It is also referred to as a study of words and word meanings. Sedita (2005) describes *vocabulary* as a term given to all words used in a language as a whole or the set of words associated with a subject or area of activity, or used by an individual

person. Others (e.g. Watts-Taffe, 2005) have defined vocabulary as the teaching and development of students' understanding of word meanings including word recognition.

Kamil and Hiebert (2005) made distinctions between two types of vocabulary: *receptive vocabulary* and *productive vocabulary*. As Kamil and Hiebert describes, *receptive vocabulary* includes terms and phrases that an individual recognises and understands. *Productive vocabulary* includes terms and phrases that an individual uses. Additionally, a distinction between *oral* and *written language* was also made by Kamil and Hiebert as shown in Table 1 as a two-by-two classification of vocabulary.

Table 1
Types of Vocabulary

	<i>Receptive</i>	<i>Productive</i>
<i>Oral</i>	Listening Vocabulary	Speaking Vocabulary
<i>Written</i>	Reading Vocabulary	Writing Vocabulary

The frequency of words and the categorisation of words have largely been the subject for national and international research on vocabulary (e.g. Beck, McKeown & Kucan, 2002; Biemiller, 2005; Coxhead, 2011; Graves, 1987; Lonigan, 2007; Nagy & Herman, 1987; Nation, 2001). From existing research literature, it is known that vocabulary for classroom instruction can be identified under categories such as: *high frequency vocabulary* (words that students encounter frequently in text), *low frequency vocabulary* (words that occur in specific domains) and more informally known as *content vocabulary* (teachers refer to as words that are specifically related to their topic

study). Additionally, over the years, word lists have been developed which organises vocabulary into categories such as, for example: *academic vocabulary* (words that explain curriculum concepts, e.g. see Coxhead, 2000; 2011).

Vocabulary research from as early as seven decades ago recognised in their estimation that a 6000 word gap existed between percentiles of students in standardised tests (see Nagy & Herman, 1984). While this word gap was later reduced to between 4500 and 5400 for low versus high achieving students due to a different method of calculating vocabulary size, it remains that despite seven decades of existing research evidence there is, however, still a huge discrepancy in word gap size particularly for students who are low achievers and more often than not, recognised as those whose native language is not English. Hence, vocabulary and vocabulary development is an urgent issue to focus on particularly in the case of ELLs and in the context of this study, Tongan students.

According to Biemiller (2005), children who are native speakers of English enter kindergarten knowing at least 5,000 words compared to the ELLs who on average may know similar number of words in their native language, but fewer words in English. It demonstrates that while native speakers of English continue to learn new words thus building their vocabulary base, ELLs (including Tongan students) face the double challenge of building their English literacy foundation and then working towards closing the gap in order to attain similar levels of English vocabulary as the English native speakers (Biemiller, 2005; Nagy & Scott, 2001). Hence, vocabulary development is a vital part of all content learning for students although it is at times overlooked.

Biemiller (2004) asserts that the inability to readily assess vocabulary growth has been a major reason why vocabulary receives little attention in the primary grades. A major barrier for including vocabulary in the primary curriculum is the difficulty of assessing vocabulary, especially under class conditions. Testing children's vocabulary orally on a one-to-one basis is not difficult. However, vocabulary tests such as the Peabody Picture Vocab Test (PPVT) are not feasible for class teachers, for such assessment typically take 10-15 minutes per student (Biemiller, 2004).

Vocabulary and vocabulary development for Tongan students and in general ELLs are vital for their academic success in literacy (Biemiller, 2005; Nagy and Scott, 2001). In addition, the responsibilities that a teacher has in promoting vocabulary interests and the vocabulary instruction for Tongan students and in general ELLs are significant in the contributions that it makes towards reading and reading comprehension.

3.2 Components of vocabulary instruction with links to reading comprehension

In its analysis of the research on vocabulary instruction, the National Reading Panel (2000) asserts that there is not a single method of teaching that could be delivered solely as best practice for vocabulary instruction within classrooms. Instead, vocabulary needs to be taught both directly and indirectly thus taking on a multi-component approach to vocabulary instruction (Nation Reading Panel, 2000). In that same light, an effective English vocabulary teacher is one who provides rich oral language, uses and provides wide reading material, has control of vocabulary learning, provides meaningful contexts, creates and builds a word-rich class environment which enables both explicit instruction and incidental learning and development of 'word awareness to occur' (Blachowicz & Fisher, 2003; Nagy, 2005).

Existing research demonstrates that English vocabulary in particular, is linked to English reading comprehension (Biemiller, 2005; Nagy, 1988; Nagy, 2007; Stahl, 1999). However, this link is not clear as correlations between the two are not well understood and are quite complex. Anderson and Freebody (1981) were the first researchers to provide a three-level comprehensive explanatory framework for the relationship between English vocabulary and English reading comprehension. Firstly, they theorised that knowing individual English word meanings enables English text comprehension. This is not an explanation for how English vocabulary is acquired. Instead, it assumes that once the reader possesses English words, it helps the reader to understand text.

Secondly, Anderson and Freebody (1981) developed a hypothesis called the 'aptitude hypothesis'. The aptitude hypothesis theorises that students with large English vocabularies are better at discourse English comprehension because they possess 'superior mental agility'. For example, students who score highly on English vocabulary tests possess English vocabulary knowledge that reflects verbal aptitude (e.g. ability to spell words correctly, use correct grammar, understand word meanings, understand word relationships and interpret written information). The aptitude hypothesis theory remains unclear about the relationship between English vocabulary and English comprehension as evidence of strong correlations between the two have yet to be shown for this hypothesis.

Thirdly, Anderson and Freebody (1981) identified the 'knowledge hypothesis' which demonstrates the importance of acknowledging and exploring the concepts or schemata surrounding a word as students will have a varying degree of knowledge

about words. Thereby, Anderson and Freebody's (1981) three-level comprehensive explanatory framework provides insight for this study. In particular, the underlying theory about teaching word meanings, concepts or schemata of words is relevant for the theorising of literacy development for Tongan students.

In order for students to engage in discourse reading comprehension, acquisition of vocabulary knowledge is deemed pertinent and is prevalent in existing research literature. For example, according to Colorado (2007), vocabulary knowledge is key to reading comprehension based on the premise that the more words a child knows, the better he or she will understand the text. In addition, Biemiller (2005) recommends teaching English word meanings of general value that are known by 40 to 80 percent of children at the end of grade two such as those that will typically be known by children with large vocabularies but not by children with small vocabularies. There are perhaps 1600 such words that could be taught during the primary levels (Biemiller, 2005). Furthermore, Stahl (1999) states that word meanings are not just unrelated bits of information, but are part of larger knowledge structures. Students who know a great deal about a given topic will also know its vocabulary.

The approach that teachers have in delivering vocabulary instruction is thereby pertinent to the literacy development and reading comprehension of their students. Existing vocabulary literature purports that it is beneficial for teachers to have a multi-component approach to vocabulary instruction (e.g. Beck, McKeown & Kucan, 2002; Grave, 1987; Nagy, 2007; Nation, 2001). A couple of examples of multi-component approaches to vocabulary instruction include Stahl's model (1999) which emphasises that vocabulary instruction as an ongoing process should include both definitional information and contextual information about each word meaning, should involve

children more actively in word learning and should provide multiple exposures to meaningful information about the word. Additionally, Graves (2000) proposed a four-part programme for vocabulary instruction that includes wide reading, teaching individual words, teaching word learning strategies, and fostering word consciousness.

While this study is in agreement with research literature that promotes a multi-component approach to vocabulary instruction, there is paucity in written research that offers an approach to vocabulary instruction from a culturally inclusive premise. This study offers a culturally inclusive approach to vocabulary instruction, (developed by the researcher for Tongan students in Tongan bilingual classrooms), which addresses the learning needs and learning interests of Tongan students. As introduced in *Chapter 1*, a culturally inclusive approach to vocabulary instruction was implemented as part of the educational intervention for this study which demonstrated that it can be generalised to mainstream classrooms with students of other ethnic groups (explained in detail in *Chapter 7*). This study is in agreement with Nagy's (2007) assertion that:

“Vocabulary instruction is more than teaching words, it is teaching about words: how they are put together, how they are learned, and how they are used. If students are to take charge of their own learning in the area of vocabulary, they need to be able to reflect on word meanings, on the sources of information about word meanings, and on the process of vocabulary learning. Likewise, for students to construct meaning effectively, they need to be able to reflect on authors’ use of language forms and structures.” (p71)

It appears reasonable to assume that if students acquired average sized vocabularies then it might be expected that they would demonstrate roughly average

language comprehension but the relationship between vocabulary development and reading comprehension is complex (Anderson & Freebody, 1981). From existing research literature it is known that good readers think actively as they read by drawing on their prior experiences and/or their prior knowledge, by reflecting on their knowledge of English vocabulary and/or the English language structure or by thinking about which reading strategy to use (e.g. Graves 2000; Snow & Sweet, 2003). As students progress in their learning, they know how to solve problems as they occur in reading (Biemiller, 1999; Chall, 1987). Conversely, readers who struggle with unfamiliar contexts are unlikely to connect with the text as they may not have any prior experiences and/or prior knowledge to assist with the comprehension of texts which suggests that vocabulary instruction must also include the explicit teaching of contexts in which words are used and how the word meanings may change across difference contexts.

Reading comprehension is defined by Snow and Sweet (2003) as a process that the reader engages in extracting (i.e. recognising print and pronouncing it accurately) and constructing meaning (i.e. building new meanings by integrating new information with the old) from continuous text. This is a process which many students may struggle with particularly ELLs and in the case of this study, Tongan students.

Beginning readers use the English words in their existing oral language to make sense of the English words that they see in print (Biemiller, 2005; Stahl, 1999). As students learn to read more advanced texts in English, they acquire the meaning of new English words that are not part of their existing oral vocabulary. However, Bialystok (2001) alerts us to the potential difficulty of achieving high levels of competence in reading that can be achieved for ELLs. She maintains that bilingual students and in

general ELLs will find it more difficult to acquire literacy skills and be more restricted in the levels that they can achieve if they have only been exposed to the literacy experiences of only one of the two languages.

Furthermore, students with weak English vocabularies in their early primary school levels will struggle to take in more rich texts in English, learn fewer English words and as a result fall behind in their achievement as they move to the next year level in school (Stahl and Nagy, 2007; Nation, 2001). Biemiller (1999) identifies this occurrence as the 'cumulative vocabulary deficit' whereby students with limited English vocabularies relative to texts (in English) will have greater difficulty in comprehending texts and have greater difficulty in adding to their English vocabulary during reading. This implicates that it is possible for a student to know all the words in a passage and still not make any sense of it if s/he has no prior knowledge of the context. Additionally, Nation (2001) states that the native speakers of English require direct teaching of low frequency words but English second language learners require direct teaching of high frequency words. Secondly, he maintains that direct teaching of English vocabulary can lead to incidental learning of the same English words which can raise awareness of other English words. This might be seen as an approach that could overcome the 'cumulative vocabulary deficit'.

For Tongan students and in general ELLs, they may need a threshold level of knowledge about a given topic or context in order for them to make sense of the word combinations and to choose among multiple possible word meanings used within the classroom context particularly when reading texts. According to Garcia (2003) the developmental patterns for bilingual students in their language development suggests that the oral proficiency of a student in their first language determines their

comprehension in reading, despite some differences to this development between younger and older students. Thereby, methods of English vocabulary instruction should be able connect with the students' prior experiences, their prior knowledge and their diverse learning abilities.

A study conducted by Proctor, Carlo, August and Snow (2006) investigated the roles of language in initial literacy instruction and of first language (L1) literacy skills on the English (L2) reading comprehension of a sample of Spanish-English bilingual fourth graders. They assert that given adequate fluency, higher vocabulary levels enable more use of background knowledge, interpretation and comprehension monitoring. They suggest that there is a compelling relationship between L1 (Spanish) and L2 (English) that exists which could be attributed to the similarities shared between the Spanish and English cognates. Furthermore, they found that literacy instruction can be intensively focused on L2 development while also providing students access to the acquisition of literacy skills in their native language. Proctor, et al. (2006) supports Cummins (1979b) theory of linguistic interdependence which suggests that a student's L1 and L2 are interrelated and that achieving sufficient levels of L1 literacy would facilitate the acquisition and development of L2 literacy. Cummin's (1979b) theory of linguistic interdependence is explained in more detail later in this chapter.

Existing research literature on vocabulary and reading comprehension have established that readers' existing knowledge is critical for students to comprehend what they read. In relation to Tongan students, their thinking and assumptions are shaped by their cultural socialisation process, their prior experiences and their knowledge about the world which are, at varying degrees, embedded within the values of the *anga-fakaTonga* (the Tongan way of life) (Manu`atu, 2000; Taufe`ulungaki, 2009a; Thaman,

2001; Wolfgramm-Foliaki, 2006). The implications for teachers of Tongan students include the ability to make connections with students' existing knowledge and prior experiences in order to build on what they already know to assist with the comprehension of texts.

3.3 Fostering word consciousness in the classroom

A component within vocabulary instruction that this study emphasises is fostering word consciousness in the classroom. According to Stahl and Nagy (2004), word consciousness involves several types of metalinguistic awareness, that is, the ability to reflect on and manipulate units of language. Word consciousness also involves the knowledge and dispositions necessary for word learning and the various instructional practices and tools used to achieve it such as speaking, listening, reading and writing vocabulary (as referred to at the beginning of this chapter). Word consciousness is also largely dependent on in-depth knowledge of specific words (Graves, 1987). Furthermore, Graves (2000) asserts that word consciousness should be one of the main components within a vocabulary curriculum as the implications for student learning are positive.

To encourage students to engage in reading out of interest and reading for the purpose of learning vocabulary within the classroom context, teachers are responsible for creating a classroom environment that is filled with words and to generate and engage in discourse on comprehension and more generally conversations about words. In so doing, students are exposed to opportunities that will allow them to become more conscious of vocabulary in different forms that it is used. A study which supports teachers as advocates for vocabulary learning within the classroom was conducted by Henry, Scott, Wells, Skobel, Jones, Cross & Blackstone (1999). They found that when

teachers explored vocabulary learning in different ways, the motivation for learning and using words is enhanced because students were more readily able to express themselves. The study also found that teachers were able to influence word consciousness within their classrooms which in turn altered their students' perceptions about vocabulary. The enriched focus on word use took place during reading, writing and discussions within the classrooms.

Aligned with the research aims of this study, one of the methods that fostered word consciousness was providing the Tongan bilingual teachers with supplementary teaching resources to utilise within their guided reading lessons with their students. The supplementary teaching resources were in the form of two new vocabulary boards and were used as part of the intervention for this study. Developed by the researcher, these new vocabulary boards created a platform which enabled the Tongan students to express their learning needs and interests about vocabulary that they encountered in reading texts. The identification of words and the explicit teaching of words increased within the guided reading lessons and more generally, instances of vocabulary talk in other curriculum areas increased also (details are explained further in *Chapters 5 and 7*). As noted earlier, a culturally inclusive approach to vocabulary instruction and vocabulary learning might contribute positively to the English literacy development of Tongan students. To explore what a culturally inclusive approach might look like, the socio-cultural theory is explained in the next section, namely the works of Russian psychologist Lev Vygotsky (1978) that emphasised that the interactions between the teacher (expert) and student (novice) act as indicators that help facilitate student learning.

3.4 Socio-Cultural Theory

The socio-cultural theory stems from the works of Lev Vygotsky (1978) who believe that parents, caregivers, peers and the culture at large are responsible for the development of higher order functions in children which occurs as a social process.

An important concept in socio-cultural theory is Vygotsky's *Zone of Proximal Development (ZPD)* which contributed to theorising about the education of Tongan students in this study. ZPD is described as:

"The distance between the actual development level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers." (Vygotsky, 1978, p. 86)

Essentially, the ZPD includes all of the knowledge and skills that a child cannot yet understand or perform on their own yet, but is capable of learning with guidance. Lev Vygotsky conceptualised ZPD as a way of viewing what children are coming to know. In his works, as a teacher and a researcher, he recognised that children were able to solve problems beyond their actual development level if they were given guidance in the form of prompts or leading questions from someone more advanced. It is only through continual guidance within ZPD that learners grasp understanding that is more complex and move on to being able to know something well enough to share it with others. For example, in the case of story-book reading, the adult leads the social interaction by scaffolding the reading activity to help guide the child's participation. As the story-book activity continues, the child's increasing capabilities contributes more to the social interaction and comprehension of the text which can be associated with guided reading lessons and shared reading lessons within the classroom context.

Vygotsky (1978) asserts that learning and development are interrelated and occurs in a dynamic process whereby children become active participants in their learning through the use of language and interactions with others. Vygotsky identifies that we use language in our action of speaking as a tool for developing thought, simultaneously, language develops through thought. Thus, the social action of using language could lead to cognitive development within the ZPD. Vygotsky (1978) explains:

“The zone of proximal development today will be the actual developmental level tomorrow – that is, what a child can do with assistance today she will be able to do by herself tomorrow. The only ‘good learning’ is that which is advance of development.” (p. 87-88)

The ZPD adds to the theorising of the education of students as it is linked to the informal way that a Tongan child learns within the context of the home and that is through listening, observing and imitating another. In that same manner, the Tongan child can apply those skills upon entry to formal education with the guidance of their teachers or a student who is considered an expert.

McNaughton (1995) asserts that the contemporary developments of the co-constructivist view of learning stems from Vygotsky’s (1978) works and the first of these concepts is that a child’s construction of knowledge and more broadly, child’s expertise in action, is created first in and through social interactions. The cultural and social meanings that are expressed and constructed within social interactions convey notions of identity and expertise (McNaughton, 1995). Furthermore, the socio-cultural

theory and a co-constructivist view of learning are reflective of an *inquiry-based learning*⁶ where teaching is student-focused and hands-on.

The *Socialisation Model of Emergent Literacy* developed by McNaughton (1995) focuses on the processes by which children become expert members of their families, (i.e. individuals having special knowledge and ways of behaving). In the attempt to address the socialisation process of Tongan students in relation to their education for this study, the *Socialisation Model of Emergent Literacy* is deemed pertinent. As shown in *Figure 4*, the *Socialisation Model of Emergent Literacy* incorporates psychological explanations of learning and development based on the evolving co-constructivist theory.

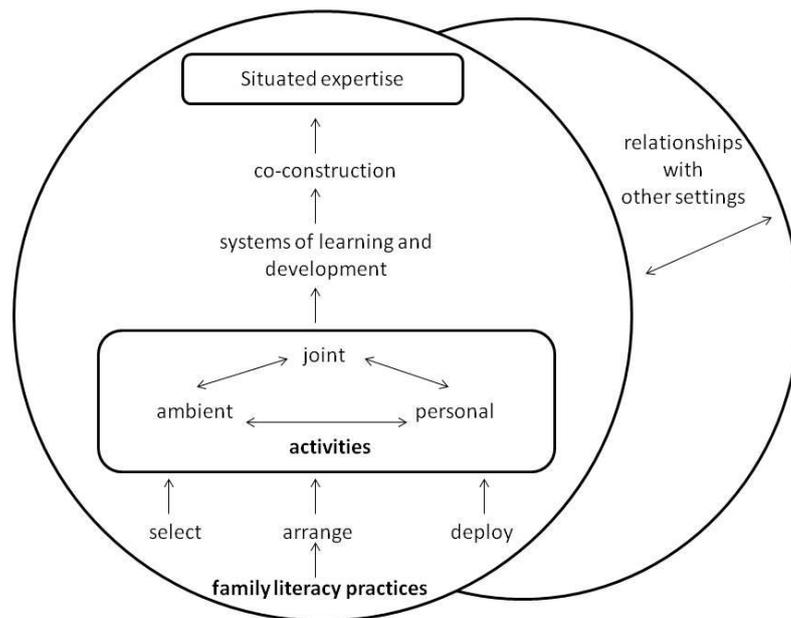


Figure 4. A Socialisation Model of Emergent Literacy (McNaughton, 1995, p. 3)

The *Socialisation Model of Emergent Literacy* consists of five key components: family literacy practices, activities, systems for learning and development, situated expertise and relationships between settings. According to McNaughton (1995), the

⁶ Inquiry learning emphasises constructivist ideas of learning, where knowledge is built from experience and process, especially socially based experiences.

development of children occurs through complex and dynamic exchanges between its parts (as shown in *Figure 4*). He highlights how a child learns from their family's literacy practices through activities which may be joint (accomplished together), personal (child initiated) or ambient (occurring around the child). The socialisation model of emergent literacy describes activities that take place within the home (e.g. reading and/or writing activities) which generate progressive interactions between the adult and child leads the child into developing situated expertise. Examples of family literacy practices include story-book reading, narratives and writing which are known to be significant contributions to children's learning and literacy development particularly upon arrival at formal education. This model highlights the significance of the family literacy practices and its contributions for the development of a culturally responsive pedagogy.

For Tongan students, similar experiences in family literacy practices have been demonstrated in the home and also across other sites by Wolfgramm-Foliaki (2006). The literacy practices of Tongan preschoolers were described by Wolfgramm-Foliaki across three sites: *the home, the language nest and the Sunday school*. Tongan preschoolers were found to engage in rich literacy activities that were linked to the Tongan culture. Moreover, she observed that Tongan families in New Zealand had specific ideas, goals and beliefs around their family literacy practices and held high aspirations for their children's education. Her study attests to the fact that Tongan children arrive at formal education in New Zealand with multiple forms of literacy and a wealth of cultural knowledge. The findings from her study can add invaluable insights into the considerations for the development of a culturally responsive pedagogy for Tongan students. As noted earlier, understanding the socialisation process and family

practices can help to connect and strengthen home-school partnerships which may serve to bridge the cultural gap as well as the achievement gap.

From existing research it is known that children construct their knowledge by learning from others and children are shaped by their social experiences and interactions (e.g. Alton-Lee, 2003; Vygotsky, 1978; Garcia & Kleifgen, 2010; McNaughton, 2002; Wolfgramm-Foliaki, 2006). Hence, the socio-cultural theory and the more contemporary developments of co-constructivist approach to learning informs this study on the basis that learning and enculturation are not isolated constructions of knowledge but like the *anga-fakaTonga* (the Tongan way of life) consist of intrinsic social endeavours that are prevalent across social and cultural landscapes (e.g. family, community, society and nation) thus reflecting its knowledge systems and values. These insights can contribute to the pedagogical content knowledge of teachers and add to the considerations for the development of a culturally inclusive approach and a culturally responsive pedagogy for Tongan students and more generally ELLs.

3.5 Pedagogical Content Knowledge (PCK)

The notion of Pedagogical Content Knowledge (PCK) was first proposed by Professor Lee Shulman (1986) and developed with his colleagues in the *Knowledge Growth in Teaching* project as a broader perspective model for understanding teaching and learning (e.g., Shulman & Grossman, 1988). Shulman's development of the PCK was to address the dichotomy of teachers' subject knowledge and pedagogy which were viewed as two mutually exclusive domains. He suggests that PCK was the best knowledge base of teaching:

“The key to distinguishing the knowledge base of teaching lies at the intersection of content and pedagogy, in the capacity of a teacher to

transform the content knowledge he or she possesses into forms that are pedagogically powerful and yet adaptive to the variations in ability and background presented by the students.” (p. 15)

Researchers have described PCK as the knowledge formed by the synthesis of three knowledge bases: subject matter knowledge, pedagogical knowledge, and knowledge of context. More specifically:

“Pedagogical content knowledge is a type of knowledge unique to teachers, and in fact is what teaching is about. It concerns the manner in which teachers relate their pedagogical knowledge (what they know about teaching) to their subject matter knowledge (what they know about what they teach), in the school context, for the teaching of specific students. It is the integration or the synthesis of teachers’ pedagogical knowledge and their subject matter knowledge that comprises pedagogical content knowledge.” (Cochran, King & DeRuiter, 1991, p. 5)

Furthermore, Shulman (1987) stated that a teacher’s PCK includes special attributes that can assist students in their understanding of content that will resonate with them thus making teaching and learning more meaningful. PCK is therefore concerned with pedagogical techniques, knowledge of what makes concepts difficult or easy to learn, an understanding of students’ prior experiences and prior knowledge and awareness about epistemologies.

In relation to the aims of this study, it was essential to find the extent of the PCK of the Tongan bilingual teachers in order to understand their teaching practice and how they have facilitates academic success for their students. This involved the researcher

investigating teachers' knowledge and beliefs about vocabulary instruction and reading comprehension and their teaching experiences in bilingual classrooms (explained in further detail in *Chapters 5, 6 and 7*).

One of the many components of PCK which is the knowledge and understanding that teachers have of their students' socialisation processes prior to their arrival at formal education (as noted earlier). If the Tongan students' socialisation process is understood by teachers this would enable teachers to connect with and activate students' prior knowledge and prior experiences thus contributing towards facilitating a culturally responsive pedagogy.

3.6 A culturally responsive pedagogy

Ladson-Billings (1995) describes a culturally responsive pedagogy is the intersection of culture and pedagogy. According to Gay (2000), a culturally responsive pedagogy consists of using the cultural knowledge, prior experiences, and performance learning styles of diverse students to make learning more appropriate and effective for students; it teaches to and through the strengths of the students. This study proposes that an understanding of students' cultural backgrounds and contexts is pertinent in the development of a culturally responsive pedagogy.

An example of a culturally responsive pedagogy is the *Kamehameha Early Education Project (KEEP)*. The research and development project began in the 1970's with the dual goal of (a) developing a programme for Polynesian children in Hawaii that would raise their reading scores on standardized tests and (b) disseminating the resulting programme throughout the public schools attended by these children. The results were highly successful with the improvement of reading scores for students (Au,

1980). One of the underlying factors of the KEEP project was the building of meaningful experiences to bridge the cultural gap known as the home and school experiences of the students. For instance, peer centres were set up in classrooms based on the observations that they had made about the structure of Hawaiian family life at home where the older children have a great deal of responsibility to look after the younger ones (Au, 1980). The KEEP project is of particular relevance to this study in its culturally inclusive approach to raising the reading scores of ethnic minority students across public schools. In addition, their development of a culturally responsive pedagogy to address the learning strengths of Hawaiian children supports the rationale for conducting this ethnic-specific study.

The call for the ethnic specific research, culturally inclusive approaches and culturally responsive pedagogies to address the academic achievement of students of ethnic minority groups, is timely and necessary (e.g. Amituanai-Toloa, 2005; Au, 1980; Au, 2007; Ladson-Billings, 1992; 1995; McNaughton, 2006; Manu`atu, 2000; `Otunuku, 2010). A culturally responsive pedagogy can lead teachers to value students' cultural identities and cultural practices and as a result, can be recognised by students as knowledge that is validated by their teachers. Furthermore, a culturally responsive pedagogy can empower students to engage with content that will activate their prior knowledge and prior experiences thus building on their existing knowledge. Adversely, teachers' lack of sensitivity to cultural differences can be interpreted by students in ways that may underestimate their academic potential.

In relation to this study, teachers might have utilised their knowledge of the Tongan cultural background and socialisation processes of Tongan students in order to maximise learning opportunities for their students thus demonstrating a culturally

responsive pedagogy. Additionally, the dual language medium of instruction (i.e. the Tongan language and the English language) within the classrooms in this study contributed to a culturally inclusive approach to vocabulary instruction and reading comprehension (this is explained further in *Chapters 6 and 7*).

3.7 Bilingualism and bilingual students

As noted in the previous chapter, Tongan students are included in the group of students who are collectively referred to as bilingual students (among other general categories) within the New Zealand education system. In relation to this study, it is useful to consider the co-occurring linguistic, cognitive and social character of a child's development as inherently interrelated (Garcia, 2009). In particular, bilingualism is a means of addressing the achievement gap between students who have English as a native language and students who have English as a second language (Cummins, 2000).

The term *bilingualism* is complex and it varies under different classes and beliefs (Baker, 2001; Cummins and Swain, 1986; May, Hill & Tiakiwai, 2004). For example, early definitions of bilingualism were unable to distinguish between someone who may speak two languages, but only read and write in one (or none) as opposed to someone who may listen with understanding and read a language, but may not be able to speak or write in it. However, May, Hill and Tiakiwai (2004) assert that bilingualism must always be viewed within the wider societal class and with a specific understanding of the particular circumstances of the language communities in question as opposed to just examining it solely on language itself.

International research conducted in between 1920 – 1960 held the view that bilingualism had negative effects on cognitive competence and educational outcomes

(as cited in Baker, 2001; Cummins and Swain, 1986; Hakuta, 1984; Hakuta & Diaz, 1985; May, Hill & Tiakiwai, 2004). However, it was found later that period that those research were significantly flawed, both conceptually and methodologically. The major turning point in the research on IQ and bilingualism arose in 1962 when a large scale Canadian study conducted by Peal and Lambert demonstrated that bilingual children scored better than monolingual children on both verbal and non-verbal tests of intelligence (as cited in Garcia & Nanez, 2011; Hakuta, 1984; Hakuta & Diaz, 1985; May, Hill & Tiakiwai, 2004). Since then, subsequent international research on bilingualism and cognition has consistently demonstrated that the cognitive and educational advantages of bilingual students has proven that having two linguistic systems can enhance cognitive flexibility (Cummins, 1979b; Garcia & Nanez, 2011; Hakuta, 1984; May, Hill & Tiakiwai, 2004).

To explain the specific situation of immigrant children learning a second language, Cummins (1979a) made distinctions between *Basic Interpersonal Communication Skills* (BICS) and *Cognitive/Academic Language Proficiency* (CALP) which may help to address the literacy achievement gap in literacy develop in New Zealand. The distinction between BICS and CALP has impacted a variety of educational policies and practices in both North America and the United Kingdom (e.g. Cline & Frederickson, 1996) but also incurred criticisms across research literature (e.g. Edesky, 1990; Wiley 1996).

Cummins (1979a) identifies that *Basic Interpersonal Communication Skills* (BICS) occurs when there are contextual support and props used for language delivery in the context of the classroom. The language demands and expectations for each curriculum area differs in content thereby the teacher utilises plenty of clues and cues in

order to assist students in their learning. This is known as context-embedded communication. Additionally, Cummins (1979a) identifies *Cognitive/Academic Language Proficiency* (CALP) as language that does not provide a meaningful or supportive context. Some teachers do not rely solely on their words but use objects, demonstrations, concrete examples, illustrations, picture and graphics to convey meaning. Alternatively, other teachers may rely on words alone, for example, students are expected to rely solely on the language of the worksheet or book in order to understand how to proceed with very few cues and/or clues in the conveyance of meaning. This is known as context-reduced communication (Cummins, 1979a).

The conceptual distinction between BICS and CALP, in spite of criticisms, may be able to inform teacher practice particularly in vocabulary instruction and reading comprehension by matching a child's level of language proficiency to instructional texts and accordingly teachers can provide appropriate levels of context-embedded teacher communication or context-reduced teacher communication in order to meet the student's language proficiency needs. At a theoretical level, however, the conceptual distinction between BICS and CALP is likely to remain controversial, reflecting that the nature of language proficiency and its relationship to academic achievement are complex.

Within the New Zealand context, the majority of bilingual students (including many Tongan students) are in classrooms that have the English language as the only medium of instruction. This may explain the gap in literacy achievements in English between first and second language English speakers (May, Cowles & Lamy, 2012). Upon entry to school, bilingual students are faced with a number of challenges in the class (mainstream and/or bilingual) such as the level of familiarity with different forms

and functions of literacy in English by which the differences will range from that of a literate or pre-literate of children from a low literacy background or rich literacy background.

Cummins (1979a) *Developmental Interdependence hypothesis* (stemmed from the *Thresholds Theory*) and subsequent research, suggests that a child's second language competence is partly dependent on the level of competence already achieved in the first language. For instance, the more developed the child's first language is the easier it will be for them to develop the second language. This needs to be taken into consideration for theorising about the education of Tongan students particularly in bilingual classrooms.

3.8 Bilingual education in New Zealand

In New Zealand, bilingual and immersion education are specifically distinguished. In other countries, immersion education is regarded as one form of bilingual education (May & Hill, 2005). New Zealand schools offer bilingual education in English along with one of the following languages: Māori or Samoan or Cook Island or Tongan. Within New Zealand there are four levels of immersion: Level 1: 81-100%; Level 2: 51-80%; Level 3: 31-50%; Level 4: 12-30% (May & Hill, 2005). It is important to note here that most bilingual classes within New Zealand mainstream schools have been set up as a direct result of parent requests mainly for the preservation of indigenous language and culture (Kolhase & Tuioti, 2002).

In New Zealand, there are some *Teachers of English to Speakers of Other Languages* (TESOL) support available for students from home language backgrounds other than English. The TESOL model adopted in most New Zealand schools has

English as a Second Language (ESL) pullout approach, staffed by separately trained *English for Speakers of Other Languages* (ESOL) teachers (May, Hill & Tiakiwai, 2004). In so doing, students are withdrawn from the class for specialist ESL instruction and thereby generalist teachers are not exposed to second language teaching and continue with a monolingual English approach to teaching (Ministry of Education, 2007a). This suggests that generalist teachers may require professional development in designing a pedagogy that is transformative, one that is culturally responsive in order to cater to the learning strengths and needs of bilingual students (also known as ELLs).

Cummins (1989) suggest that a focus on the dimensions of cultural identity is a crucial factor in understanding the learning and academic development of many bilingual students (including Tongan students). Specifically, groups of many English Language Learners (ELLs) students who tend to experience academic difficulties manifest a pattern of insecurity or ambivalence about their value of their own cultural identity as a result of their interactions with the dominant group.

In addition, successful bilingual programmes in schools appear to be those that emphasise and use the student's native language within the medium of instruction as well as incorporating students' family literacy practices and their cultural experiences which can assist in reducing the linguistic mismatch between home and school and furthermore bridge the cultural gap (Cummins, 1989). The fact that a student can speak and understand a language other than English should be recognised by teachers and educational practitioners as an enriched resource of literacy knowledge can be used to enhance the teaching and learning of students.

McCaffery and Tuafuti (2003) assert that using the first language of Pasifika students for academic learning and working within a strong empowerment base would be an efficient way for students to gain conceptual and academic knowledge. An indigenous language is a dimension of cultural identity which can add to bilingual education and contribute to a transformative pedagogy. As noted earlier, the *Developmental Interdependence hypothesis* (Cummins, 1979a) theorises that students can acquire and achieve academic success in a second or additional language (L2) through the acquisition of literacy in the student's first language (L1) thus demonstrating the positive aspects of bilingualism and cognitive development. These are important when considering a culturally inclusive approach for the education of Tongan students and particularly in designing culturally responsive pedagogies (Thaman, 2001).

3.9 New Zealand Government initiatives aimed at raising Pasifika student academic achievement

As explained in the previous chapter, the pan-ethnic term *Pasifika* is widely accepted and used across research literature aimed at addressing student achievement within schools across New Zealand. Due to a dearth in research literature concerning the reading achievement of Tongan students in New Zealand, much of this section highlights literacy research based on for *Pasifika* students in New Zealand by which Tongan students are included.

Pasifika students are one of the New Zealand Ministry of Education's priority learner groups (May, Cowles & Lamy, 2012). The New Zealand Ministry of Education implemented a nation-wide plan which focused on the education and achievement of Pasifika students entitled, the *Pasifika Education Plan* (PEP) in April 2001. The PEP

was driven by the commitment of the New Zealand Government to reduce disparities with the vision to improve the well-being of Pasifika students in all sectors of the New Zealand education system (Ministry of Education, 2008). For each educational sector, the PEP outlined the different sub-goals and among those were: to increase Pasifika children's participation in early childhood education, to improve the quality of education across all sectors, to increase the academic achievement of Pasifika students particularly in the area of literacy and numeracy, to increase community and parental involvement and participation and to increase opportunities for Pasifika people to be consulted in the early development of policy, legislation, regulations and programmes (Ministry of Education, 2008). Also, included in the earlier versions of the PEP plan was the focus on bilingual and biliteracy aspects of Pasifika education but those aspects were omitted in subsequent versions (Ministry of Education, 2013).

In 2002, the New Zealand Education Review Office (ERO) included 'the provision for Pasifika students' as a focus area for all review of schools which had Pasifika students enrolled (Education Review Office, 2003). ERO conducted 114 reviews in schools where Pasifika students were enrolled during the first two terms of that school year. The findings indicates that in order to contribute to improving educational outcomes for Pasifika students, schools needed to have a good understanding of the Pasifika students' current levels of academic achievement. Unfortunately, ERO reported that more than 40% of schools (with over 50% Pasifika students) were not separately analysing the achievement of those students thus highlighting an area for schools to improve on. Overall, ERO found that the level of assessment and analyses of achievement information were 'satisfactory' at 23 of the schools, 'developing' at 53 schools and 'unsatisfactory' at 27 schools. Furthermore, the ERO report found that only 32% of schools were reporting separately on Pasifika

students (Education Review Office, 2003). The implications that the ERO report had for the New Zealand Ministry of Education and schools across the nation were to consider as part of their forward planning the provision of guidelines to improve schools' self-reviews in their provision of education for Pasifika students. This included funding and evaluating pilot programmes aimed at improving educational outcomes for Pasifika students by enhancing language and small group instruction and also demonstrates how to increase schools' knowledge of Pasifika capacity building and the aspirations of the Pasifika communities (Education Review Office, 2003).

In addition, plans were set as a way forward to improving educational outcomes for Pasifika students in New Zealand schools. A literature review on Pasifika education in New Zealand highlighted research priorities that addressed policy requirements identified in the PEP (see Coxon, Anae, Mara, Wendt-Samu and Finau, 2002).

Accordingly, the PEP, through its ongoing reviews, provided a framework for the resourcing of initiatives to facilitate enhanced Pasifika learner outcomes. Examples of these initiatives included the *Pasifika School Community Parent Liaison Project* (PSCPL); *Towards Making Achievement Cool: Achievement in Multicultural High Schools* (AIMHI); literacy and numeracy school-parent partnerships; home-school partnerships; and the development of Pacific language curricula. However, within the wider context of Pasifika education in New Zealand, a synthesis of information and research is required in order to provide a clearer picture of Pasifika learners' progress and achievement (Airini, Anae, Mila-Schaaf, Coxon, Mara & Sanga, 2010; Ministry of Education, 2012b; Tongati'o, 2010).

In 2006, the New Zealand ERO investigated how schools were using Pasifika student achievement information to develop programmes to improve the achievement of Pasifika students. ERO reported that 75% of schools did not have any specific programmes to improve the achievement of Pacific students which is not significantly different to the 2002 ERO report presented earlier in this section. However, 25% of schools implemented a range of initiatives which included home-school partnerships, external literacy initiatives sponsored by the Ministry of Education or Universities such as the *Pasifika Literacy Initiative*. Additionally, primary schools where 70% of the roll was of Pasifika ethnicity had in place a Pasifika language centre, Pasifika teacher support for study leave, English language assistance and all teaching staff received professional development in English for Speakers of Other Languages (ESOL) methods of teaching (Education Review Office, 2009). From the ERO report, the implications were to further improve on the implementation of research and professional development and that the teaching and learning of Pasifika students in New Zealand remains a priority for the Government.

Moreover, in 2009, the New Zealand Ministry of Education introduced the *Compass for Pasifika Success* which was included as part of the PEP (see *Figure 5*) with a research and development policy that identified opportunities for the teaching and learning of Pasifika students. Tailoring educational opportunities and strong evidence-based research that meet the learning needs of Pasifika learners, contributes to Pasifika educational success. An example of Pasifika success can be seen in the schools of Mangere and Otara (two South Auckland districts in New Zealand) where students were reading and writing close to the national averages. The positive differences were attributed to the schools and communities that were engaging more effectively with a strong focus on literacy.

Since the inception of the *Compass for Pasifika Success*, the PEP plan in its ongoing reviews launched the 2013-2017 plan. Schools are encouraged to become familiar with the new plan and in particular the revised version of the *Compass for Pasifika Success* as shown in *Figure 5*. The PEP 2013-2017 seeks to improve educational outcomes for Māori learners, Pasifika learners and learners from low socio-economic status.

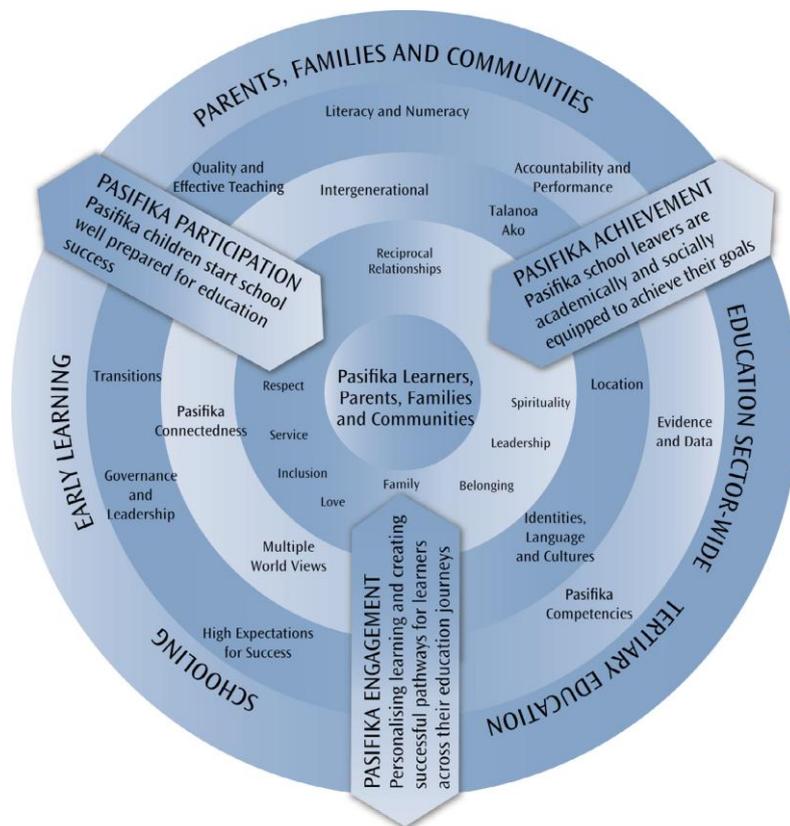


Figure 5. The NZ Ministry of Education’s 2013-2017 *Compass for Pasifika Success* (Ministry of Education, 2013, p. 3)

As shown in *Figure 5*, the Pasifika learner is placed at the centre of the *Compass for Pasifika Success* with Pasifika values which are similar to that of the Tongan strengths-based principles, values and educational concepts. The *Compass for Pasifika Success* illustrates the influences that inform a Pasifika learner’s identity. *Pasifika*

presence, Pasifika engagement and Pasifika achievement are the three overarching factors which are also focused on the *Pasifika learner* as shown in *Figure 5*.

Conversely, the *Compass for Pasifika Success* is focused on the Pasifika cohort that homogenises a collective of ethnic minority students that have multiple worldviews and cultural identities. In order to focus on raising academic achievement for a particular group of students, it is deemed appropriate to conduct research and/or develop frameworks, models or approaches that are ethnic specific in order to bring to the fore relevant and specific strengths and needs of the students. For example, outside factors that influence the *Pasifika Learner* as identified in the *Compass for Pasifika Success* provides educators with imprecise indicators of the learners' indigenous principles, values and educational concepts. In this study, students are first and foremost identified as Tongan (or part Tongan) before they are considered or identified as *Pasifika*. As noted earlier in this chapter, while *Pasifika* is a term used to refer to collectively to people with ethnicity or ethnicities from South Pacific nations; however, it fails to specifically identify Tongan students within the *Compass for Pasifika Success*.

Furthermore, the term *compass* as it is used in the title of the New Zealand Ministry of Education's *Compass for Pasifika Success* model appears to have applied the traditional Western perspective to theorise and navigate the education of Pasifika students in the quest for academic success within the New Zealand education system. It is worthy to note that in the ancient Tongan navigation of the *moana* (ocean) voyages (like other ancient navigators from the South Pacific region) did not use a *compass* to navigate the largest expanse of the *moana*; instead, they were guided by environmental elements which they used as navigational tools to determine nautical and celestial pathways in their *moana* voyages. For example, in the first recorded encounter with

Tongans in 1616, Jacob Le Maire while on a Dutch expedition noted that the Tongans had no compasses or nautical instruments on board their double hull canoe (Langdon, 1977). The navigational tools used by the ancient Tongan navigators are explained further in *Chapter 4*.

Nonetheless, for this study the *Compass for Pasifika Success* provided a holistic perspective that culminated a range of identities, multiple worldviews, diverse cultures, principles, values and educational concepts that encompass learners who are generalised under the term “Pasifika”. The New Zealand Ministry of Education’s assertion is that success in education requires harnessing *Pasifika* diversity that places the *Pasifika* learner at the centre of the *Compass for Pasifika Success*.

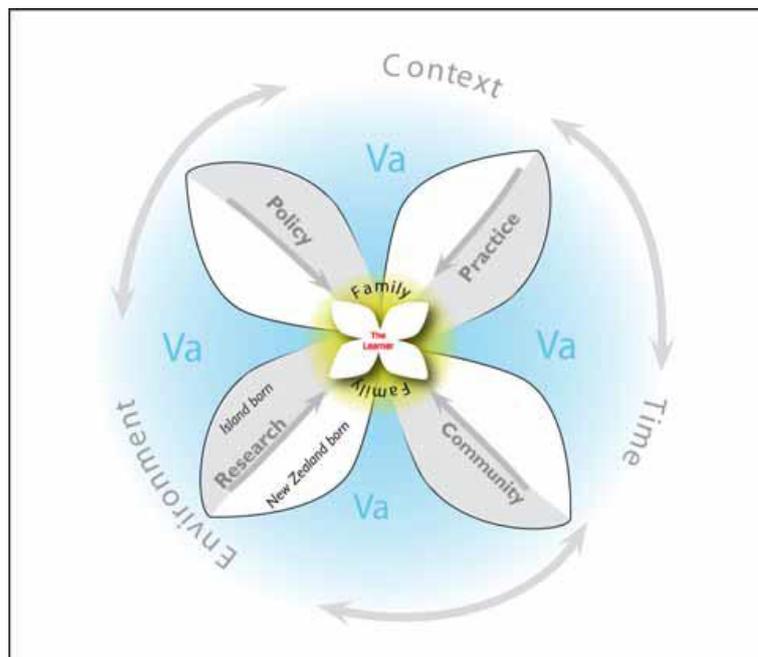


Figure 6. Teu Le Va (Ministry of Education, 2010b, p. 27)

A framework entitled *Teu Le Va* (as shown in *Figure 6*) emphasises the importance of strengthening and maintaining relationships across research, policy and practice that work for Pasifika education in New Zealand. *Teu Le Va* offers a philosophical and methodological base for the translation of research into policy for

better Pasifika education outcomes (Airini, Anae, Mila-Schaaf, Coxon, Mara & Sanga, 2010). *Teu Le Va* provides insight into the relationships that exist between policy, practice, community and research thereby placing the *Pasifika* learner as the focus. It explores the concepts of time and space which are relevant to the understanding of how community, research, policy and practice are interconnected and the implications for Pasifika learners and their families.

As a tool, the strategic intent of the *Teu Le Va* is for educational researchers to involve Pasifika, their families and communities in the development of educational research that supports Pasifika educational success within New Zealand's education system. In so doing, it recognises the critical role of research-informed policy that comes from a research base that is sound, comprehensive and relevant that contributes to developing Pasifika education. *Teu Le Va* thereby encourages optimal relationships are necessary for a collective and collaborative approach to research and policy-making. However, much like the *Compass for Pasifika Success*, *Teu Le Va* provides a broad approach to the educational success of Pasifika students and does not provide an in-depth insight that an ethnic-specific framework would offer.

Nonetheless, *Teu Le Va* provides insight for this study by highlighting that fostering positive working relationships are essential in establishing and maintaining school coherence, building home-school partnerships, as well as engaging key stakeholders in the contribution to the theorising and education of Pasifika students (including Tongan students) which are timely and necessary.

In light of policy development for Pasifika students in New Zealand, Robinson, Hohepa and Lloyd (2009) identified that there was no clear policy direction to help

schools build on the language diversity of children who move from Pasifika language nests into primary schools. They explained that there was a lack of research on leadership that relates directly to improving outcomes for Pasifika students in New Zealand and because of this lack, many initiatives to improve Pasifika student learning have so far failed to make a significant impact on the achievement of Pasifika students in New Zealand. This highlights that more work needs to be done in order to help shift the Pasifika students from low achievement or underachievement to achieving at or above the national norm across New Zealand. Furthermore, Robinson et al. (2009) assert that one of the most powerful ways to promote student learning are for teachers to help students connect their school work with their experiences from their own families, whānau, cultures, and communities so that learning can build on the students' prior knowledge and skills (as mentioned previously).

While some Pasifika students academically achieve at a very high level, there are other Pasifika students who are underachieving. Identifying Pasifika academic achievement and the need to address issues pertaining to Pasifika academic underachievement have been a longstanding concern for the New Zealand Ministry of Education researchers and educators to which the call to further research, educational discourse and action are necessary. The Ministry of Education recognises the issues pertaining to Pasifika learners and have addressed Pasifika education among its research priorities (Ministry of Education, 2012b).

The New Zealand Ministry of Education have provided Pasifika educational resources that are written in different Pasifika languages (Tongan language inclusive) which leans towards the preservation and celebration of Pasifika languages and contributes positively to the education of Pasifika students in New Zealand (Ministry of

Education, 2010a). Unfortunately, these valuable resources were paused by the MOE in 2011; however, teachers continue to make use of these resources particularly to engage Pasifika students within the classroom context. In order to determine whether these Pasifika resources are indeed contributing to the teaching and learning and understanding of Pasifika students, further research is required.

The New Zealand Ministry of Education continues to navigate Pasifika achievement by addressing matters that are deemed culturally relevant for students such as: strengthening home and school partnerships, the provision of ethnic-specific language resources, bilingual classrooms, subjects and language nests, and recognising Pasifika students who are achieving at or above the national norm by celebrating success. For example:

“The underlying assumption appears to be that improving achievement is likely to occur through teachers giving greater recognition to Pasifika child’s culture, improving the interface and understandings between home and school, thus increasing bilingual provision and resources and giving more positive publicity to the achievement of those who have succeeded.” (Ministry of Education, 2004, p. 16)

While this study focuses on vocabulary instruction and reading comprehension of Tongan students within the classroom context, it recognises that there are outside influences, such as school governance; local, national and international research, leadership and governance; which are the sources that essentially inform teacher practice and are responsible for the academic success of all students. Therefore, local and national research within schools can contribute information about existing pedagogical practices to policy development; however, it is unknown how educational

research is translated into teacher practice, particularly for teachers who currently teach in classrooms that have Tongan students.

The next section presents educational research conducted in New Zealand based on the English literacy instruction or English literacy development of Pasifika student within the primary education sector.

3.10 Literacy instruction for Pasifika Students in New Zealand

Issues surrounding Pasifika academic achievement are attributed to various factors including: language problems, lack of knowledge and skills to cope with in the classroom context and low socioeconomic status (Alton-Lee, 2003; Amituanai, 2005; Samu & Finau, 2001). Over the past decades, existing research literature in New Zealand within the primary sector have reported that Pasifika students score lower in reading comprehension measures and other English literacy assessments than students from other ethnic groups; however, studies have demonstrated that the achievement in English literacy for Pasifika students can be enhanced with specific educational interventions (e.g. Amituanai-Tolosa, 2005; McNaughton, MacDonald, Amituanai-Tolosa, Lai, & Farry, 2006; Lai, McNaughton, Amituanai-Tolosa, Turner & Hsiao, 2009).

Nelisi (1999) emphasised the importance of the inclusion of Pasifika indigenous content and language in reading resources to aid the development for literacy of Pasifika students in New Zealand schools. She deemed this to be a good starting point for literacy development among Pasifika students and that it will assist with the maintenance of the indigenous language and heritage. She highlighted the links that Pasifika students are readily able to make with reading resources (story-books) that are of relevance to their specific cultural background, home and/or upbringing. When these

connections are made it brings about empowerment to the learning of Pasifika students because their stories belong to their culture.

McNaughton (2002) asserts that children need to be immersed in the very activities that are fundamental to the social practices which are valued by the curriculum. If activities are to do with reading to comprehend, to evaluate, and to appreciate, then the meaningful and authentic ways in which experts perform tasks should be present in the classroom and should be reflected in outcomes. This was demonstrated in a study conducted by Phillips, McNaughton and MacDonald (2004) where it was found that when teachers engaged with new understanding of literacy and language, it enabled them to refine and refocus their teaching to cope with diversity and the assumed mismatches between and within developmental settings. This included, teachers honing in on the patterns of interaction when reading to students in order to create a shared understanding about the purpose of text structure. The dialogue between teachers and students focused on text meanings among other things. In turn, the reading comprehension of students were meaningful and the direct teaching of words and incidental pick up of word meanings transpired within the context of the lessons. Phillips, et al. (2004) suggest that language features such as English vocabulary and English sentence structures need to be in place for students before the teaching of reading and writing processes proceed. In addition, they maintain that schools can make a positive difference in the literacy achievement of ethnic minority children by managing the potential mismatches that children face upon their arrival at school and schools can work towards reducing risks for achievement.

The findings from the Nelisi (1999) study and the Phillips, et al. (2004) studies are consistent with the vocabulary research for bilingual learners presented earlier in this

chapter and have informed this study with the notion that learning for Pasifika students must be made meaningful in order for them to be able to connect and engage in their learning, particularly in the comprehension of texts.

To reiterate, while native speakers of English continue to learn new words upon entry to formal education thus building on their vocabulary base, ELLs (including Tongan students) face the double challenge of building their English literacy foundation and then working towards closing the gap in order to attain similar levels of English vocabulary as the English native speakers (Biemiller, 2005; Nagy & Scott, 2001).

As introduced in *Chapter 1*, an ethnic-specific study conducted by Amituanai-Toloa (2005) found that the general achievement of Samoan bilingual students at baseline lags behind that of Samoan mainstream students from Year 4 and Year 5 followed by a ‘catch up’ at Year 6. Samoan bilingual students then progress further with noted achievement above their mainstream counterparts at Years 7 and 8 (Amituanai-Toloa & McNaughton, 2008). Amituanai-Toloa and McNaughton argue that the developmental pattern for L2 students in a bilingual context might be due to simultaneous development of L1 and L2 thus giving bilingual student’s different degrees of negotiation in both languages and the extent to which they understand and use both for the comprehension. Samoan bilingual students scored higher than Samoan mainstream students on vocabulary but slightly differed in reading comprehension. This suggests that teachers in bilingual classes focused more on vocabulary work or a reflection on slower development. Furthermore, Toloa, McNaughton and Lai (2009) suggest that under some instructional conditions transfer might be positive and reciprocal leading to facilitation of L1 as well as L2. They claim that there is a strong relationship between oral language levels in L1 and levels of reading comprehension in

L1 for Samoan bilingual students as assessed through a listening task. Their finding aligns with Proctor et al.'s (2006) finding that oral language levels in each language were strong predictors of reading comprehension in that language. Additionally, Amituanai-Tolosa, McNaughton and Lai (2009) highlight that there is a pressing educational need for valid measures of reading comprehension and oral language development specific to a language group particularly for Pasifika students in New Zealand.

In terms of teacher instruction, Lai, et al. (2009) found that by using detailed achievement data evidence to affect instructional changes in sustainable ways requires more than an educational intervention that pre-specifies changes. They suggest that sustaining achievement in reading comprehension for culturally and linguistically students in the schools of poorer communities is dependent on two developments:

- development of professional learning communities focused on critically analysing the effectiveness of instruction
- fine tuning instruction to better meet the needs of students in the communities

Lai, et al. (2009) study highlights the need for ongoing support and professional learning for teachers and school leaders in order to sustain achievement results thus supporting the notion that teacher education and training are critical particularly in the development and understanding of culturally responsive pedagogies. For example, Symes, Jeffries, Timperley and Lai (2001) conducted an evaluation of a professional development programme in literacy. It was reported that there was a tendency for some teachers to subscribe to cultural deficit explanations for the underachievement of Pasifika students; however, good assessment data provided evidence that, it was in fact due to teacher expectations (or lack of) and instructional practices, not student abilities

that led to low achievement levels for students. According to Coxon, Anae, Mara, Wendt-Samu and Finau (2002), improving teacher expectations and practice will have a positive impact on students and with improved data collection systems and analyses, there will be the evidence to prove it. These findings are particularly crucial to this study as it demonstrates and supports the *Ako Conceptual Framework* which advocates the identification of student's learning strengths and learning needs.

Parr, Timperly, Reddish, Jesson and Adams (2007) posit that school practices that are based on coherent conceptual frameworks should promote effective teaching to ensure that there is school coherence, professional learning (also known as professional development) for teachers as it contributes to addressing the educational needs of the students. However, as Parr, et al. (2007) reported:

“We were unable to locate any (studies) that were specifically concerned with promoting the professional learning of teachers of Pasifika students in New Zealand this is another gap urgently in need of filling.” (p. 17)

Parr, et al. (2007) highlight a concern and a need for educational leaders, researchers and policy-developers to devise plans and implement change in support of effective teaching practices and the development of culturally responsive pedagogies.

In relation to home-school partnerships, a schooling improvement study conducted by Amituanai-Toloa, McNaughton, Lai and Airini (2009) found that coherence within schools across all education sectors are pertinent to attaining greater effectiveness in teaching. In particular, a range of home-school partnerships were found to be associated with effective teaching. For example, it was found that parents were very supportive of their child's education especially when they were provided with opportunities to work alongside teachers and engage with the school. Among their

findings, they suggest that there is a need for an induction for Pasifika students upon their arrival to school to help manage the mismatches between the home and school. Amituanai-Tolosa, et al. (2009) research demonstrate the importance for schools to foster a home-school partnership, establish and maintain school coherence and assist teachers in professional development/learning to work with a transformative pedagogies that are culturally responsive to help yield positive outcomes for students. Amituanai-Tolosa, et al. (2009) reaffirms that having a culturally inclusive approach to the education of Pasifika students (including Tongan students) are associated with greater effectiveness in teaching. For students who are bilingual, the study was also a reminder that bilingualism is not an impediment to the academic achievement of Pasifika students, including Tongan bilingual students in New Zealand.

3.11 Chapter summary

This chapter highlights that teaching is a highly complex profession that draws on many kinds of knowledge systems particularly in the quest for the academic success of students. The descriptions of existing and current knowledge, as well as theoretical constructs from research literature, that are presented in this chapter informed the fundamental premise of this study, in particular:

- The socio-cultural theory and co-constructivist approaches to learning support the engagement of students as active participants of their learning, which have similarities to the Tongan kinship structure whereby Tongan children learn through observation, listening, imitation and participation which are reflective of an inquiry-based learning style.
- The high disparities and demographic profile of Pasifika students in the New Zealand education system support the call for further ethnic specific studies.

- Positive outcomes are achieved for Pasifika students (including Tongan students) when teachers adapt their pedagogies to meet the students learning needs.
- Teachers drawing on the prior knowledge and prior experiences of Pasifika students produce positive learning outcomes.
- Home-school partnerships are associated with greater effectiveness in teaching for Pasifika students (including Tongan students).
- The inclusion of indigenous content and languages in texts used within schools are associated with positive outcomes for the literacy development of Pasifika students (including Tongan students).
- Improved achievement scores in reading comprehension for Samoan bilingual students were partly attributed to teachings focusing on vocabulary instruction thus contributing to the rationale of this study.
- Tongan children arrive at formal education with family literacy practices that were observed across multiple sites, all of which are inter-connected with the Tongan culture thus suggesting that the socialisation process of Tongan children are culturally laden.
- Bilingualism is not an impediment on the education of bilingual students (including Tongan students).

Furthermore, existing research literature also exemplify the various complexities that are involved in understanding and theorising the education of Tongan students with a particular focus on vocabulary instruction and reading comprehension thus presenting a number of challenges for this study. The complexities highlighted in this chapter include:

- English Language Learners (ELLs) (including Tongan students) face the double challenge of building their English literacy foundation and then working towards closing the gap in order to attain similar levels of English vocabulary as students that are English native speakers.
- There is a dearth in educational research that focuses on the literacy development and the reading achievement of Tongan students in New Zealand.
- The paucity of culturally inclusive approaches to vocabulary instruction (in relation to reading comprehension) for Pasifika students, ELLs, ESOLs and bilingual students in written research supports the call for ethnic specific research and in particular the development of culturally responsive pedagogies.
- Tongan students are grouped under the pan-ethnic Pasifika group, English Language Learners (ELLs), English Speakers of Other Languages (ESOL) and bilingual students, as identified by the New Zealand Ministry of Education, which fails to specifically identify the specific learning needs and strengths of Tongan students.
- There is a dearth in existing research that illustrates the relationship between vocabulary instruction and reading comprehension for Tongan students.
- The paucity in written research that discusses the relationship between first language (L1) and second language (L2) for Tongan bilingual students suggests that research and development is required in that area.
- There is no language policy for Tongan language within the education sector for New Zealand.

To address some of the complexities surrounding the understanding and theorising of the education of Tongan students, this study proposes the *Ako Conceptual Framework* and offers conceptual propositions for consideration in the development of culturally responsive pedagogies for the education of Tongan students in New Zealand and abroad.

In the next chapter, descriptions about the development of the *Ako Conceptual Framework* is presented along with succinct historical accounts of the ancient art of Tongan navigation in *moana* (ocean) voyages and the construction of the traditional Tongan double hull canoe known as the *kalia*.

Chapter 4 Ako Conceptual Framework

4.0 Chapter overview

To help contextualise this study, the *Ako Conceptual Framework* (see *Figure 7*) was developed by the researcher within the parameters of this study and is presented in detail within this chapter. As introduced in the preface, Tongan students who were born in New Zealand have parents or grandparents or great-grandparents, who might have emigrated from Tonga to New Zealand. Other Tongan students who were born in Tonga, or who were born in other countries outside of New Zealand, may have left their country of birth to reside with their families in New Zealand. In view of that, the concept of leaving familiar shores (e.g. Tonga) to embark on a journey into new shores (e.g. New Zealand) was the reason that the ancient art of Tongan navigation in *moana* (ocean) voyages was selected by the researcher and used as a metaphor to help contextualise and theorise the education of Tongan students in New Zealand for this study. In addition, descriptions of the construction of the *kalia* (a traditional Tongan double hull canoe) were also applied as metaphorical representations to help contextualise and theorise the education of Tongan students.

The *Ako Conceptual Framework* goes beyond a coherent way of thinking about the education of Tongan students given that teaching is a highly complex profession that draws on many kinds of knowledge systems. For example, the art of ancient Tongan navigation in *moana* voyages that are included in the *Ako Conceptual Framework* are as follows: *`eikivaka* (the navigator), *kauvaka* (the crew), the environmental factors which were used as navigational tools and the construction of the *kalia* that were used in the *moana* voyages.

This chapter begins by presenting the rationale of the *Ako Conceptual Framework* followed by a description of its proposed fundamental concepts along with descriptions of the micro and macro levels. Subsequently, the metaphorical representations of the ancient art of Tongan navigation in moana voyages in relation to the education of Tongan students are presented. Additionally, descriptions about the navigator, navigational tools and the kalia are also included in this chapter. Furthermore, metaphorical representations of the kalia are described in relation to the education of Tongan students in conclusion to this chapter.

4.1 The Ako Conceptual Framework

Defining the term ako

The conceptual framework that was developed by the researcher within the parameters of this study was given the title *ako* to convey its purpose without any ambiguity. As noted in *Chapter 2*, the term *ako* was noted as one of the Tongan educational concepts with which Thaman (2000b) had defined along with the concepts of *`ilo* (to find, to recognise, to discover, to know and to understand) and *poto* (to be clever, skilful, to understand what to do and be able to do it). By this means, the definition for the term *ako* is presented according to Thaman (2009b). She stated:

“The earliest reference to the meaning of ‘aco [sic]’ is by Martin (1827:ix), when he attributed to it the meaning ‘to teaching, or to learn’. ‘Ako’ was also a term used to denote teaching and learning in a society where everyone was expected to perform certain roles in accordance with various predetermined hierarchies which were expressed through the complicated network of relationships, largely kinship-based. A person learned mainly through observation, listening to and imitating others. When the need arose (for example, to learning about navigation techniques or warfare), the skills

were taught by those responsible for imparting such knowledge and skills.”

(p. 70)

Furthermore, Thaman (2009b) explores a derivative of *ako* which is *faiako*. She states:

“Faiako is closely associated with formal education, since in informal contexts people learn largely through observation, listening, and imitating those who already possess the desired skills or knowledge. Today the term ‘faiako’ is used almost exclusively to refer to schoolteachers.” (p. 70)

Thaman’s (2009b) assertion is that the knowledge of indigenous educational ideas is important for teachers as they try and bridge the learning gap in achievement. By this means, this study proposes the *Ako Conceptual Framework* as a contribution to the theorising of the education for Tongan students and to add to the considerations for the development of a culturally responsive pedagogy.

Rationale

The rationale for the *Ako Conceptual Framework* (see *Figure 7*) was to source an approach to the understanding and theorising of the education of Tongan students in New Zealand that was from, and utilised aspects of, the Tongan language and culture in order to develop a culturally inclusive approach and structure that will address issues of reading among Tongan students, and to discover a culturally responsive pedagogy with which to find a solution for a specific problem, in this case, reading comprehension.

Thereby, the *Ako Conceptual Framework* is informed by and validated by Tongan strengths-based principles, values and educational concepts. While this study focused on the English vocabulary instruction of Tongan students and English reading

comprehension, the application of the *Ako Conceptual Framework* can be generalised to other curriculum areas and other age groups in education across New Zealand and abroad.

The *Ako Conceptual Framework* offers a new approach on which to base sound and pragmatic decision making about the education of Tongan students living in New Zealand and abroad. As a Tongan specific conceptual framework, it can be seen as a contribution to developing a culturally responsive pedagogy thus adding to the existing Tongan, Pasifika and traditional Western frameworks, models and approaches within the educational field.

For this study, the *Ako Conceptual Framework* used a Tongan perspective to connect the aspects of inquiry articulated within the research aims and research questions. It is theorised that the teaching concepts and the student learning concepts need to be aligned in order to help develop a culturally responsive pedagogy for the education of Tongan students. As described in *Chapter 3*, a culturally responsive pedagogy can be viewed as the intersection of culture and pedagogy.

Proposed fundamental concepts

The fundamental concepts that the *Ako Conceptual Framework* proposes are:

Taumu`a `oe ako (purpose for teaching and learning)

- *fonua* (land, people of the land)

Founga ako (knowledge systems)

- *knowledge by observation: vakai* (to look at, give attention, to consider)
- *knowledge by instruction: ako`i* (to teach)
- *knowledge by application: ngāue`aki* (to work with)

- *knowledge by discussion: talanoa or fealea`aki* (to talk, to discuss)

Feinga ako (learning endeavours)

- *`aonga* (useful, helpful, effective, worthwhile, necessary)
- *mahu`inga* (essential, important, valuable, vital, worth)

Vā

- *the space where social connections and professional relationships can be formed*

As shown above, the *taumu`a `oe ako* (purpose for teaching and learning) must be recognised and set prior to engaging in the aspects of *founga ako* (knowledge systems) and *feinga ako* (learning endeavours). The *vā* is identified in the context of this framework as the space where social connections and professional relationships can be formed. The many concepts embedded within *Ako Conceptual Framework* reflect the complex profession of teaching and the challenges that come with the promotion of student learning. Essentially, it is theorised that the *Ako Conceptual Framework* needs to be cohesive to ensure that the *founga ako* is effective, the *feinga ako* resonates with students and teachers and for the *taumu`a `oe ako* to be fulfilled and achieved well. Hence, navigation is the art of taking a vessel from one location to another and much is the same with the education of Tongan students, to ideally move students from one level of achievement to the next.

Micro and macro levels

The components of the *Ako Conceptual Framework* are organised into two levels, micro and macro. These levels represent various factors which can influence and impact the education of Tongan students. The micro and macro levels are introduced in this section but are described in detail in the following sections of this chapter. It is important to highlight that in the *Ako Conceptual Framework* there are two elements

that are present in both the micro and macro levels: the *fonua* (land, people of the land) which is the metaphorical representation for the purpose of teaching and learning, and the *vā* (the space between) which is a Tongan concept of the space where social connections and professional relationships can be formed.

At the micro level, the construction of the *kalia* (the traditional Tongan double hull canoe) is used as a metaphorical representation of the factors that can influence and impact on the education of Tongan students:

- (i) *Katea 1* (1st hull): *Student background*
- (ii) *Katea 2* (2nd hull): *School settings*
- (iii) *Fungavaka* (deck): *Home and school connections*
- (iv) *Lā* (sail): *Students' learning needs and interests*
- (v) *Lalava* (lashings): *Social connections and professional relationships*
- (vi) *Fohe`uli* (steering oar): *Teachers' inquiry into new knowledge in the development of a culturally responsive pedagogy*
- (vii) *Fonua* (land, people of the land): *The purpose for teaching and learning*
- (vii) *Vā* (the space between): *The space where social connections and professional relationships can be formed, nurtured and maintained*

At the macro level, the navigational tools with which the ancient Tongan navigators exhibited are used as metaphorical representations of the overarching factors which can influence and impact the education of Tongan students:

- (i) *La`ā, māhina & ngaahi fetu`u* (celestial navigation): *Tongan strengths-based principles, values and educational concepts*
- (ii) *Manupuna fakafano* (migratory birds): *Local, national and international research*

- (iii) *Matangi (wind): Local, national and international governance and leadership*
- (iv) *Moana (ocean): Pluralistic global society*
- (v) *Fonua (land): The purpose for teaching and learning*
- (vi) *Vā (the space between): The space where social connections and professional relationships can be formed, nurtured and maintained*

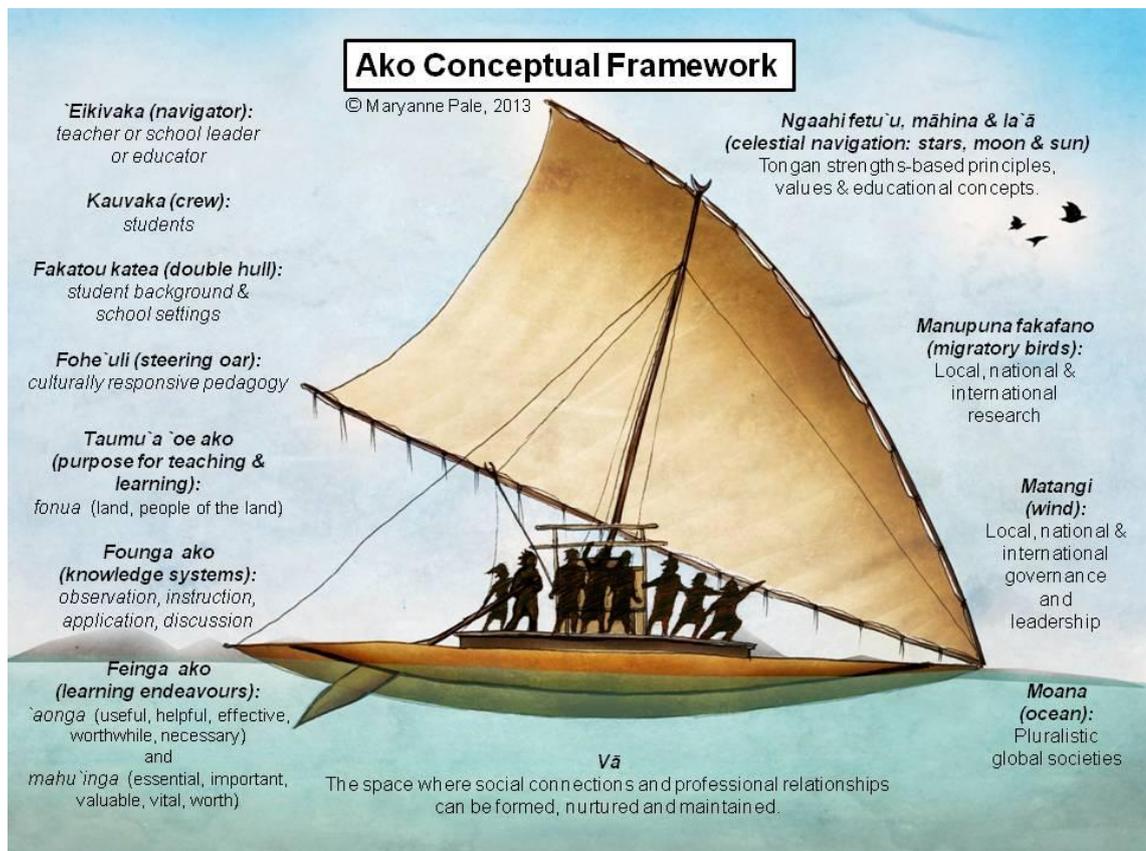


Figure 7. Ako Conceptual Framework

The fundamental concepts of the Ako Conceptual Framework

As illustrated in *Figure 7*, the fundamental concepts that the *Ako Conceptual Framework* proposes were noted earlier as: *taumu`a `oe ako* (purpose for teaching and learning), *founga ako* (knowledge systems), *feinga ako* (learning endeavours) and the *vā* (space where social connections and professional relationships can be formed, nurtured and maintained). The next few sections provide further insight into these fundamental

concepts in relation to the ancient art of Tongan navigation and in relation to the education of Tongan students. In following, the remainder of this chapter provides descriptions of the metaphorical representations of the ancient art of Tongan navigation and the metaphorical representations of the construction of the kalia.

Taumu`a `oe ako (purpose for teaching and learning)

The Tongan term *taumu`a* is denoted as the 'prow' (Churchward, 1959, p. 466) which is the forward-most part of a sea vessel's bow that cuts through water. Other meanings of the Tongan term *taumu`a* include: 'object for which one is steering, aim, goal, purpose, to steer for, to aim at, to refer to, to be concerned with' (Churchward, 1959, p. 466). When the Tongan term *taumu`a* is placed in front of the Tongan term *ako*, it is identified in this study as *a purpose for teaching and learning*. As noted earlier, the *taumu`a `oe ako* must be recognised and set prior to engaging in the aspects of *founga ako* (knowledge systems) and *feinga ako* (learning endeavours).

In relation to the *Ako Conceptual Framework*, the *fonua* (land, people of the land), as shown in *Figure 7*, is used as a metaphor to represent *taumu`a `oe ako*. The concepts of *fonua* in reference to *land* and the *people of the land* are significant to the Tongan culture as it contributes to the cultural identity and a place of belonging. It also contributes to preservation of the *anga-fakaTonga* and *lea-fakaTonga*. Furthermore, the *fonua* (land, people of the land) in the *Ako Conceptual Framework* is the destination as to which the voyage and navigation aims to arrive at. The concept of *fonua* is significant to the education of Tongan students as it serves a purpose for their *ako*, to achieve well not only for themselves but also for their *fonua*, the *land* and the *people of the land*.

Founga ako (knowledge systems)

The Tongan term *founga* is denoted as ‘route, way in which a thing is done, method, procedure, plan or rule’ (Churchward, 1959, p. 196). *Founga ako* is identified in the *Ako Conceptual Framework* as the knowledge systems that were exhibited by the *`eikivaka* (navigator) during the ancient moana voyages were used to inform the fundamental concepts of *founga ako* which include:

- *knowledge by observation: vakai* (to look at, give attention, to consider)
- *knowledge by instruction: ako`i* (to teach)
- *knowledge by application: ngāue`aki* (to work with)
- *knowledge by discussion: talanoa or fealea`aki* (to talk, to discuss)

As a reminder, the *`eikivaka* is a metaphorical representation of the teacher, school leader or educator. The term *knowledge* is translated in Tongan as *`ilo* which was noted in *Chapter 2* as one of the Tongan educational concepts identified by Thaman (2009a). *`Ilo* also means ‘to see, catch sight of, notice, perceive; to find, find out; discover, to be conscious or aware of; to recognise, to know’ (Churchward, 1959, p. 560). The term *systems* is translated in Tongan as ‘*anga, founga, ngaahi me`a `oku ngāue fakataha*’ (Churchward, 1959, p. 797). The concept of *knowledge systems* is about finding out what works together to achieve learning, new knowledge and understanding.

The following describes the knowledge systems by which teachers, school leaders or educators can bring together in the development of culturally inclusive approaches and culturally responsive pedagogies in the education of Tongan students in New Zealand and abroad.

Knowledge by observation

The term *observation* derives from the root word *observe* which is translated in Tongan as *fakasio* and is denoted as ‘*to look for or at*’. Additionally, the Tongan term *fakamatala* means ‘*to explain*’ (Tu`inukuafe, 1992, p. 76). The term *observation* is also identified as *vakai* which means ‘*to look at, give attention, to consider*’ (Churchward, 1959, p. 719).

In relation to the ancient Tongan navigators, their acute observations of their environmental surroundings enabled them to learn and decipher nautical and celestial pathways to seek and discover new lands. In that same light, for the education of Tongan students, it is deemed pertinent that teachers, educators and school leaders observe and recognise the different factors which influence and impact the education of Tongan students in order to work towards determining pathways to achieve desired academic outcomes.

Knowledge by instruction

The term *instruction* is translated in Tongan as *ako* (another Tongan educational concepts identified and described by Thaman, 2009a) which means ‘*to learn, to study, to receive education*’ and also ‘*to teach, to train*’ (Churchward, 1959, p. 3). To *instruct* is translated as ‘*ako`i, akonaki`i, tākitala, fakahinohino, tu`utu`uni*’ (Churchward, 1959: p. 685). And the term *instructor* is translated in Tongan as *faiako* which also means *teacher* (Churchward, 1959, p. 685).

In relation to the ancient art of Tongan navigation, it took three to five years, or even longer, to build a large voyaging canoe of up to 100 feet and these constructions took place in the Lau group of Fiji by expert Samoan craftsmen under the direction and

leadership of the Tongans. In that same light, the roles and responsibilities that teachers, educators and schools leaders have for the education of all students are significant. Thereby, leadership in professional learning, particularly in the considerations and development of culturally inclusive approaches to the education of Tongan students, are deemed pertinent.

Knowledge by application

The term *application* is translated in Tongan as *feinga* (effort) and *tokanga* (attention) (Churchward, 1959, p. 583). Its root word *apply* is denoted in the Tongan language as the verb *`ai* (Churchward, 1959, p. 583) and *ngāue`aki* (Tu`inukuafe, 1992, p. 12). The Tongan term *ngāue`aki* is made up of two words: *ngāue* and *`aki*. The term *ngāue* means 'to act, action, activity and function' and the term *`aki* acts as the suffix and in this case it means 'with'. *Ngaue`aki* literally means 'to work with'.

In relation to the ancient art of Tongan navigation, the knowledge demonstrated by application was exhibited by the Tongan navigators and other South Pacific navigators when they worked together, shared materials and knowledge in the construction of the *kalia* (among other endeavours). In that same light, teachers, educators and school leaders are encouraged to foster social connections and professional relationships that will help strengthen home-school partnerships and contribute to the knowledge that they will apply in developing a culturally inclusive approach to the teaching of students and considerations for culturally responsive pedagogies in the quest for academic success for Tongan students.

Knowledge by discussion

The term *discussion* is translated in Tongan as *'fealea`aki'*. Its root word *discuss* is translated in Tongan as *'alea`i'* (Churchward, 1959, p. 628). The term *alea* means *'to confer, to have a discussion, to talk'* (Churchward, 1959, p. 6). Embedded within the words *fealea`aki* and *alea*, is the Tongan term *lea* which means *'to speak, to utter'* (Churchward, 1959, p. 289). Furthermore, Vaioleti (2006) describes the Tongan term *talanoa* as:

"...a conversation, a talk, an exchange of ideas or thinking, whether formal or informal. It is almost always carried out face-to-face. 'Tala' means to inform, tell, relate and command, as well as to ask or apply. 'Noa' means of any kind, ordinary, nothing in particular, purely imaginary or void. Talanoa, then, literally means talking about nothing in particular, and interacting without a rigid framework." (p. 23)

In relation to the ancient art of Tongan navigation, knowledge gained and demonstrated through discussion were exhibited by the Tongans as Tonga was the hub of a trade network and they were at the forefront of maritime ability, enterprise sailing prowess in the South Pacific. In that same light, teachers, educators and school leaders must assume the responsibility in their expertise and enable opportunities for discussions to take place that can inform teacher practice and enhance student achievement.

The knowledge systems identified here essentially present the intricacies that are involved in communicating and transmitting knowledge and understanding using the knowledge systems exhibited by the ancient Tongan navigators. The implications for

teachers, schools leaders and educators are to ensure that their *founga ako* is aligned with the students' *feinga ako*.

Feinga ako (learning endeavours)

The Tongan term *feinga* is denoted as 'to try, to attempt, endeavour, make an effort, to try or to get or to do' (Churchward, 1959, p. 158). *Feinga ako* is identified in this study as the students' learning endeavours including their learning needs and learning interests: *ako `oku `aonga* and *ako `oku mahu`inga*. These concepts are explained in this section and are also referred to later in this chapter as part of the metaphorical representations of the construction of the *kalia*.

Ako `oku `aonga (learning needs)

The term *needs* is translated in Tongan as *`aonga, fiema`u* (Churchward, 1959, p. 715; Tu`inukuafe, 1992, p. 74). The concept of the term *needs* includes the literal translation of *`aonga* which means 'useful, of practical value, helpful, beneficial, effective, profitable, or worthwhile, requisite, needful or necessary' (Churchward, 1959, p. 550). Additionally, the concept of the term *needs* also includes the literal translation of *fiema`u* which means 'to desire to get or have (*ma`u*), to want' (Churchward, 1959, p. 187). In the context of the *Ako Conceptual Framework*, if the learning needs of the students are identified and recognised by the teacher, then the learning will become *`aonga* (useful) for the students and greater effectiveness in teaching will transpire.

Ako `oku mahu`inga (learning interests)

The term *interest* is translated in Tongan as *loto manako* (Churchward, 1959, p. 686). The Tongan term *loto* means 'something intrinsic such as the heart or the mind' (Churchward, 1959, p. 302) and the Tongan term *manako* means 'to be fond of, to like,

to desire' (Churchward, 1959, p. 330). The term *interested* is translated in Tongan as *mālie`ia, mahu`inga`ia* (Churchward, 1959, p. 686). The term *mālie`ia* derives from the root word *mālie* which is the educational concept of *mālie* was identified by Manu`atu (2000) as the positive feeling that takes place as a consequence of learning. The term *mālie* means entertaining, interesting (Tu`inukuafe, 1992, p. 188). The term *mahu`inga`ia* derives from the root word *mahu`inga* which means '*essential, important, invaluable, main, previous, priceless, value, valuable, vital, worth*' (Tu`inukuafe, 1992, p. 187).

In the *Ako Conceptual Framework*, the learning interests of students have been identified together as another important aspect for teachers to include in their pedagogical practice as it is theorised in this study that the students will connect with content when it resonates with them thus allowing learning to occur. Activating prior knowledge and prior experiences in the case of this study are examples of when teachers can connect content with student learning needs and learning interests. Furthermore, with specific reference to this study, an example of aligning *founga ako* (teachers' knowledge systems) and *feinga ako* (students' learning endeavours) was the development and application of the two new vocabulary boards as part of the educational intervention for this study. This is explained further at the end of *Chapter 6* and at the beginning of *Chapter 7*.

Metaphorical representations of the ancient art of Tongan navigation in moana voyages

In this section, the ancient art of Tongan navigation will be explored in order to address its metaphorical representations that it has in the context of the *Ako Conceptual Framework* (as shown in *Figure 7*). The term *moana* has been used within this chapter

as the Tongan translation of the English term *ocean*. In addition, the English terms, *ocean* and *sea*, are used interchangeably when referring to the ocean in this study. However, there are differences between the two English terms. The seas are much smaller than the oceans and are usually located where the land and ocean meet. Typically seas are partially enclosed by land. The Pacific Ocean is the largest of the world's five oceans (followed by the Atlantic Ocean, Indian Ocean, Southern Ocean and Arctic Ocean). With these contexts in mind, the greatness of the Pacific Ocean reflects the greatness of the skills that the ancient Tongan navigators and seafarers (including other Pasifika navigators and seafarers) had accumulated and exhibited in their moana voyagers.

Historians and archaeologists assert that Pasifika peoples explored the entire South Pacific well before the initial contact with European explorers. One of the greatest skills of the ancient Tongan navigators was their ability to read the night sky. Tongans mastered celestial navigation and sailed vast distances in their explorations and they were observed by early European explorers as the moana voyagers and navigators of the South Pacific (Best, 1976; West, 1865; Velt, 2011). In addition, the ancient Tongan navigators were able to decipher nautical information, by using what has been deemed within this study as navigational tools. Such navigational tools included celestial navigation, moana currents, wave swells, prevailing winds, cloud formations, the habits of migratory birds and other marine environmental factors. Through acute observations and careful execution of these navigational tools, the ancient Tongan navigators and seafarers were able to navigate nautical pathways in search of and in discovery of new lands (Ferdon, 1987; Finney & Low, 2006).

In the ancient moana voyages, Tonga's influence expanded over neighbouring South Pacific nations. At various times during that period, Tonga's influence and hegemony extended to parts of the major archipelagos of Fiji, Samoa, Rotuma, Futuna, Uvea and to a lesser extent, Tuvalu and Niue (Neich, 2006). Tonga became the hub of a trade network by maintaining a monopoly over all trade between three archipelagos, Tonga, Fiji and Samoa (Kaepler, 1978; Thompson, 1940). The maintenance of this exchange system required a seaworthy vessel that could beat back into the wind when returning from nations such as Fiji. Those seaworthy vessels were the *kalia*, the large naval canoes of chiefs and kings that were used in warfare and military combat approximately during the mid to late 1700's around the South Pacific (Kaepler, 1978; Nickum, 2008). Reverend Thomas West, a Dutch missionary, observed in his journal log in 1846:

“Undoubtedly the Tonguese (Tongans) stand foremost among the Islanders of the Pacific Ocean in maritime ability and enterprise. Their large kalia, double sailing-canoes of which class the fleet before us consisted, are beautifully constructed, and are admirably adapted for all ordinary purposes of native navigation.” (West, 1865, p. 49)

According to Ferdon (1987), by historic times, the Tongan two-way voyaging accomplishments may have exceeded those of any other Polynesian people in the Pacific and certainly approached those of their northern Western Micronesian neighbours. For it was not just the size and capacity of the sea-vessels that the Tongans exhibited that impressed the early European explorers but their sailing ability as well and sufficient data suggests that at least in historic times the Tongans' sailing prowess was considerable which saw Tonga's maritime empire established and maintained for several years (Ferdon, 1987).

`Eikivaka (navigator)

The Tongan term *`eikivaka* is a compound word made up of two terms *`eiki* and *vaka*. In the context that *`eikivaka* is used here, *`eiki* is denoted as 'chief; a man or woman of chiefly rank' (Churchward, 1959, p. 556). The Tongan term *vaka* is denoted as 'boat, canoe, ship of any kind' (Churchward, 1959, p. 531). According to Churchward (1959), *`eikivaka* is denoted as the captain of the *kalia* (p. 557). In the context of the *Ako Conceptual Framework*, the Tongan term *`eikivaka* is identified as the navigator as shown in *Figure 7*.

Prior to European contact, the ancient Tongan navigators and seafarers accumulated a wealth of knowledge about navigation and sailing which demonstrated their resourcefulness and determination to conquer the moana in search for sustenance, new lands, conquests and trade. The *`eikivaka* (the navigator) in the *Ako Conceptual Framework* is a metaphorical representation for the class teacher, the educator or the school leader. The ancient *`eikivaka* was responsible for the successful navigation and safe voyage of the crew members whilst on the *kalia*. In that same light, the role and responsibilities of the class teacher, school leader or educator are vital in the quest for the academic success of students within a classroom context.

The following sub-sections identify the navigational tools that the *`eikivaka* used in the ancient voyages which are organised into two levels, the macro level and the micro level.

Macro level

In the *Ako Conceptual Framework*, there are overarching factors such as local, national and international governance and leadership that might influence and impact the education of Tongan students living in New Zealand. The following *navigational tools* were selected as metaphorical representations to help explain the overarching factors at the macro level: *ngaahi fetu`u* (stars), *māhina* (moon) and *la`ā* (sun), *moana* (ocean), *havili* or *matangi* (wind or trade wind) and the flight of the *manupuna fakafano* (migratory birds). A description of each of the selected *navigational tools* is provided next with references to the education of Tongan students.

Navigational tool: Moana

The *moana* (ocean), as depicted in the *Ako Conceptual Framework* in *Figure 7*, is a metaphorical representation of the pluralistic global societies that exists today (see *Figure 7*). For example, the globalisation process has led to international exchanges and integration of worldviews, ideas, products and so forth. The pluralistic realities associated with a global society are diverse in cultures, languages, values and practices.

“It should now be clear that Tongan culture, being a living and dynamic one, has undergone significant changes, many of which were stimulated through the increasing contact with the outside world.” (Lātūkefu, 1980, p. 78)

The vastness of the *moana* was used as a navigational tool by the Tongan navigators. The patterns of *moana* swells and currents, changes in the colour of the *moana*, the appearance of certain fish species and sea mammals were among the observations which the Tongan navigators used to determine their location and their route to their destination as they left familiar shores to travel to new shores. In that same light, the education of Tongan students is navigated upon pluralistic global societies

whereby local, national and international influences or impact can be used to help guide the successful educational outcomes for students.

Navigational tools: Ngaahi fetu`u, māhina and la`ā

The celestial navigation, *ngaahi fetu`u* (stars), *māhina* (moon) and *la`ā* (sun), were used in the *Ako Conceptual Framework* as metaphorical representations for the Tongan strengths-based principles, values and educational concepts that are relevant to understanding of Tongan students and their education.

The ancient Tongan navigators would note the position of the *kalia* (traditional Tongan double hull canoe) in relation to the rising sun and the position in which the sun would set in order to determine the direction of their course (Finney & Low, 2006). Tongan navigators used these rising and setting points to orient themselves and guide their *kalia* toward a rising or setting star or constellation that has the same or nearly the same bearing as the target island (Finney & Low, 2006).

According to Ferdon (1987), various stars used by Tongan navigators in their ancient moana voyages had Tongan names, some having the name of the very island to which they were travelling towards. For example:

“Funga `anovai (above the waterhole or lagoon) is a star standing always in the zenith as seen from Nomuka, Ha`apai (central island group of Tonga)... `Alo tau was to find Tongatapu (the main island group of Tonga) from any direction, while Ha`amonga Maui was for going to the west.” (Velt, 2011, p. 90)

Velt (2011) asserts that the stars and constellations that served the ancient moana voyage of Tongan navigators were the only ones that were considered important. However, when the weather would prohibit the use of the sun, moon or stars as navigational tools, the ancient Tongan navigators would proceed with their journey by the points from which the wind and moana swells or currents would come upon the canoe (Finney & Low, 2006).

Similarly, the education of Tongan students can be navigated by using the Tongan strengths-based principles, values and educational concepts as guides to understanding, creating and finding pathways in teaching and learning to support and enhance student academic achievement. Such Tongan strengths-based principles and values include: *faka`apa`apa* (acknowledging and returning respect), *anga fakatokilalo/loto tō* (humility), *tauhi vaha`a/vā* (keeping the relationship ongoing, alive and well), *mamahi`i me`a* (one's loyalty and passion), *fatongia* (obligation) and *`ofa* (love, care and kindness). In addition, the Tongan educational concepts were identified by Thaman (2009b) as *ako* (to teach, to learn), *`ilo* (to find, to recognise, to discover, to know and to understand) and *poto* (to be clever, skillful) and the educational concepts that were identified by Manu`atu (2000), *mālie* and *māfana*. In so doing, teachers can develop a culturally inclusive approach to their teaching of Tongan students and in general English Language Learners (ELLs). Moreover, these Tongan strengths-based principles, values and educational concepts can contribute to the theorising and understanding of the education for Tongan students (Thaman, 2001).

Navigational Tools: Matangi

The ancient Tongan navigators and seafarers relied on the patterns of *matangi* (winds) as one of their navigational tools. According to Irwin (2006), the winds and

weather constantly change at different scales within different seasons. The ancient Tongan navigators in their ancient moana voyages would have made mental notes of the prevailing north and south easterly trade winds which pushed up swells that remained constant for long periods of time in order to take advantage of the sailing benefits that this would bring. The Tongan navigators kept their kalia at the same angle to these swells. Sudden changes in kalia motion indicated that it had changed course and the navigators would then steer their kalia back to the desired direction of their nautical pathway.

Thereby, the awareness of and references to the local, national and international governance and leadership in the *Ako Conceptual Framework* (see *Figure 7*) can also be used as navigational tools in order to determine the educational pathways which will benefit the teaching and learning of Tongan students and enhance teacher practice. The teachers may not have control over the local, national and international governance and leadership but when it is deemed necessary, the teachers can alter the course of their teaching to ensure their students achieve desired academic targets (e.g. developing and implementing transformative pedagogies). Furthermore, the professional learning and development of teacher trainees, current teachers and teacher educators can be implemented into policies that are linked to the leadership and governance of schools with the aim to promote, enhance and sustain successful student academic achievement.

Navigational tools: Manupuna fakafano

The *manupuna fakafano* (the flight of the migratory birds) as identified in the *Ako Conceptual Framework* in *Figure 7*, were used as metaphorical representations of the local, national and international research which can help inform the education of Tongan students. In reference to the ancient moana voyages of the Tongan navigators,

pathways of migratory birds were used as navigational tools in the search for and discovery of new land. For example, the time and direction of the West Polynesian pigeon's annual migration was known and followed by navigators between Tonga and Samoa.

According to Finney and Low (2006), migratory birds included the brown and black noddies (*anous stolid*, *anous minutis*), white fairy terns (*gygis alba*), masked and brown boobies (*sula dactylatra*, *sula leucogaster*) and frigate birds (*fregata minor*). Each of these species of birds fly at varying distances ranging from 20-30 nautical miles (35-55km) to as far as 90 – 100 nautical miles (165-185km) out to sea. The Tongan navigators had noted these patterns which helped guide them in their moana voyages.

Similarly, teachers can utilise relevant local, national and international research to inform their professional practice. Teachers, school leaders and educators will need to ascertain which theories, frameworks and pedagogical practices can successfully guide the education of their students into academic success.

Metaphorical representations of the kalia



Figure 8. A sketch of the kalia by James Webber, draughtsman with Captain Cook (Cowan, 1930, p. 44)

Most of the initial Polynesian encounters with Europeans were made at sea while on their voyagers. For example, the first recorded sighting of Tongans and the traditional double hull canoes were by Dutch explorer Jacob Le Maire in 1616 (Suren, 2001). Polynesia is renowned for its great double hull canoes and these were also common in Eastern Melanesia and along the Southeast coast of New Guinea (Finney, 2006). The Tongan kalia, Samoan `alia and Fijian ndrua were recorded as the largest group of double hull canoes to sail the Pacific and all three are strikingly similar (Finney, 2006). The diagram depicted in *Figure 8* is of a kalia that was sighted and sketched by one of the early European explorers who sailed with Captain Cook (Cowan, 1930).

Prior to the innovation and construction of the kalia, Tongans had small canoes such as the *pōpao*, *vaka fokotu`u* and the *tongiaki* just to name a few (Ferdon, 1987). In 1773, Captain Cook observed that although most of the voyaging canoes that they

sighted were the *tongiaki* a new kind of double hull canoe, the *kalia*, was at that time replacing the use of the *tongiaki* (Finney, 2006).

According to Finney (2006), the *tongiaki* was described as voluminous and strong moana canoes but they were also described as difficult and dangerous to handle in bad weather as they could not effectively beat the windward. In contrast, the *kalia* was spoken of quite highly as a fast shunting hybrid made by joining the double ended hull form and pivoting oceanic lateen sail. The *kalia* soon outclassed the old *tongiaki* and became the preferred sea-vessel of Tonga's maritime chiefdom during the late 17th century and 18th century. By 1790's the *kalia* were being built in great numbers which could be attributed to the greater access that Tongan had to the hardwood named *vesi* in Fiji and possibly the use of new construction tools (Finney, 2006).

The *kalia* were the largest of its kind having carried over 100 people at a time through voyages from one archipelago to another (Thompson, 1940). For example, the *Lomipeau* (which means pressing down of waves) was one of the large *kalia* observed by European explorers. In order to maintain trade relations and conduct warfare, large voyaging canoes such as the *kalia* were required by the ruling chiefs (Kaeppler, 1978; Nickum, 2008). For example, according to Nickum, (2008) the noble Ma`afu went from Tonga to Fiji in 1848 and acquired sovereignty over the islands of Northern Lau by 1855. He held control over this region until the cession of Fiji to Great Britain in 1874 (Nickum, 2008). In addition, Derrick (1946) states:

“While smaller outrigger canoes were used for fishing and other everyday uses, the kalia was clearly the ship of an empire, a political tool and an instrument of power, war and trade. The majestic Tongan kalia was a

chiefly canoe belonging to the most powerful nobility in Tonga.” (Derrick, 1946, p. 121 cited in Nickum, 2008, p. 137)

According to Neich (2006) the Fijian ndrua is so closely associated with seafaring in Fijian waters, its development has usually been credited to the Fijian canoe builders and it was often claimed that it was the Fijians rather than the Tongans who introduced the Micronesian modification of the classic double canoe. However, Fergus Clunie, an expert on Fijian culture and history emphasised the Tongan and `Uvean roles in bringing these innovations together in Fiji. He stated:

“Given long cherished myths claiming ‘Fijian’ origins for camakau outriggers and ndrua, it must be stressed that while made of Vitian timber, their design and sailing skills came from Tonga and `Uvea, their rig courtesy of Micronesia (very likely Kiribati), and their builders from Tonga and Samoa. The first craftsmen to build them in Viti were the Lauan, a clan of plank building specialists from Manobo in Samoa, brought to Lau by Tongans in the second half of the 18th century. These and later canoe-building craftsmen imported by the Tongans became Vitian by descent, their craft Vitian through the slow process of adoption.” (Neich, 2006, p. 238)

It took three to five years, or even longer, to build a large voyaging canoe of up to 100 feet and these constructions took place in the Lau group of Fiji by expert Samoan craftsmen under the direction and leadership of the Tongans (Thompson, 1940). The Tongans had sailed to Fiji to have the kalia built for them with *vesi* hardwood, and ambitious young warriors were hired as mercenaries in the Fijian wars in exchange for finished canoes to sail home. According to Finney (2006) the Tongans overcame lack of

good timber on their own small islands by travelling to Fiji to construct the naval power that they (Tongans) required in order to maintain and expand their maritime sphere.

The kalia were described as being constructed to sail straight up the beach and the rigging and rudder could then be swung in reverse positions allowing the hulls to sail off again with the tide without coming about. As noted earlier, it could beat to windward or sail very fast down wind. *Figure 9* is a copy of a painting by the late Hawaiian Artist Herbert Kawainui Kāne of his impression of the *Kalia of Tonga*.



Figure 9. Kalia of Tonga by the late Artist Herbert Kawainui Kāne (licensed permission granted for the use of this image).

Historical accounts about the innovation and construction of the Tongan kalia suggest that under Tongan leadership of ruling chiefs, the kalia was produced out of a system which brought together Samoans, Fijians, `Uvean and Tongans. The implications of these historical accounts indicate that when ancient Tongans required

new knowledge or tools to use to improve their navigational tools or moana ventures, they looked to their neighbouring islands and utilised the strengths and expertise that the other Pasifika counterparts exhibited. In this light, existing ethnic-specific, or Pasifika methodologies, Pasifika frameworks and Pasifika models can be sought after in order to gauge perspectives which have similar cultural underpinnings and values embedded within each. In so doing, the notions and epistemologies can assist with the quest for academic success for the education of Tongan students. Furthermore, the propositions of the *Ako Conceptual Framework* can contribute to the existing Pasifika and Western methodologies, frameworks and models.

The *kalia* is a metaphorical representation of the education of Tongan students in the context of the *Ako Conceptual Framework*. At the micro level, the students and their backgrounds, the teachers and their school settings, all work together to determine the educational objectives and/or reinforce the educational outcomes of Tongan students. There were six parts of the *kalia* which were selected and used to describe the micro level of the *Ako Conceptual Framework*. The following six parts of the *kalia* that were selected and used as metaphorical representations in the *Ako Conceptual Framework* consisted of the following: *fakatou katea* (double hull), *fungavaka* (deck), *lā* (sail), *fanā* (mast), *lalava* (lashing) and the *fohe`uli* (steering oar). In the following sub-sections, the 6 parts of the *kalia* are described with its metaphorical representations linked to the education of Tongan students.

Fakatou katea (double hull)

As mentioned earlier, unlike a single hull canoe, the *kalia* generates stability as a result of the *vā*⁷ (space between) between its hulls. Compared to other types of canoes, the *kalia* was quite fast, yet they were capable of being paddled and sailed in rougher waters. According to Ferdon (1987), until the early European explorers brought metal to Tonga, all woodworking was accomplished with tools made from readily available natural resources. A Dutch missionary, Reverend Thomas West, observed that:

“Each hull is built from forty to ninety feet long. The breadth of beam in each hull amidships is from three to five feet, and this gradually diminishes fore and aft, leaving the two extremities exceedingly sharp. The greatest depth of hold is only from four to six feet. The two hulls are joined together at the gunwales by a strong platform of transverse beams and planking, extending about two-thirds of the length of the canoe from the centre, leaving a space longitudinally between the hulls of from five to twelve feet, according to their size. The planks of which the several hulls are built are cut to the required shape, and are flanged on their inner edges. These flanges admit of holes being bored, through which strong lashings of sinnet are passed, and thus the whole structure is bound firmly together without the use of a single nail or bolt of any kind.” (West 1865, p. 49)

The *fakatou katea* (double hull) are metaphorical representations of the student’s background and the school settings. The student’s background includes family values and practices, family socialisation, indigenous language and cultural identity. The school settings include school and national assessments, school curriculum, professional

⁷ The Tongan term *vā* also denotes as attitude, feeling, relationship towards each other (Churchward, p. 528)

learning/development and staff and board of trustees. The *fakatou katea* enables strength, stability and buoyancy of the kalia. Similarly, the student's background and the school settings co-exist within the context of the *Ako Conceptual Framework* (see *Figure 7*) and considered as perhaps the most influential of all factors or elements which form the foundation for the education of Tongan students. In addition, it is within the *vā* (space between) of the student's background and the school settings where important social connections and professional relationships can be formed, nurtured and maintained in order to generate stability for the education of Tongan students and their future prospects.

Fungavaka (deck)

The fungavaka of the kalia was observed as planks of wood that were aligned side by side and secured in the form of a *lalava* (lashing) made from the *kafa* (the sennit which is a type of cordage made from the fibres of the coconut husk). In 1846, Reverend Thomas West observed that:

“The platform, or deck, is fastened to the hull in a similar manner; and in the centre a small house is constructed where the best part of the cargo is deposited, and where a few of the more favoured passengers may find shelter from the sun or rain. A rude kind of low railing round the edges of the platform, and on the top of the deck-house, is the only protection to the crew and passengers against the chance of being washed overboard... Accidents of this sort are very rare.” – (West, 1865, p. 49)

The two hulls of the kalia were joined together by the *fungavaka* (deck) which helped to generate stability. The buoyancy of the kalia, particularly during rougher

weather, was largely dependent on the space between the two hulls. Reverend Thomas West described in his observation of the kalia that:

“They [kalia] have, however, been known to live through severe and long-continued storms, chiefly owing to the fact that, so long as they hold together and do not upset, they cannot possibly sink, owing to the strong platform joining the hulls together. They are highly adapted for sailing close upon a wind.” (West, 1865, p. 50)

The fungavaka (deck) is a metaphorical representation of the home and school connections made in the *vā* (space between) between the *student’s background* (1st hull) and the *school settings* (2nd hull). Establishing and maintaining home-school connections strengthens partnerships between the home and school which are deemed pertinent in the quest for educational success for Tongan students.

Lā (sail) and *Fanā* (mast)

The traditional sails that were produced for the kalia and other historic sailing canoes were made using woven mats from pandanus leaves. This was quite common across the South Pacific in the canoe constructions. These historic sails had an advantage for speed that the kalia travelled at due to the sails durability and strength as shown by the following descriptions:

“Lauan sailors (which include Tongan, Fijian and Samoan sailors) say that a mat-sail is better than a canvas one for the mat which allows the wind to pass through and therefore the mast is not easily strained or broken.” (Thompson, 1940, p. 176)

“The formation and position of the sail enables them to go at a good speed within three points of the wind; so that, in this particular, they have a wonderful advantage over all sailing-vessels of European construction.” (West, 1865, p. 50)

“The arrangement of the kalia’s large and single sail is conducive to the attainment of great speed in ordinary weather.” (West, 1865, p. 50)

In terms of how many masts were constructed onto the kalia, it varied from one mast to a few. In 1846, Dutch missionary Reverend Thomas West observed that there was only one sail on each kalia:

“None of the Tongan vessels have more than one mast or sail. The step of the mast is firmly fixed upon the deck, and is, in fact, a pivot on which the foot of the mast works, so as to allow it to move in a slanting direction, towards either end of the canoe, when going about, or according to the setting of the sail. The sail is composed of numerous pieces of light matting, and is in shape what sailors would call a shoulder-of mutton sail. When hoisted the wide part is uppermost, and when tacking the sail and the two heavy yards to which it is attached are lifted by sheer manual strength from one end of the canoe to the other. The top of the mast is cut in the form of a crescent for the purpose of suspending the various ropes required in hoisting the sail”
(West, 1865, p. 49)

Conversely, Burrows (1937) stated that:

“The King’s canoe has two masts, the missions, three. But in the old days even the huge double hull canoe, Lomipeau, had but one mast...”

(p. 115)

Whether the Tongan kalia had one or two masts, the ancient Tongan navigator was equipped with the knowledge of when to hoist the sail and when it was required to be taken down. The buoyancy of the kalia was also reliant on the sail. If the sail is hoisted up in treacherous winds it could prove to be detrimental for the navigator and crew. In the context of this study, the *lā* (sail) and *fanā* (mast) are metaphorical representations of students’ learning needs and interests in Tongan as shown in *Figure 7*. The students’ learning needs and interests are also identified under the fundamental concept of *founga ako* (learning endeavours) which is one of the main conceptual propositions that the *Ako Conceptual Framework* offers.

The *Ako Conceptual Framework* supports the notion that teachers’ pedagogical content knowledge must be aligned with students’ learning needs and interests in order to enhance effective teaching and promote student learning. In addition, the *Ako Conceptual Framework* proposes that teachers create and provide a safe space or platform within the classroom context for students to express their learning needs and interests within the classroom context. In so doing, Tongan students take responsibility for their learning in order to become active participants in learning. Additionally, the understanding and celebration of socio-cultural aspects within the teaching and learning of the school curriculum is supported by the *Ako Conceptual Framework*.

Fohe`uli (steering oar)

The *fohe`uli* can be seen as the crucial component of the *kalia*. The *`eikivaka* (navigator) used the *fohe`uli* to manoeuvre the *kalia*. In so doing, the navigator had to be sure that the *fohe`uli* was placed in the *moana* at certain angles and at certain times in order to keep the *kalia* on course and to also help propel the *kalia* forward. Strength and agility were required in manning these long steering oars which were described in literature as being operated by one or a few strong oarsmen. The *fohe`uli* had a flat blade at one end and oarsmen would grasp the oar at the other end. The difference between oars and paddles are that paddles are held by the paddler, and are not connected with the vessel. Oars are generally connected to the vessel by means of rowlocks or holes which transmit the applied force to the *kalia*. Potauaine and Māhina (2011) described the term *fohe`uli* in relation to celestial navigation:

“The fact that the steering oars of the vaka (boats) are called fohe`uli (black paddle) tells us that the performance art of faiva faifolau (voyaging) was largely carried out at night, when the red-shining celestial navigational objects are understanding made clear in the black or darkness of pō (night).” (Potauaine & Māhina, 2011, p. 201)

In the context of the *Ako Conceptual Framework*, the *fohe`uli* is a metaphorical representation of the teachers’ inquiry into new knowledge to connect the *taumu`a`oe ako* (purpose for teaching and learning) with their *founga ako* (knowledge systems) and their *students’ feinga ako* (learning endeavours). By this means, teachers’ develop a transformative pedagogy which becomes culturally responsive thus enabling students’ learning to propel forward as they are steered into achieving successful academic outcomes.

Lalava (lash/lashing)

The word lashing is translated in Tongan as '*ha`i, lalava, nono`o and haukafa*' (Churchward, 1959, p. 693). From the translations given above, the Tongan term *lalava* were selected as the Tongan reference for lashing in this study. *Lalava* means '*to bind, lash with sennit or tie beam*' (Tu`inukuafe, 1992, p. 179).

Historically, *lalava* were used to secure and fasten two or more items together in a somewhat rigid manner. The *lalava* were handmade from the *kafa* (sennit) which is a type of cordage made by plaiting strands from the dried fibre of the coconut husk. The *kafa* is an important material in the cultures of Oceania⁸, where it was historically used in place of screws or nails in the construction of the *kalia* and other moana vessels and in the construction of the *fale* (traditional Tongan houses). Today, the *kafa* is used to tie *ta`ovala* (a traditional Tongan attire worn around the waist, without this Tongans are not considered improperly dressed) and the *kafa* is also used ornamentally in various arts and crafts. The binding of the fibres into a sennit, then creating it into strands and the plaiting of it strengthens those ties/links.

In the *Ako Conceptual Framework* (see *Figure 7*), the *lalava* binds and holds together the *fakatou katea* (the double hull: student's background and school settings), the *fungavaka* (deck: connections made in the *vā*), the *lā* and its *fanā* (sail and mast: students' learning needs and interests) and the *fohe`uli* (steering oar: the teachers' inquiry into new knowledge and the actions they take towards developing a culturally responsive pedagogy). Hence, the *lalava* is a metaphorical representation of the social connections and professional relationships that bind, tie and hold together all components of the education of Tongan students.

⁸ A large group of islands in the South Pacific including Melanesia and Micronesia and Polynesia (and sometimes Australasia and the Malay Archipelago).

Furthermore, the social connections and professional relationships contribute to the decision-making for pedagogical practices, research, policy development and community engagement. Without the *lalava* in the construction of the *kalia*, the voyages would have been difficult. Similarly, without the formation of the social connections and professional relationships, the quest for academic success for Tongan students will be difficult.

Kauvaka (crew: students and all involved in their education)

The Tongan term *kauvaka* is a compound word made up of two terms *kau* and *vaka*. Among the denotations of the Tongan term *kau* are the following: ‘*to be a part of, to take part in, to belong to*’ (Churchward, 1959, p. 254). The Tongan term *vaka* in the context that it is used here is denoted as ‘*boat, canoe, ship of any kind*’ (Churchward, 1959, p531). The Tongan term *kauvaka* is denoted as ‘*crew or member of a crew*’ (Churchward, 1959, p. 257). The *kauvaka* within the *Ako Conceptual Framework* is a metaphorical representation of the Tongan students and all who are involved in their education. As the *kauvaka*, the Tongan students embark on their education with influences from different factors or elements such as those identified in the micro and macro levels embedded within the *Ako Conceptual Framework* (as shown in *Figure 7*).

The *vā* (space between)

As described earlier, unlike the single hull canoe, the *kalia* generates stability as a result of the distance between its hulls. The Tongan term *vā* denotes as ‘*attitude, feeling, relationship towards each other*’ (Churchward, p. 528). Other Tongan terms for the term *space* include: ‘*atā, vaha, vaha`a, atāloa, atānoa*’ (Churchward, 1959: p. 781).

According to Māhina's (2010) *tā-vā* (time-space) theory, which is based on moana concepts and practices of *tā* (time) and *vā* (space), demonstrates that all things, in nature, mind, and society, stand in eternal relations of exchange, giving rise to conflict or order. Furthermore, Ka`ili (2005) describes that the term *vā* is used among other nations in the South Pacific. He states:

“The word vā is not unique to Tonga, for cognates are found in many Moanan languages. Vā can be glossed as “space between people or things.” This notion of space is known in Tongan, Samoan, Rotuma, and Tahiti as vā, while in Aotearoa and Hawai`i it is known as wā. Vā (or wā) points to a specific notion of space, namely, space between two or more points. When Tongan seafarers sail from one island to another, the open sea between the two islands is called ‘vaha or vahanoa’ (both words are formed from the root word vā).” (p. 89)

The Tongan concept of *vā* differs to Western notions of ‘distance between or distance apart’ as denoted by Churchward (1959, p. 528); instead, *vā* is seen as the space between where connections and relationships are formed, nurtured and maintained. In addition, the Tongan concept of *vā* is identified also at the ‘*attitude, feeling, relationship towards each other*’ (Churchward, 1959, p. 528). In the context of this study, the *vā* is seen as one of the Tongan values that helps to foster and govern social connections and professional relationships.

In addition, it is pertinent to form social connections and professional relationships in the *vā*; however, it is theorised that in order to strengthen the education

of Tongan students, *tauhi vā*⁹ needs to be present and ongoing. In so doing, working towards enhancing the reading achievement of Tongan students, and in general English language learners, will be managed positively in a collaborative approach. This is particularly important to the education of Tongan students as the *vā* exists across micro and macro levels in the *Ako Conceptual Framework*.

The *fonua*

The Tongan term *fonua* has several meanings which represent the past, present and future. More specifically, *fonua* is denoted as: '*land, country, territory, place; people (of the land); grave; placenta*' (Churchward, 1959; p. 196). The term *fonua* is used in the context of the *Ako Conceptual Framework* to mean the *land* and *people of the land* (as seen in the background of *Figure 7*). The concepts of *fonua* in reference to *land* and the *people of the land* are significant to the Tongan culture as it contributes to the cultural identity and belonging, and to the preservation of the *anga-fakaTonga* and *lea-fakaTonga*.

The Tongan term *fonua* is used as a metaphor for the *taumu`a `oe ako* (a purpose for teaching and learning) and it is present at both the macro and micro levels of the *Ako Conceptual Framework*. *Fonua* is significant to the education of Tongan students as it serves a purpose for their *ako*, to achieve well not only for themselves but also for their *fonua*, the *land* and the *people of the land*.

⁹ *Tauhi vā* was identified in *Chapter 2* as a Tongan strengths-based principle/value which means to respect, nurture and maintain good relationships.

4.2 Chapter summary

The *Ako Conceptual Framework* offers a new way to base sound and pragmatic decision making about the education of Tongan students in New Zealand. The researcher took into consideration that the Tongan students that reside in New Zealand have parents and/or grandparents and/or great-grandparents who emigrated from Tonga to start a new life here in New Zealand. Thereby, it was the concept of leaving familiar shores (e.g. Tonga) and embarking on a journey into new shores (e.g. New Zealand) that the researcher selected the art of the ancient Tongan navigation in moana voyages to be used as a metaphor for the foundation of the *Ako Conceptual Framework*.

The fundamental concepts that the *Ako Conceptual Framework* proposes are: *Taumu`a `oe ako* (purpose for teaching and learning), *founga ako* (knowledge systems), *feinga ako* (learning endeavours) and the *vā* (as shown in *Figure 7*). It is theorised that the *taumu`a `oe ako* must be recognised and set prior to connecting with and engaging in aspects of *founga ako* and *feinga ako*.

There are many concepts embedded within each of the proposed fundamental concepts of the *Ako Conceptual Framework* which reflect the complex profession of teaching and the challenges that co-exist with the promotion of student learning. Essentially, it is theorised that a cohesiveness in the navigation of the education of Tongan students is required in order for the *founga ako* to be effective, the *feinga ako* to resonate with students and teachers and for the *taumu`a `oe ako* to be fulfilled and achieved well. Hence, navigation is the art of taking a vessel from one location to another and much is the same with the education of Tongan students, to ideally move students from one level of achievement to the next. The next chapter presents the methodology for this study.

Chapter 5 Methodology

5.0 Chapter overview

The previous chapter presented the *Ako Conceptual Framework* which was applied to this study to help contextualise and theorise the education of Tongan students. This chapter presents the methodology for this study by outlining the research design, participants, measures, procedures, data collection and data analyses of this study. Also, throughout this chapter, connections are made between aspects of the methodology of this study with components of the *Ako Conceptual Framework*.

5.1 The research design

The data collection for this study was conducted over two years and each year was labelled as one of two phase: *Phase One* was the first year of data collection and *Phase Two* was the second year of data collection as shown in Table 2.

A mixed-method approach was used as the research design for this study which included triangulation (Cohen, Manion & Morrison, 2011). A mixed-method approach (i.e. quasi-experimental) uses both quantitative and qualitative aspects of data which are combined so that results can be explained in a clear and methodical manner. The mixed-method approach recognises and works with the fact that the world is not exclusively quantitative or qualitative but rather that it is a mixed world. The mixed-method approach has been used in previous large scale literacy interventions in New Zealand (e.g. Phillips, McNaughton and MacDonald, 2004; Amituanai-Toloa, 2005; McNaughton, MacDonald, Amituanai-Toloa, Lai & Farry, 2006).

According to Wellington (2000), the quantitative and qualitative methods can complement each other. Quantitative methods are not always seen as theory-laden or hypothesis driven and similarly, qualitative research can never be complete fiction and it must depend on some inter-subjective (if not objective) reality (Wellington, 2000). Within the *mixed-method approach*, *triangulation* takes place by which two or more methods of data collection are administered from the same group at different points in the time sequence of this research (Cohen, Manion & Morrison, 2011). In relation to the *Ako Conceptual Framework*:

“Maritime navigators use (or used to use) several locational markers in their endeavours to pinpoint a single spot or objective. By analogy, triangular techniques attempt to map out, or explain more fully, the richness and complexity of human behaviour by studying it from more than one standpoint and, in so doing, by making use of both quantitative and qualitative data. Triangulation is a powerful way of demonstrating concurrent validity.” (Cohen, Manion & Morrison, 2011, p. 195)

Also reflective of a time-series design, this study looked at repeated measures of student achievement data collected at different time periods across the two phases. This study used case logic within a developmental framework of cross-sectional and longitudinal data to provide a high degree of both internal and external validity that overcomes the inadequacies of experimental and randomised control group designs in the context of open and complex applied systems that are schools (Bieger & Gerlach, 1996; Cohen, Manion, Morrison, 2011). Amituanai-Toloa (2005) noted that the same intervention was a subject of critique which claimed that the only way to gain believable demonstrations of causality in educational research is in randomised control group designs. Conversely, the advantage of the mixed-method approach are manifold as

successive stages of an intervention can then be compared with the baseline forecast (Amituanai-Tolosa & McNaughton, 2008).

As shown in Table 2, *Phase One* (first year of data collection) consisted of the first 3 time points: *Time 1* (beginning of first year), *Time 2* (mid-year of first year) and *Time 3* (end of first year). And in *Phase Two* (second year of data collection) consisted of the remaining 3 time points for data collection: *Time 4* (beginning of second year), *Time 5* (mid-year of second year) and *Time 6* (end of second year).

Table 2

An outline of the data collected at each phase using time-series design

Phase One (first year of data collection)			Phase Two (second year of data collection)		
Time 1 Jan-April	Time 2 May-Aug	Time 3 Sept-Dec	Time 4 Jan-April	Time 5 May-Aug	Time 6 Sept-Dec
STAR assessments administered		STAR assessments administered	STAR assessments administered		STAR assessments administered
	Interviews with Principals and Teachers		Vocabulary boards developed and implemented	Collaborative discussions	
	Collaborative Discussions	Filmed class instructions	Collaborative Discussions	Filmed class instructions	Interviews with teachers

As shown in Table 2, there were repeated measures of student achievement data that were gathered using the Supplementary Tests of Achievement in Reading (STAR) assessments at *Time 1, 3, 4* and *6* which generated a cross-section of student achievement (from Year 3 to 6) which included a baseline forecast of the expected trajectory of development that might exist if a planned intervention had not taken place.

At *Time 2* semi-structured interviews with each Principal and each teacher were conducted by the researcher as displayed in Table 2. In addition, collaborative discussions around vocabulary development, vocabulary instruction and reading comprehension were carried out by the researcher with the Tongan bilingual teachers altogether.

At *Time 3* and *Time 5*, filmed observations of class vocabulary instruction in each Tongan bilingual class were conducted as shown in Table 2.

At the beginning of *Time 4*, the researcher developed the two new vocabulary boards as part of the intervention for this study to help foster word consciousness within the classroom. Later in *Time 4* a meeting was conducted by the researcher with the Tongan bilingual teachers altogether where collaborative discussions took place regarding the development of the two new vocabulary boards and the procedures for implementation within each of their classes. Subsequent to the meeting, the teachers implemented the two new vocabulary boards into their class literacy programmes starting at *Time 4*.

As shown in Table 2, a meeting took place at *Time 5* with the Tongan bilingual teachers, Principals, two University Educators and the researcher whereby collaborative discussions transpired based on the English vocabulary development, English vocabulary instruction, English reading comprehension and the progress of the implementation of the two new vocabulary boards, that fostered word consciousness, within each Tongan bilingual class.

Also at *Time 5* semi-structured interviews were conducted by the researcher with each of the teachers to gauge their knowledge, beliefs and professional observations regarding the vocabulary development, vocabulary instruction and reading comprehension of each of their students.

5.2 Participants

Schools

This study took place within two low decile Primary schools (School 1 and School 2) in South Auckland, New Zealand as shown in Table 3. The ethnic make up of the schools reflected the large Māori and Pasifika communities surrounding each school.

Table 3

School Information

	School 1	School 2
Year Levels	Year 1 – 8	Year 1 – 6
Type of School	Full primary	Contributing school

At the beginning of this study, School 1 had 487 students enrolled at their school, the highest percentage of them were Samoans (37%) with an equal representation of Māori and Tongans with 21% each. Cook Island students made up 11% followed by Niuean at 3% and Pakeha/NZ European at only 1% (see Table 4).

Table 4

The ethnic composition of the two schools at Time 1

<i>Ethnicity</i>	<i>School 1</i>	<i>School 2</i>
Māori	21%	17%
Pakeha/NZ European	1%	1%
Samoan	37%	25%
Tongan	21%	26%
Cook Island	11%	7%
Niuean	3%	2%
Indian	Not identified	16%
Other	6%	6%

In general, the patterns were similar to other studies on bilingual classes where Samoans dominate the ethnic board (e.g. McNaughton, MacDonald, Amituanai-Toloa, Lai & Farry, 2006). In addition, the gender composition in school 1 was 52% girls and 48% boys. At school 2, there were 471 students enrolled. The gender composition was 48% girls and 52% boys.

Classes

Class A comprised of Year 4, 5 and 6 students (aged from 8 to 11 years) (see *Tongan students* sub-section for more details on students). The class setting was arranged with student desks placed groups of about 6 to 8. There were large tables used for group work and there was a space at the front of the class (where the teacher's desk was situated) next to the whiteboard where students would gather together and sit on the floor for morning prayer and notices that the teachers would deliver. The walls of the class displayed vocabulary lists and student work and from the ceiling student work were

also displayed. Also, activity stations were positioned around the class for independent student work or small group work.

Class B comprised of Year 5 and 6 students (aged from 9 to 11 years) (see *Tongan students* sub-section for more details on students). The class setting was arranged with student desks placed in small groups. There was a space at the front of the class (where the teacher's desk was situated) next to the whiteboard where students would gather together and sit on the floor for notices that the teachers would deliver whole class activities (a similar classroom setting to *Class A*). Student work and vocabulary lists were pinned to the walls of the classroom. Like *Class A*, activity stations were positioned around the class for independent student work or small group work to take place.

Class C comprised of Year 3 and 4 students (aged from 7 – 9 years) (see *Tongan students* sub-section for more details on students). The class setting was arranged with student tables placed in groups leaving space in the middle of the class for students to sit on the mat for whole class activities. Student work, vocabulary lists, prompts for writing and reading lessons were displayed around the class walls and also hung from the ceiling. Like *Classes A and B*, activity stations were situated around the class for independent student work or small group work to take place.

Tongan students

In *Phase One* (first year of data collection) there was a total of 70 Tongan students from Year 3 to 6 (aged from 7 to 11) that were involved in this study. In the following year, *Phase Two*, there was a total of 55 Tongan students that were involved in this study. There was a decrease in the number of students in *Phase Two* due to the fact that

some students had only sat the STAR reading test either at the beginning of the year and not at the end of the year or vice versa. The 55 students that were included in the study at *Phase Two* sat the STAR reading tests both at *Time 4* (beginning of the year in *Phase Two*) and at *Time 6* (end of the year at *Phase Two*). Table 5 identifies the number of students that were involved in this study according to the classes they were in for each phase.

Table 5

The Tongan students involved in this study

	Phase One (n=70)			Phase Two (n=55)		
	Class A n=29	Class B n=24	Class C n=17	Class A n=16	Class B n=24	Class C n=15
Male	14	11	9	8	14	7
Female	15	13	8	8	10	8
NZ Born	27	22	15	15	22	13
Tongan Born	2	2	2	1	2	2
Total	29	24	17	16	24	15

As shown in Table 5, the majority of students involved in this study were born in New Zealand, 64 out of 70 students in *Phase One* and 50 out of 55 students in *Phase Two*.

Teachers

There were three female Tongan teachers (Teachers A, B and C) were involved in *Phase One* (first year of data collection) and in *Phase Two* (first year of data collection). Each was born and educated in Tonga. All three have made New Zealand their country

of residence. Each has attained post-graduate qualifications at University. The three teachers have teaching experiences that range from 15 – 25 years.

5.3 Measures

Supplementary Tests of Achievement in Reading (STAR)

In New Zealand, schools have the option of using the STAR assessments to supplement other tests and other reading measures that teachers administer to make informed judgments about their students' progress and achievement in reading (Elley, 2001). The STAR assessments were used by the schools involved to collect measures in English reading comprehension. This was the only standardised test that both schools had in common hence the decision to use STAR as the standardised measure for this study.

The STAR assessment was designed for repeated measurement of English reading comprehension including vocabulary. Teachers could use this standardised assessments to help identify the students who need extra help, group students with similar needs and ability, assess new students, determine strengths and difficulties that individuals or groups of students have, evaluate a particular teaching programme, validate judgments of their students' 'close' reading abilities compared to the rest of the school and moreover, the national stanine distribution. The STAR assessments consist of two test sheets labeled as Form A and B. Either Form A or Form B can be administered at the beginning of the year and the other, at the end of the year (Elley, 2001).

For the purpose of this study, the Year 3 STAR assessment and the Year 4-6 STAR assessment were administered in *Phase One* and *Phase Two* to provide an indication of the students' English reading achievement levels and to contribute to

developing a baseline profile on English reading comprehension for the Tongan students. The STAR assessments were administered at four different time points (i.e. Time 1, Time 3, Time 4 and Time 6) by each teacher within each of their classrooms.

Year 3 STAR assessment

The STAR Year 3 assessment (for students aged 7 years 0 month – 8 years 0 month) comprises of four short subtests (Elley, 2003). The four subtests are as follows: word recognition (subtest 1 - measures how well students can decode words that are familiar in their spoken vocabulary by identifying the correct word that describes a given picture with 10 multi-choice items to answer); sentence comprehension (subtest 2 - measures how well students can demonstrate that they can read sentences for meaning 10 multi-choice items to answer); paragraph comprehension (subtest 3 - cloze procedure which assesses students reading comprehension by requiring them to replace words which have been deleted from the text with 15 items to answer), and vocabulary (subtest - measures students' knowledge of word meanings in context with 10 multi-choice items to answer). In total, the marks are out of 45 (Elley, 2003).

Year 4-6 STAR assessment

The STAR Year 4 – 6 assessment (for students aged 8 years 1 month – 11 years 0 month) comprises of four short subtests which are similar to those described in the Year 3 STAR assessment. The subtests include: word recognition (10 multi-choice items to answer); sentence comprehension (10 multi-choice items to answer); paragraph comprehension (20 items to answer), and vocabulary (10 multi-choice items to answer). This assessment is marked out of 50. Students are required to answer the questions provided in each of the four subtests in 20 minutes. A mark is given to each correct answer that the student writes on their answer sheet. The total raw score is then

transformed into a stanine¹⁰ score which determines how a student is achieving at their particular age group in relation to other students in New Zealand schools at the same time of the year. For example, a student who scores at stanine 9 can be identified as an outstanding reader in the top 4% at their level nationwide (Elley, 2001).

Subtest 1: Word recognition

Subtest 1 assesses how well students can decode words that are familiar in their spoken vocabulary (Elley, 2001). The test measures word recognition in the form of decoding of familiar words, through identification of a word from a set of words that describe a familiar picture. Ten pictures that are assumed to be familiar to students are in the subtest. Each picture has four words alongside it, one of which is the correct one. Students are asked to select the correct word that matches the picture. The words tested in STAR assessment 4–6 are taken from Levels 6–8 of the NZCER Noun Frequency List (Elley & Croft, 1989), and are thus well within the range of most pupils' spoken vocabulary. Evidence shows that, for the majority of pupils in the upper levels of the primary school in New Zealand, word recognition is a skill that has been well mastered, but many schools have a few pupils who will struggle with this task (Elley, 2001).

Subtest 2: Sentence comprehension

Subtest 2 assesses how well students can read for meaning. The prerequisite for this subtest is that students are able to read a range of very short texts (sentences) well enough to complete them with an appropriate word. Students are to complete the 10 sentences by choosing, from four words, the word that best suits the sentence. This test assesses decoding skills, and the ability to use a range of sources to gain meaning. To

¹⁰ Stanine is a method of scaling test scores on a nine-point standard scale with a mean of 5 and a standard deviation of 2.

some extent, it also reflects students' mastery of the concepts of print, their vocabulary, and their ability to predict (Elley, 2001).

Subtest 3: Paragraph comprehension

Subtest 3 assesses students' reading comprehension levels by requiring them to replace words which have been deleted from the text (cloze format). If students comprehend the text, they should be able to replace the missing words by drawing on context cues. The subtest shows how well students can apply the skills tested in subtest 2 to longer texts. Subtest 3 consists of 20 items, 10 more than the other subtests. The students are required to fill in 20 blanks in three short paragraphs of prose (paragraph 1 = 6; 2 = 7; 3 = 7), using the context of the surrounding text as cues for meaning to assess skills (Elley, 2001).

Subtest 4: Vocabulary range

The development of a good reading vocabulary is the main focus of this subtest, because it measures students' knowledge of word meanings in context. Ten complete sentences are listed. One word in each sentence is in bold print and underlined. The students are required to circle one word from the four words under the sentence that means the same, or nearly the same, and is therefore close in meaning to the bold underlined word. The words included in this test are all taken from the New Zealand Oxford Primary School Dictionary of 30,000 words, and were selected after extensive trials had shown them to be of appropriate difficulty for the students in the relevant year groups (Elley, 2001).

Guided reading/instructional reading

The main purpose of guided reading (also referred to as *instructional reading*) is to provide key instructional guidance to students in small groups to enable them to move onto independent reading (Ministry of Education, 2003; 2006). The teachers' instructional objectives are based on their professional observations and analyses of information about their students' achievement in reading. Therefore, the selections of reading texts are important and should be aligned with the learning intentions for students and the instructional objectives of the teachers.

Students are organised into small guided reading groups according to their reading age. When a student progresses onto the next reading level the teacher will move the student out of the existing guided reading group into the next. During a guided reading lesson, the teacher is able to hone in on students' learning needs by teaching specific reading strategies pertinent to each group. Each student has a copy of the text which should contain some challenges at a level that the students can manage as they individually read the text with the instructional guidance of their teacher (Ministry of Education, 2003; 2006). Guided reading lessons vary in length of time and are largely dependent on the breadth and depth of instructional guidance that a group of students require. The guided reading sessions can take place approximately 3-4 times each week within class literacy programmes.

Semi-structured interviews with each Principal and each teacher

The semi-structured interviews with each Principal and each Tongan bilingual Teacher took place at *Time 2* (mid-year of *Phase One*) and once again with the teachers only at *Time 6* (mid-year of *Phase Two*) with each teacher only (Principals were not interviewed at *Time 5*).

The semi-structured interviews were conducted to gauge each of their beliefs and knowledge about English vocabulary development, English vocabulary instruction and English reading comprehension. In addition, the semi-structured interviews provided insight into each of their perspectives on the STAR reading achievement tests, the establishment of the Tongan bilingual unit at their school and their teaching experiences within Tongan bilingual classes.

Collaborative discussions

There were a few meetings that were organised by the researcher which saw collaborative discussions take place between the researcher and teachers, Principals and University educators at *Time 2* (mid-year of *Phase One*), *Time 4* (beginning of the year of *Phase One*) and *Time 5* (mid-year of *Phase Two*). The purpose for these meetings was for the researcher to make connections with the participants and to gain further insight into the education of Tongan students with specific references to vocabulary instruction and reading comprehension. The permission to audio-record this meeting was not sought out by the researcher based on the notion that the meetings were to allow general collaborative discussions to transpire; however, the researcher took notes from each meeting. Each meeting were approximately 60 minutes in length of time.

The aim of these collaborative discussions was achieved in the form of connections that were made between the Tongan bilingual teachers, the two Principals, the two University Educators and the researcher. The collaborative discussions were centred on explicit vocabulary instruction as a means of improving reading comprehension for Tongan students which helped reinforce establishing and maintaining social connections and professional relationships between teachers and

students, between principals and the school and between the school and the homes of the students. The social connections and professional relationships that were fostered through the connections made in the collaborative discussions are identified in the *Ako Conceptual Framework* as the *lalava* (lashing).

As a reminder, the *lalava* is what binds, ties and holds together the components of the *kalia* (traditional Tongan double hull canoe). The *kalia* is a metaphorical representation of the education of the Tongan students with the context of the *Ako Conceptual Framework*. In the context of this study, the social connections and professional relationships are deemed pertinent in the binding of knowledge systems, expertise and leadership in the teaching and learning of Tongan students which becomes a matter of priority in the understanding and theorising of education of Tongan students in the quest for academic success.

The first meeting for the collaborative discussions took place at *Time 2 (mid-year of Phase One)* whereby the researcher organised a meeting with the Tongan bilingual teachers to discuss the general baseline STAR achievement results of their students. Also, at this meeting the researcher provided teachers with research articles on vocabulary instruction and reading comprehension as background ready to the study. The researcher also provided academic word lists for the teachers to look over and utilise within their classes at their discretion.

The next meeting for the collaborative discussions took place at *Time 4 (beginning of Phase Two)*. A meeting with the Tongan bilingual teachers was organised by the researcher and the collaborative discussions that transpired were focused on the development of the two new vocabulary boards. The rationale, intended outcomes and

the proposed procedures of implementation of the two new vocabulary boards were introduced to the teachers during this collaborative discussion. Subsequent to this meeting, the Tongan bilingual teachers implemented the two new vocabulary boards into their classroom literacy programmes.

The final meeting for the collaborative discussions took place at *Time 5* (mid-year of *Phase Two*) where the researcher organised a meeting with the school Principals, the three Tongan bilingual teachers and two University educators. At this meeting the focus of the collaborative discussions were on vocabulary development, vocabulary instruction, reading comprehension and teaching within Tongan bilingual contexts.

The accounts of the 3 meetings are identified here and explained further in *Chapters 6 and 7*.

Filmed observations of class vocabulary instruction

The purpose for filming class vocabulary instruction for this study was to capture the way in which vocabulary instruction is conducted by each teacher within their classroom contexts. In addition, the filming of class vocabulary instruction was conducted to also observe how student learning takes place in the context of a literacy lesson or activity.

The filmed observations of class vocabulary instruction were conducted at *Time 3* (end of *Phase One*) and *Time 5* (mid-year of *Phase Two*) during instructional literacy activities per class. This included guided reading, shared reading, written language and/or whole class vocabulary based activities. These class lessons ranged from 17 – 40 minutes across the three classrooms.

5.4 Procedures

Ethical considerations

The University of Auckland Human Participants Ethics Committee granted approval for the ethics application for this study. Research in schools with children presents a number of clear ethical issues with regard to informed consent and power issues. These issues were addressed in the following manner.

Information sheets for all participants clearly stated the research focus and the research intentions for this study. Each participant was invited to participate in this study with expectations outlined by the researcher. The participants involved in this study consisted of students in Tongan bilingual classes, three Tongan bilingual teachers and two school Principals (see Appendix A & B)

All students that participated in this study were under the age of 16 years old therefore a child assent form was provided with language suitable to their understanding in order for them to read and sign. Parents/caregivers were also given an information sheet and consent form to provide written consent for their children to partake in this study (see Appendix E, F, G & H).

There were no physical or psychological harm that came to anyone as a result of this study. There were no deception of participants involved. The confidentiality of the identity of the participants and data that were gathered were stated in the information sheets which has been maintained. However, there are a limited number of schools with Tongan bilingual classes and although all necessary steps were taken in order to preserve the confidentiality of the names of the schools involved in this study, some

people may believe that the participating schools may be identified. Therefore, participants were provided with the option to withdraw at any point of the research.

A request for permission from teachers to be audio-recorded or filmed during interviews and during class observations was also included in the information sheets and consent forms. Copies of the transcriptions of these recorded instances were offered to participants. Participants were informed that the transcriptions were for the purposes of data analyses for this study (see Appendix C & D).

Trust was established and maintained between the researcher and the teachers once the research purpose and research intentions were introduced. The names of the schools and teachers have remained anonymous in this study due to the confidentiality agreement and the rights and privacy of the students involved in this study.

The researcher was positioned as an insider due to having the same ethnicity as the Tongan students and teachers. However, the researcher was also positioned as an outsider because of the nature of the inquiry that is conducted from a perspective which is external to that of each school.

The researcher's contact details and the contact details of the Chair of the University of Auckland Human Participants Ethics Committee were included in the information sheets for access of all participants.

Contact with schools

The initial contact with each school was made by the researcher. The researcher contacted schools by phone to discuss with the Principals the possibility of conducting

this study at their school. Information regarding this study was emailed to the Principals for further consideration. In following, a face-to-face meeting took place between the researcher and each Principal to discuss matters further and for the researcher to address any queries that the Principals had regarding the specifics of the study. The researcher and the Tongan bilingual teachers were introduced to one another on site once the Principals were satisfied for the study to proceed.

Contact with teachers and students

The contact between the researcher and the teachers was determined at the beginning of the study. The teachers were given opportunities to indicate their availability for semi-structured interviews and the filming of teacher instruction to take place prior to the researcher visiting the schools.

The contact between the students and researcher was dependent on Parental/Caregiver assent/consent for their involvement in this study. Once permission was granted by parents/caregivers for their child(ren) to be involved, then contact between students and the researcher was organised through the class teacher.

Administration of Supplementary Tests of Achievement in Reading (STAR)

The STAR assessments were administered by each teacher within their class as a standard of practice for each school. For STAR assessment Year 4-6, students have 20 minutes altogether to complete the four subtests but an additional 15 minutes is required at the beginning for distributing the tests, giving directions to pupils, and collecting the tests at the end – a total of 35 minutes. Each subtest has four minutes except eight minutes for subtest three.

The STAR student achievement results at the beginning and end of year for *Phase One* and *Phase Two* were collected from the three Tongan bilingual classes and passed on to the researcher. The data included the raw scores across all four subtests and its overall total scores for each student. The overall total scores were converted into a stanines for each student.

The quantitative analyses were conducted in two forms. A cross-sectional analysis was designed to establish a baseline profile for the STAR achievement data for the Tongan students within this study. Then planned comparisons were used on the basis of overall stanine distributions, class stanines and subtests scores. This is explained further in the *Data Analysis* sub-section.

Semi-structured interviews and collaborative discussions with Principals and/or Teachers

At *Time 2* (mid-year in *Phase One*) a meeting was arranged with each school Principal for a semi-structured interview which took place before school hours in each of the Principals office (see Appendix I for guiding questions).

At *Time 5* (mid-year in *Phase Two*), a meeting was organised between the researcher, each of the school Principals, three Tongan bilingual teachers and two University educators. At this meeting, collaborative discussions centred on English vocabulary instruction in relation to reading comprehension within Tongan bilingual contexts. The University educators led the discussion about English vocabulary instruction and reading comprehension. The Principals and the teachers shared their experiences and perspectives on teaching Tongan students and in particular on the reading achievement of their students. Furthermore, there was a review and a discussion

around the teaching and learning of English vocabulary instruction that took place in *Phase One* and the progress of the application of the two new vocabulary boards. Handwritten notes were taken by the researcher during the course of these collaborative discussions as each item were discussed.

Semi-structured interviews with Teachers only

The interview times were organised by the researcher with each Teacher. Interviews took place at the times that were most convenient for each teacher during *Time 2* (mid-year of *Phase One*) and *Time 6* (end of year in *Phase Two*). Some interviews took place after school hours and others during school lunch breaks. The duration of each interview ranged from approximately 20 to 60 minutes (see Appendix J for guiding questions). Each interview was audio-recorded by the researcher upon the permission of each teacher. The audio-recordings were later transcribed followed by reliability checks (see the sub-section *Transcriptions*).

Filmed observations of class vocabulary instruction

Each teacher indicated the times that they were available to have their teacher instruction filmed. This was organised prior to the teacher instruction observations taking place. Each teacher was given the choice to be filmed in any lesson that included aspects of English vocabulary instruction (i.e. guided reading lessons, reading to lessons, shared reading lessons, guided writing lessons and/or English vocabulary based activities). The teacher instructions were filmed by the researcher at *Time 3* (end of *Phase One*) and *Time 5* (mid-year of *Phase Two*). The footage from each filmed teacher instruction was transcribed and underwent reliability checks (for details see the sub-section *Transcriptions* below).

Transcriptions

The transcribing process for all audio-recorded material attained from the semi-structured interviews with each Teacher were conducted shortly after the interviews transpired at *Time 2* (mid-year of *Phase One*) and at *Time 6* (end of year in *Phase Two*). The transcriptions for the semi-structured interviews were conducted by a Tongan educator that was not connected to the schools or the Tongan bilingual teachers who were involved in this study. The Tongan educator was asked to concentrate on the verbatim aspects only.

The same process was followed for the filmed observations of classroom instruction whereby another Tongan educator, who was also not connected to the schools or the Tongan bilingual teachers who were involved in this study. The Tongan educator transcribed the footage shortly after the filming of set of classroom observations at *Time 3* (end of *Phase One*) and at *Time 5* (mid-year of *Phase Two*). They were asked to record instances of pauses, non-verbal interactions and to describe what each teacher and their students may have been doing during the footage.

Given that each of the two transcribers were Tongan, they were readily able to transcribe and translate instances where the Tongan language was recorded. The transcripts from the semi-structured interviews and also the filmed observations of classroom instructions were seen as representations of the knowledge and beliefs of the Principals and the Tongan bilingual teachers and furthermore representations of teacher instruction within the context of classroom lessons. According to Cohen, Manion & Morrison (2000), transcriptions are decontextualised, abstract from time and space, from the dynamics of the situation, from the live form, and from the social and, interactive, dynamic and fluid dimensions of their source; they are frozen (p. 282).

Nonetheless, because the transcripts have been analysed by the researcher, who audio-recorded the semi-structured interviews and also filmed the observations of classroom instruction, the analyses offered in this study has overcome this weakness.

Reliability

The transcripts underwent reliability checks to validate the accuracy of the data by sampling 10 minute intervals for semi-structured interviews and 15 minute intervals for the footage of classroom instruction. This was conducted by listening and/or watching the audio-recordings and/or footage and following closely by reading the transcripts. This process was conducted on all transcriptions. The coding and reliability of the interviews and filmed observations are explained in the *Data analysis* section of this chapter.

5.5 Data collection

As described earlier, the data collection for this study was carried out over two years. *Phase One* was the first year of data collection and *Phase Two* was the second year of data collection. The reason for this occurrence was so that the researcher was provided with opportunities to gather data using a triangulation method within the first year. In the second year, the data collection was repeated but this time with added elements to the educational intervention (e.g. the development and implementation of the two new vocabulary boards and the third meeting for the collaborative discussions between teachers, Principals and University educators).

The two year data collection period for this study is based on the premise of grounded theory. Grounded theory is the systematic generation of a theory from data. It is an inductive process in which everything is integrated and in which data pattern

themselves rather than having the researcher pattern them, as actions are integrated and interrelated with other actions (Cohen, Manion & Morrison, 2011). In relation to the *Ako Conceptual Framework*, the *triangulation* method employed within the data collection was likened to the maritime navigators as alluded to earlier in this chapter:

“Maritime navigators use (or used to use) several locational markers in their endeavours to pinpoint a single spot or objective. By analogy, triangular techniques attempt to map out, or explain more fully, the richness and complexity of human behaviour by studying it from more than one standpoint and, in so doing, by making use of both quantitative and qualitative data. Triangulation is a powerful way of demonstrating concurrent validity.” (Cohen, Manion & Morrison, 2011, p. 195)

The data collection consisted of the following: STAR reading achievement data, semi-structured interviews with Principals and Teachers, filmed observations of classroom instruction and collaborative discussions with Principals and Teachers. They are each described in the following sub-sections.

Supplementary Tests of Achievement in Reading (STAR)

As part of the school assessments procedures, the STAR assessments were administered once at the beginning of the school year and once at the end of the school year by each Tongan bilingual teacher within each of their classes. For this study, the students' subtest raw scores and stanines from these STAR assessments were provided by each teacher in *Phase One* and *Phase Two* for the researcher. The STAR assessments was the only standardised test that each school had in common hence the reason why this was the only standardised measure used for the reading achievement of Tongan students within this study. The collection of the STAR achievement data provided an

opportunity to profile the reading achievement of the Tongan students (in this study) by conducting a series of statistical analyses on the subtests scores, stanines and the longitudinal cohort.

Semi-structured interviews with Principals and Teachers

In semi-structured interviews, the Principals and Tongan bilingual teachers had provided insight into their knowledge and beliefs regarding English vocabulary instruction, English reading comprehension, the education of Tongan students and the Tongan bilingual unit/classrooms at their school. The semi-structured interviews were hosted by the researcher at *Time 2* (mid-year in *Phase One*) and *Time 6* (end of year in *Phase Two*). The interviews ranged from approximately 15 minutes to 60 minutes each.

Collaborative discussions with Principals and Tongan bilingual teachers

The Principals and Tongan bilingual teachers' perspectives and pedagogical content knowledge about English vocabulary development, English vocabulary instruction and English reading comprehension were captured in the collaborative discussions that took place with the researcher at *Time 2* (mid-year in *Phase One*), *Time 4* (beginning of year in *Phase two*) and at *Time 5* (mid-year in *Phase Two*). Each meeting was approximately 60 minutes in length. The permission to audio record these collaborative discussions were not sought by the researcher as these discussions were informal. However, notes were written by the research identifying the main points of discussion that were raised in each discussion with points of action for consideration for the researcher only. The purpose of hosting the collaborative discussions was to gain further context into the education of Tongan students with specific reference to vocabulary instruction and reading comprehension.

Filmed observations of teacher instruction

Systematic filmed observations of teacher instruction were conducted by the researcher within each Tongan bilingual class which centred on vocabulary instruction within vocabulary based activities, guided reading lessons, guided writing lessons reading to lessons and shared reading lessons. The filming took place at *Time 3* (end of year in *Phase One*) and at *Time 5* (mid-year in *Phase Two*). Each lesson ranged from approximately 20 minutes to 40 minutes.

The two new vocabulary boards (that fostered word consciousness)

The application of the two new vocabulary boards was conducted by each Tongan bilingual teacher within each of their classes. Their accounts of the implementation of the two new vocabulary boards were provided by each teacher in the semi-structured interviews that were conducted by the researcher at *Time 5* (mid-year in *Phase Two*). Furthermore, the filmed observations of the teacher instruction that were conducted at *Time 5* (mid-year in *Phase Two*) captured the use of the two new vocabulary boards. As noted earlier, owing to the fact that the two new vocabulary boards were designed in *Phase Two* (second year of data collection), the rationale, development, implementation and findings of the two new vocabulary boards are explained in detail in *Chapter 7*.

5.6 Data analysis

Statistical Analyses

The STAR stanine distributions and mean subtest scores of all Tongan students in this study were analysed at *Time 1* (beginning of the year in *Phase One*) to provide a baseline forecast of the trajectory if an intervention had not taken place. Additionally, patterns of achievement for Tongan students in this study are presented in *Chapter 6* and *Chapter 7* using the stanine distributions in comparison with the national norm.

Moreover, a series of paired samples t-tests were used to test for any statistically significant shifts in stanines, subtest scores and the longitudinal analyses across *Phase One* and *Phase Two*.

Coding and reliability of filmed observations of teacher instruction

Coding is the process of disassembling and reassembling data. More specifically, data are disassembled when they are broken apart into lines, paragraphs or sections. These fragments are then rearranged, through coding, to produce a new understanding that explores similarities, differences, across a number of cases. As the coding proceeds the researcher develops concepts and makes connections between them (Creswell, 1998).

The grounded theory was applied in this study and within this theory are three types of coding: *open*, *axial* and *selective* coding. The intention of each type of coding system is to deconstruct the data into manageable chunks in order to facilitate an understanding of the phenomenon in question. In brief, *open coding* involves exploring the data and identifying units of analysis to code for meanings. *Axial coding* seeks to make links between categories and codes. *Selective coding* identifies a core code and the relationship between the core code and other codes are made (Cohen, Manion & Morrison, 2011).

The coding process for the semi-structured interviews involved the researcher and the Tongan educator reading through the transcripts with broad domains that were created prior to transcribing process which consisted of the following: vocabulary instruction, reading comprehension, STAR reading tests and teaching within Tongan bilingual classes. The researcher and the Tongan educator to read through the transcripts

together to determine which line, phrase or paragraph would be categorised under each domain thus implementing a *selective coding* system. The coding of the transcripts is reported in *Chapter 6* and *Chapter 7*.

The coding process took place between the researcher and a Tongan educator. The only transcripts that were coded from the filmed observations of teacher instruction were those that captured the guided reading lessons. The reason for the selection of the transcripts for guided reading lessons was so that the comparisons made across each class were consistent with each type of lesson. All transcripts from the semi-structured interviews that were conducted in *Phase One* and *Phase Two* were coded.

The coding process for the filmed observations of teacher instruction was similar to that of the above. In this particular case, the researcher and the Tongan educator had implemented the *axial coding* system and the *selective coding* system. Below are examples of the coding process that took place on the transcripts from the filmed observations of classroom instruction.

Instances of teacher instructions, questions and prompts that were focused on vocabulary and reading comprehension were identified using the following categories (see Appendix K & L for the list of codes and categories):

- Defining and elaborating vocabulary (*Phase One*)
- Defining and elaborating vocabulary with the two new vocabulary boards (*Phase Two*)
- Print and speech (*Phase One* and *Phase Two*)
- Activating prior experiences and/or prior knowledge (*Phase One* and *Phase Two*)

- Reading comprehension (*Phase One* and *Phase Two*)

Defining and Elaborating Vocabulary

In this category, instances where the teacher defined a word or asked students to define a word, checked with students if they understood a word, translated an English word to Tongan or asked students to translate an English word to Tongan, asked students to identify and/or explain language features or parts of speech, provided examples of words, identified a word and/or explained concepts about words/phrases and/or translated concepts about English words in Tongan. Below is an excerpt taken from the filmed observations of classroom instruction transcripts to illustrate the coding for teachers and for student participation in *Defining and Elaborating vocabulary* (note: T = Teacher, S = student, S2 = student number 2, S8 = student number 8 and G = Group):

Example 1: *Transcript 17*

- T: Ok, I found these ones here *teacher highlights the words “creaked” and “groaned” on the passage posted on the whiteboard*. Now ‘Palms creaked, groaned, and bent their leaves’. Now what is the author doing here? Palms? Now what are palms? Palms are? What are palms?
- S8: Trees
- T: Trees. They are like coconut trees. Now look at these words over here, “Palms”, “creaked” and “groaned”. Tell me what is the author doing here?
- S: Personified
- T: Personify, what does that mean? Personify? S2 can you tell us more about personify?
- S2: It’s like turning the leaves into humans.
- T: Turning the leaves into humans. How S2?
- S2: By giving them body parts.
- T: By giving them body parts. So they’re groaning and creaking. *Teacher writes “personify” and “past tense verb” on the whiteboard*. What was the word that S2 said?
- G: Personify

In *Example 1* there are 15 instances of the teacher engaging in elements of *Defining and elaborating vocabulary*. Also in *Example 1* there were 5 instances of student participation in relation to *Defining and elaborating vocabulary*.

Phonics and Phonemic awareness

This category included instances where the teacher asked or prompted students to look for specific words in text, asked or prompted students to re-read a word or sentence to self-check/self-correct, asked or prompted students to repeat the pronunciation of a word, asked or prompted students to spell out a word/sound out a word and asked or prompted students to identify what letter(s) or parts of a word that they can see within the text.

Below is an excerpt taken from the filmed observations of classroom instruction transcripts to illustrate the coding for teachers and for student participation in the *Phonics and Phonemic awareness* category (note: T = Teacher, C = student and G = Group):

Example 2: *Transcript 22*

- T: What is that word?
S: Flock
T: What is that word?
S: Flock
T: Right, spell that word
G: F – L – O – C – K. Flock
T: Right, what part of the story that said something about the *flock*? (*The teacher repeats the questions and the students remain silent*). If you listened carefully, what part of the story talked about the *flock*? Flock of what? Flock of... ? *The students remain silent*. The story was saying that they were sailing with a flock of...?
G: Birds!

In *Example 2* there are 3 instances of teacher instruction which were coded under the category of *Phonics and Phonemic awareness*. Also in *Example 2* there were 4 instances in which student participation was identified under the category of *Phonics and Phonemic awareness*.

Activating prior experiences and prior knowledge

This category identified the following instances: the teacher linked the context of the story or a paragraph or a sentence or a word to students' personal experiences or students' prior knowledge or to something in Tonga or in the Tongan language, asked students to provide examples that relate to the context of the story or paragraph or sentence or word and/or if the teacher translates the context of the story from the English language into the Tongan language.

Below is an excerpt taken from the filmed observations of classroom instruction transcripts to illustrate the coding for teachers and for student participation in the *Activating prior experiences and prior knowledge* category (note: T = Teacher and C = student):

Example 3: *Transcript 20*

- T: Ok, so a story from Tonga. Put your hands up if you have been to Tonga? *Two out of the five students raise their hands*. Oh, only two? Can you tell me something about Tonga that you know? You know the children that haven't been to Tonga, just tell me anything that you know about Tonga. Maybe you've heard it from your parents or your Nena's. Just tell me anything that you have heard about Tonga.
- S: There are dogs all over the place
- T: There are dogs all over the place. Yes very well.
- S: Another name for Tonga is *The Friendly Islands*
- T: Yes, well done. We are called the friendly islands and we are so proud of that name. What else?
- S: It's hot
- T: It's hot in Tonga. What else? What else do you know about Tonga? What is the capital of Tonga?
- S: Nuku`alofa

In *Example 3* there are 9 instances of teacher instruction which were coded under the category of *Activating prior experience and prior knowledge*. Also in *Example 3* there were 4 instances in which student participation was identified in the category of *Activating Prior Experience and Prior Knowledge*.

Reading Comprehension

This category identified the following instances: teacher asked questions about the context of the story or talked about the context, asked the students about a sentence or a paragraph, asked students what they understood from the text and/or asked questions to check for students understanding using the Tongan language, asked students to identify the title of the story, the illustrator and/or the author, asked students to predict or draw meaning by using picture cues and/or the title of the story.

Below is an excerpt taken from the filmed observations of classroom instruction transcripts to illustrate the coding for teachers and for student participation in the *Reading Comprehension* category (note: T = Teacher, S1 = student number 1, S2 = student number 3 and S4 = student number 4):

Example 4: Transcript 19

- T: So who are the characters in the first page? *The teacher points to each student as the students identify the characters in the story i.e. Brett, David, Mum and Amy.* So those are the characters in the first page. Ok what else? What other information is there in the story?
- S1: Mrs A is like a witch
- T: Yes, Mrs A is like a witch. Why did they think like that? Why? That's what they thought, 'oh Mrs A is a witch'. Why did they think like that? What is in the story that makes you think that Mrs A is a witch?
- S3: They think that she is mean
- T: They think that she is mean, yes. What about you S4?
- S4: She's skinny and she has a big nose
- T: She's skinny and she has a big nose like a what?
- S4: Like a witch (*students and teacher laugh*)
- T: Like a witch

In *Example 4* there are 9 instances of teacher instruction which were coded under the category of *Reading Comprehension*. Also in *Example 4* there were 4 instances in which student participation was coded under the category of *Reading Comprehension*.

Inter-rater reliability checks were conducted on the coding of 20% of the interview transcripts and 20% of the filmed observations of classroom instruction transcripts. According to Multon (2010), inter-rater or inter-observer (used interchangeably) reliability is used to assess the degree to which different raters or observers make consistent estimates of the same phenomenon. For this study, the inter-rater reliability checks reported on agreements (A) on occurrences divided by agreements (A) plus disagreements D, $A/(A+D)$. This method is widely used when reliabilities are reported as percentage or proportion of agreements. In this study, the interview transcripts had an inter-rater reliability of 93% and the filmed observations of classroom instruction transcripts, 87%. These were high percentage of agreement between the researcher and the Tongan educator.

5.7 Chapter summary

The research design for this quasi-experimental study included a mixed method approach by which triangulation (two or more methods of data collection are implemented) were applied. The data collection for this study was conducted over a two year period (*Phase One* = first year of data collection, *Phase Two* = second year of data collection) using a time-series design. The data collection included: semi-structured interviews with participants, collaborative discussions with participants, filmed observations of teacher instruction and STAR achievement data.

The next chapter presents the results from *Phase One* (first year of data collection) and *Chapter 7* presented the results from *Phase Two* (second year of data collection).

Chapter 6: Results *Phase One*

6.0 Chapter overview

As described in *Chapter 1*, the research aims for this study were to theorise and find an approach that may contribute to raising the academic achievement of Tongan students in the areas of vocabulary development and reading comprehension. To reiterate, the hypothesis for this study was that explicit vocabulary instruction, using an educational intervention, can positively impact on Tongan students' reading comprehension and contribute to the improvement of their reading achievement.

In *Phase One*, there were three time points at which data were collected: *Time 1* (beginning of the year), *Time 2* (mid-year) and *Time 3* (end of the year). More specifically, at *Time 1* and at *Time 3*, the STAR assessments were administered by the teachers which provided a baseline profile of reading achievement of the students in the Tongan bilingual classes for this study as a forecast of what the expected trajectory of development would be if a planned intervention had not occurred (Risely & Wolf, 1973).

Furthermore, semi-structured interviews were conducted by the researcher with each Principal and teacher at *Time 2*. Subsequently, collaborative discussions took place between the researcher and teachers (altogether). Furthermore, at *Time 3* the researcher conducted filmed observations of teacher instruction within each of the three classrooms for this study.

The results of this study are presented in two chapters. The results from *Phase One* (first year of data collection) are presented in this chapter across *Time 1*, *Time 2*

and Time 3. The results from *Phase Two* (second year of data collection) are presented in *Chapter 7* across Time 4, Time 5 and Time 6.

6.1 STAR Reading Achievement in Phase One

As a reminder, stanines¹¹ from 1 to 3 are identified as *critical scores* indicating that students are achieving *below* the national norm. Stanines from 4 to 6 are identified as the *typical nationwide range scores* for students achieving *at* the national norm. Stanines from 7 to 9 are identified as *high scores* indicating that students are achieving *above* the national norm.

STAR stanine distributions for Tongan students in Phase One (n=70)

As shown in *Figure 10*, 5.75% of the Tongan students at *Time 1* attained high stanines (i.e. 7 to 9) and at *Time 3* it increased to 21.43%. The positive shift in mean stanines indicates that students had enhanced reading skills that were necessary to comprehend texts. The expected national level for the high stanine range 23.00%.

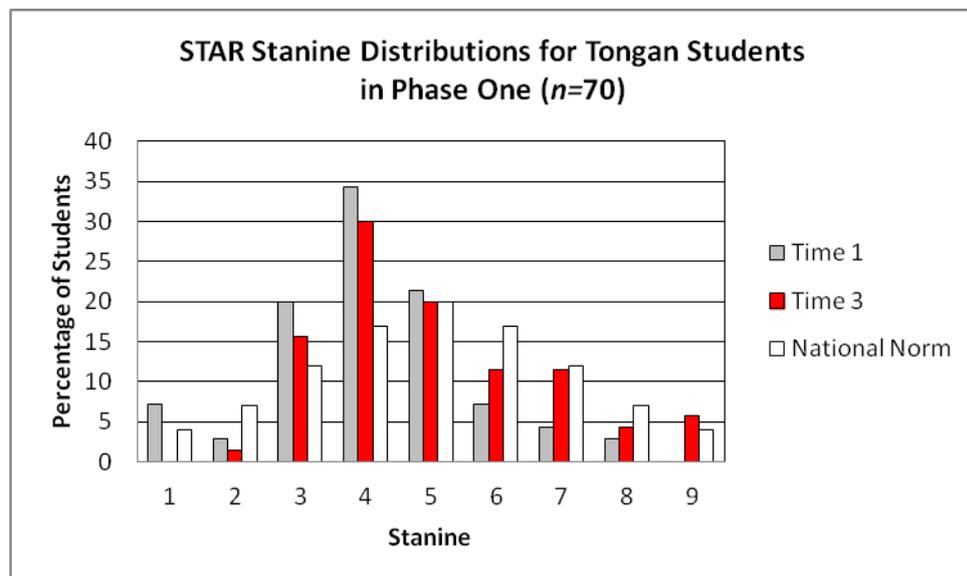


Figure 10 STAR stanine distributions for Tongan students in *Phase One* (n=70)

¹¹ A stanine is a method of scaling test scores on a nine-point standard scale with a mean of 5 and a standard deviation of 2.

In addition, 60.00% of the Tongan students at *Time 1* attained baseline stanines that were within the nationwide typical range (i.e. 4 to 6). Students within the nationwide typical range are considered to have a good grasp of the basic reading skills with good aspects of close reading. That figure increased slightly to 61.43% at *Time 3*. The expected national level for this range is 54.00% which indicates that by the end of *Phase One* the achievement of the Tongan students had exceeded the expected national level with 61.43% of students who attained stanines that were within the national norm.

At *Time 1*, 34.28% of the Tongan students attained baseline stanines within the critical range (i.e. 1 to 3) which suggest that the Tongan students exhibited weak skills in reading (in English) and that they required further guided assistance in developing their skills in reading comprehension. At *Time 3* that figure decreased to 17.14% (the expected level nationally is 23.00%) which indicates that students shifted from achieving *below* the national norm (stanines from 1 to 3) to achieving *within* the nationwide typical range (stanines from 4 to 6). The indicated shifts of improvements in the reading achievement of Tongan students in *Phase One* suggest that they had learned and developed skills in reading comprehension and were able to apply those skills within the context of what they had read.

The expected national level for students who achieve *at* or *above* the national norm is 77% and *Figure 10* indicates that by the end of *Phase One* 82.86% of the Tongan students achieved *at* or *above* the national norm. This was a major improvement from the baseline achievement of 70.01% and it exceeded the expected national level.

Overall, a paired samples t-test indicates that there was a statistically significant difference between the mean stanines at *Time 1* ($m=4.13$) and *Time 3* ($m=5.04$) in *Phase One*; $t(69)=-5.6276$, $p<0.01$ with an effect size of $d=0.57$ (as shown in Table 6).

Class Achievement Patterns for Tongan students in Phase One

STAR subtest mean scores across classes in Phase One

As shown in Table 6, the Tongan students in the three classes attained high mean scores in *Subtest 1: Word recognition*. A paired-samples t-test showed that there was a statistically significant shift in mean scores between *Time 1* ($m=7.00$) and *Time 3* ($m=8.86$) for Class A; $t(28)=-5.49$, $p<0.01$ (as shown in Tables 6 and 7). There was also a statistically significant shift in mean scores between *Time 1* ($m=6.18$) and *Time 3* ($m=9.06$) for Class C; $t(16)=-6.05$, $p<0.01$ (as shown in Tables 6 and 7).

On the other hand, despite the slight increase in the mean scores from *Time 1* ($m=8.92$) and *Time 3* ($m=9.17$) for Class B, the difference was not statistically significant as shown by a paired-samples t-test; $t(28)=-1.00$, $p>0.05$ (as shown in Table 6 and 7). The statistically significant shifts in mean scores from *Time 1* to *Time 3* suggest that there were improvements in students' decoding skills within their reading achievement which suggests that word recognition is a learning strength for Tongan students in this study.

In addition, a paired-samples t-test indicates statistically significant shifts in mean scores from *Time 1* to *Time 3* in *Subtest 2: Sentence Comprehension* for Class A; $t(28)=-3.84$, $p<0.01$ and for Class C; $t(16)=-6.05$, $p<0.01$. Despite the positive shift in mean scores from *Time 1* ($m=5.92$) to *Time 3* for Class B, it was not statistically

significant; $t(23)=-1.43$, $p>0.05$ but the mean score by *Time 3* ($m=6.82$) was above average.

The statistically significant shifts in mean scores in *Subtest 2: Sentence Comprehension* suggest that the Tongan students improved in their decoding skills and their ability to use a range of sources to comprehend what they had read, particularly in short texts (i.e. sentences). However, the results also indicate that there was still a need to focus on teaching readings skills and to also develop the students reading vocabulary.

Table 6

The STAR subtest scores across Tongan bilingual classes in Phase One

Classes	Subtest 1: Word Recognition		Subtest 2: Sentence Comprehension		Subtest 3: Paragraph Comprehension		Subtest 4: Vocabulary	
	Time 1	Time 3	Time 1	Time 3	Time 1	Time 3	Time 1	Time 3
Class A ($n=29$)								
<i>m</i>	7.00	8.86	5.10	6.59	6.66	6.07	3.72	5.97
<i>SD</i>	(2.19)	(1.60)	(2.58)	(1.92)	(4.15)	(4.43)	(2.45)	(2.58)
Class B ($n=24$)								
<i>M</i>	8.92	9.17	5.92	6.42	9.42	10.17	4.83	4.29
<i>SD</i>	(1.32)	(0.96)	(1.35)	(1.72)	(3.65)	(2.35)	(2.01)	(1.97)
Class C ($n=17$)								
<i>M</i>	6.18	9.06	3.94	6.82	3.29	7.00	2.41	6.00
<i>SD</i>	(2.16)	(1.34)	(2.08)	(2.32)	(4.75)	(4.60)	(1.66)	(2.60)

Note. *Time 1* = beginning of the year in *Phase One*. *Time 3* = end of the year in *Phase One*. *m* = mean. *SD* = standard deviation. *n* = number of students.

Table 7 *The differences in subtest means and the effect sizes across Tongan bilingual classes in Phase One*

Classes	Subtest 1: Word Recognition		Subtest 2: Sentence Comprehension		Subtest 3: Paragraph Comprehension		Subtest 4: Vocabulary	
	Diff T1-T3	Effect size <i>d</i>	Diff T1-T3	Effect size <i>d</i>	Diff T1-T3	Effect size <i>d</i>	Diff T1-T3	Effect size <i>d</i>
Class A (<i>n</i> =29)								
<i>M</i>	+1.86**	0.98	+1.49**	0.66	-0.59	-0.14	-1.75**	-0.70
<i>SD</i>	(1.89)		(2.25)		(4.29)		(5.03)	
Class B (<i>n</i> =24)								
<i>M</i>	+0.25	0.22	+0.50	0.32	+0.75	0.25	-0.54	-0.27
<i>SD</i>	(1.14)		(1.55)		(3.00)		(1.99)	
Class C (<i>n</i> =17)								
<i>m</i>	+2.88**	1.65	+2.88**	1.31	+3.71**	0.79	+3.59**	1.69
<i>SD</i>	(1.75)		(4.40)		(4.68)		(2.13)	

Note. Time 1 = beginning of the year in Phase One. Time 3 = end of the year in Phase One. *m* = mean. *SD* = standard deviation. *n* = number of students. *d* = effect size. Diff T1-T3 = the difference between Time 1 and Time 3 mean scores. * $p < 0.05$ ** $p < 0.01$.

For *Subtest 3: Paragraph Comprehension*, the Tongan students across the three classes attained very low mean scores as displayed in Table 6 despite the positive shifts in mean scores for Classes B and C. There were statistically significant shifts in the mean scores from *Time 1* to *Time 3* in *Subtest 3: Paragraph comprehension* for Class C; $t(16)=-5.17, p<0.01$ (as shown in Table 8) which suggest that there was an improvement in student comprehension. The shifts in the mean scores from *Time 1* to *Time 3* in *Subtest 3: Paragraph comprehension* were not statistically significant for Class A $t(28)=1.04, p>0.05$ and Class B $t(23)=-1.20, p>0.05$ (as shown in Table 8). Class A had a decrease in mean scores from *Time 1* ($m=6.66$) to *Time 3* ($m=6.07$) which falls below average for this particular subtest.

In addition, Class B achieved a mean score of $m=10.17$ at *Time 3* which is the average score for this particular subtest and Class B was the only class to have achieved at the average score. This suggests that the Tongan students were still developing their linguistic knowledge required to gain meaning from the context of the surrounding text. Furthermore, it suggests that the teacher in Class A had focused more on decoding and vocabulary instruction and not so much on comprehension given the low baseline mean scores on vocabulary for the class.

Also shown in Table 6, the mean scores for each class were low at *Time 1* in *Subtest 4: Vocabulary*. There were statistically significant shifts in mean scores for Class A; $t(28)=-5.23$, $p<0.01$ and for Class C; $t(16)=-6.53$, $p<0.01$ at *Time 3* with mean scores that were above average (as shown in Table 7). However, for Class B, the mean scores had decreased from *Time 1* ($m=4.83$) to *Time 3* ($m=4.29$) and they were each below the average score in *Subtest 4: Vocabulary* which suggests that the learning and development in for students reading vocabulary remained a challenge. However, it is also important to note that Class B is the only class which achieved an average mean score in *Subtest 3: Paragraph comprehension* and obtained the highest score in *Subtest 1: Word Recognition*. This might suggest that the teacher in Class B focused on aspects of reading instruction with the knowledge that Class B attained a high mean score on vocabulary subtest at *Time 1*.

In general, the Tongan students in *Phase One* (first year of data collection) achieved high mean scores in *Subtest 1: Word Recognition* followed by average mean scores achieved in *Subtest 2: Sentence Comprehension*. Table 6 and Table 7 provide evidence that *Subtest 3: Paragraph Comprehension* and *Subtest 4: Vocabulary* were the

two subtests that the Tongan students in this study, on average, attained low scores on. This is a typical finding nationwide.

STAR stanine distributions for class A in Phase One (n=29)

As shown in *Figure 11*, by the end of *Phase One*, Class A had 31.04% of students that achieved *below* the national norm, 51.72% achieved *at* the national norm and 17.24% achieved *above* the national norm. Improvements in the student achievement scores were made from the baseline results however, the percentages identified at the end of *Phase One* for Class A achieved less than the expected national level.

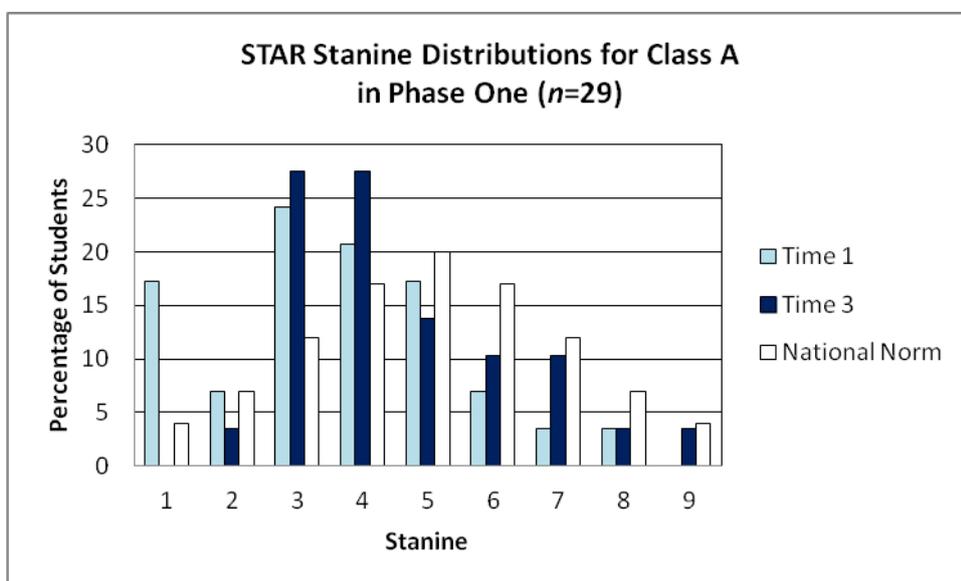


Figure 11 STAR stanine distributions for Class A in *Phase One* (n=29)

STAR stanine distributions for class B in Phase One (n=24)

The stanine distributions for Class B differed to Class A by the end of *Phase One* as shown in *Figure 12*. In Class B, 8.33% of students achieved *below* the national norm, 91.67% of students achieved *at* the national norm and there were no students who achieved *above* the national norm at the end of *Phase One*.

There were major improvements in the achievement scores for students in Class B which shifted from *below* the national norm to achieving *within* the national norm. Notably, the baseline mean scores for all subtests for Class B exceeded Classes A and C. At Time 3, Class B achieved high mean scores in *Subtest 1: Word Recognition* and *Subtest 3: Paragraph Comprehension* in comparison to Class A and Class B.

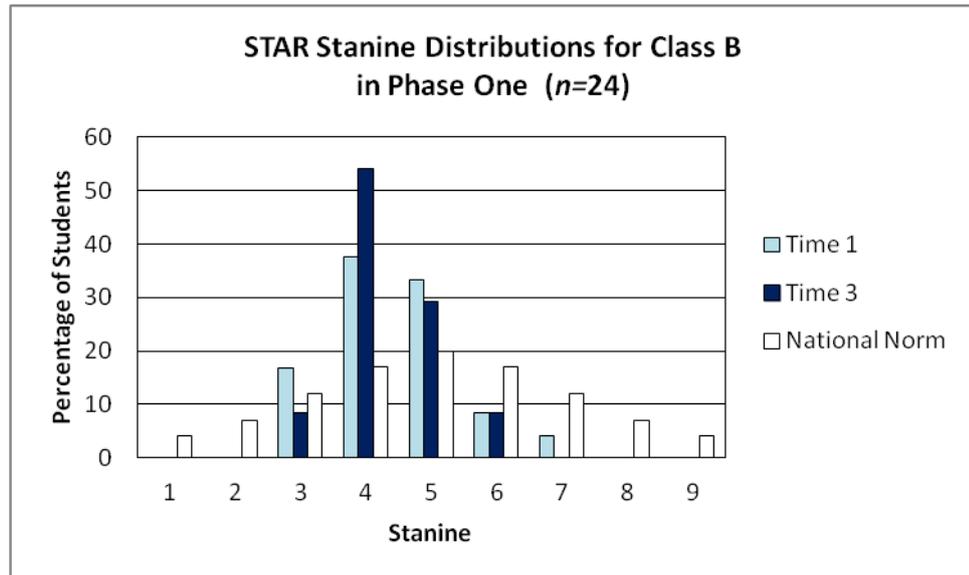


Figure 12 STAR stanine distributions for Class B in Phase One (n=24)

STAR stanine distribution for class C in Phase One (n=17)

The STAR stanine distributions for Class C differed to both Class A and Class B's achievement results with the majority of Class C's students achieving *above* the national norm at the end of *Phase One*. For example, at the end of *Phase One*, 5.8% of students in Class C achieved *below* the national norm, 35.30% of students achieved *at* the national norm and 58.82% of students achieved *above* national norm as shown in *Figure 13*.

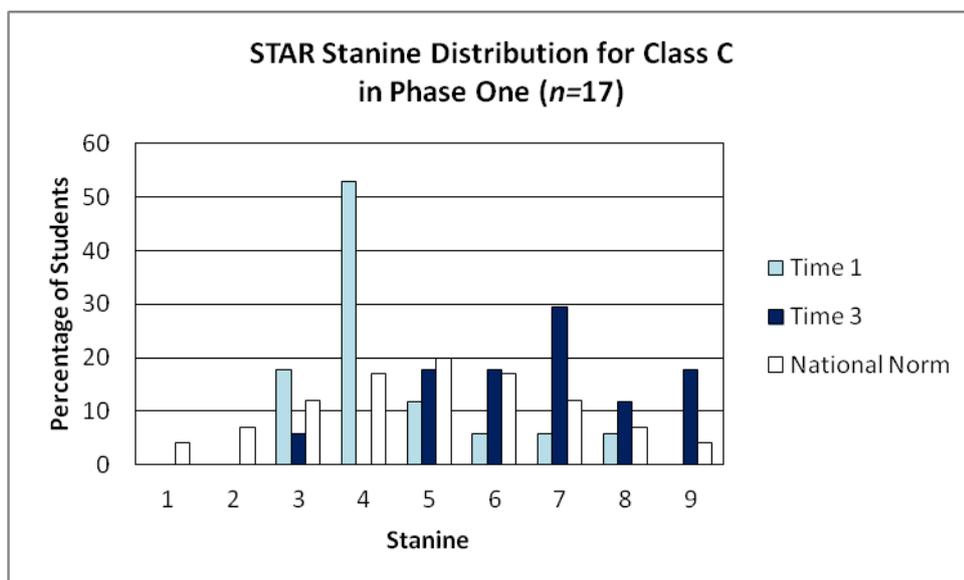


Figure 13 STAR stanine distributions for Class C in Phase One (n=17)

Summary of STAR Reading Achievement in Phase One

The stanine distributions presented here suggest that within all classes, the majority of the students displayed good grasp of the skills that are pertinent to English reading vocabulary development and in particular and English reading comprehension. The stanine distributions implicate that a large percentage of Tongan students were able to apply their knowledge and skills to gain meaning from the text.

Furthermore, the results suggest that the teaching methods for each class teacher were effective as reflected in the STAR reading achievement data in *Phase One*. However, the percentage of students within each class who had achieved *below* the national norm indicate that there was still a need for teachers to examine the vocabulary development and reading comprehension of their students and elements of their literacy instruction.

The *Phase One* STAR achievement data show that 34.38% of Tongan students attained critical stanines at baseline but the percentage of students who achieved critical

stanines was reduced to 17.14% by the end of that year, thus indicating shifts of improvements for Tongan students in reading achievement.

Furthermore, the baseline results demonstrated that 77.00% of Tongan students achieved stanines at or above the national norm. By the end of *Phase One*, the percentage of Tongan students increased to 82.86% thus exceeding the expected national level of achievement in STAR assessment. The *t*-tests demonstrated significant differences between Time 1 and Time 3 with an effect size of $d=0.57$.

The Tongan students in Classes A, B and C varied in their STAR achievement results; however, the commonality across all classes were that the Tongan students achieved high mean scores in *Subtest 1: Word recognition* but achieved low mean scores in *Subtest 3: Paragraph comprehension* and *Subtest 4: Vocabulary*.

Moreover, Class A demonstrated statistically significant gains in *Subtest 1: Word recognition* and *Subtest 2: Sentence comprehension*. Class B demonstrated positive shifts in mean scores across subtests but the scores were not statistically significant. Class C demonstrated statistically significant gains in mean scores across all subtests.

The results presented in Table 6 and Table 7 suggest that the teachers need to focus on: teaching decoding skills for familiar words in their students reading and spoken vocabulary, the explicit teaching of reading vocabulary and to teach reading skills that students could use to gain meaning from text.

From the analyses of the overall STAR stanine distribution graph (see *Figure 11*) in *Phase One*, data shows that there were statistically significant shifts in mean scores

from Time 1 to Time 3 thus suggesting that there were improvements in student learning and it also suggests that teachers possibly modified their pedagogical practices to meet the needs of the students.

6.2 Principals: Knowledge and beliefs in Phase One

The 15-30minute semi-structured interviews took place between the researcher and each of the school Principals to gauge insight into the establishment and the vision of the Tongan bilingual units at their schools and the education of Tongan students with a particular focus on vocabulary and reading comprehension.

The semi-structured interviews were organised into three domains for analysis: *Domain 1: The establishment of the Tongan bilingual units at their school. Domain 2: Teacher instruction based on English vocabulary. Domain 3: STAR student achievement results in reading comprehension in Tongan bilingual units.*

Principal A

Domain 1: The establishment of the Tongan bilingual units at their school

The Tongan bilingual unit was established at Principal A's school over 10 years ago based on parental requests. Principal A stated that the Tongan bilingual contexts within his school were indicative of the values for education that the Tongan parents had within their school community. This is consistent with Garcia and Kleifgan's (2010) assertion that it should be recognised that parents are investing in their emergent bilingual children's learning and that they want them to excel thereby, partnerships can be formed between the school and the parents and the community.

Principal A stated that there were benefits for providing children with a rich and purposeful education within a bilingual context and that it has had positive effects on the learning of students and their well being. He explained that their Tongan bilingual units have over the past years, provided students with an environment that has celebrated positive cultural relationships which has uplifted the students socially. This is consistent with the notion that Garcia and Nanez (2011) describes as embedding socio-cultural contexts within the class to enable bilingual children to bring to the formal schooling process a language and culture with distinct social contexts. The Tongan programmes that exists within the Tongan bilingual unit at Principal A's school utilises a dual language medium of instruction, the Tongan language and English language which the students have responded t positively.

Domain 2: Teacher instruction based on English vocabulary

Principal A stated that English vocabulary instruction should be seen as a starting point for teaching in a Tongan bilingual unit. He believes that English word knowledge is the key factor in the relationship between English vocabulary instruction and English reading comprehension. This is in agreement with the notion that if vocabulary learning is to have a positive effect on reading comprehension then as Beck, McKeown & Omanson (1987) assert:

“Accuracy of word knowledge, but also fluency of access to meanings in memory, and rich decontextualised knowledge of words.” (p. 148)

By this means, Beck, McKeown & Kucan (2002) assert that the following dimensions involved in English vocabulary knowledge are important for teachers to incorporate into English vocabulary programme: vocabulary knowledge, continuum-based knowledge (the depth and breadth of knowing a word), contextualised and decontextualised word knowledge and partial and comprehensive word knowledge.

Principal A described that without a good English vocabulary base, students cannot communicate effectively therefore students require effective vocabulary instruction that can enable their achievement to meet or exceed the expected level nationally. This suggests that English vocabulary instruction would need to be thorough, comprehensive, generative and consistent for students. As Nation (2008) asserts, teachers would need to incorporate different methods of teaching to enable their students to learn English words that can be generative and can be very productive.

Principal A added that their school has planned meaningful experiences for their students in the past to contribute to their learning within the classroom. For example, a school trip to *Kelly Tarltons* (a learning center for Antarctic exploration featuring penguins and local sea life) was planned for the school in order to add richness to the teaching and learning programmes within the classes. He explained that providing professional development for his staff members and planning meaningful learning experiences for students are factors which contribute to the English vocabulary development of students and their reading achievement.

In addition, Principal A's school incorporates English for Speakers of Other Languages (ESOL) programmes within their literacy programmes thus providing further assistance to the learning development of bilingual students. However, professional development needs to be for all teachers of Tongan students and in general other English language learners.

Overall, Principal A's school has emphasised the importance of English vocabulary instruction which was inclusive of their whole school's literacy programme.

In turn this demonstrates the level of support and positive expectations that Principal A has for his staff as well as the students. In general, Principal A's views are consistent with research literature that connects vocabulary development and instruction with reading comprehension. Although, the concern rests on low reading achievement and the underachievement in reading comprehension for some students at this school including the Tongan students.

Domain 3: STAR student achievement results in reading comprehension in Tongan bilingual units

Principal A identified that the student achievement results produced from the STAR assessments for Tongan bilingual units within his school were below average in comparison to mainstream classes. This is not uncommon as similar cases were shown by the American bilingual students who have demonstrated a lag behind their monolingual same-age and same-grade peers at all proficiency levels of reading (Garcia & Nanez, 2011). However, it is important to note that not all young bilinguals are equally at risk for academic underachievement and/or reading difficulties.

Principal A's school works collaboratively with other schools within their community to discuss methods to raise the reading achievement of their students (who are predominantly Pasifika students). Principal A believes that having their school involved in a learning community, a cluster of schools who collaborate on ideas and methods for learning and teaching in relation to student achievement, it contributes to the development of the teachers' pedagogical practices and professional learning.

Principal B

Domain 1: The establishment of the Tongan Bilingual Units at their school

Principal B stated that the Tongan bilingual units at his school were established as a result of their surrounding communities. The parents of the students who attended his school had requested that the Tongan bilingual units be created in order to provide opportunities for their children to be educated in two languages, in this case, Tongan and English.

Principal B stated that language is a pleasure and a powerful tool in all means of communication. He believes that language is the core of cultural identity, self-esteem and self-responsibility. This view is aligned with Au's (2007) assertion that teachers who implement culturally responsive pedagogies do so with recognition that the literacy demands in a typical school setting might differ from those in the community. Furthermore, Principal B highlights that culturally responsive teaching seeks to minimise and close the gap between students' experiences at home and at their experiences at school thus highlighting the cultural differences that students may have within a New Zealand education system.

Domain 2: Teacher instruction based on English vocabulary

As noted in *Chapter 2*, the effective vocabulary teacher has been described by Blachowicz and Fisher (2003) as one who provides rich oral language, uses and provides wide reading material, has control of vocabulary learning, provides meaningful contexts, creates and builds a word-rich class environment which enables both explicit instruction and incidental learning and development of word awareness to occur. This supports Principal B's assertion that English vocabulary instruction should not be conducted in isolation but rather it should be incorporated into reading and/or writing

instruction. More specifically, he stated that he has seen students gain from rich learning environments and that reading creates the language and extends vocabulary across all curriculum areas.

Moreover, Principal B firmly believes that teaching concepts about English words in order to develop knowledge of word meanings would be more effective for students rather than teaching from vocabulary lists. This is consistent with the notion that vocabulary instruction that makes students think about the meaning of a word and demands that they do some meaningful processing of the word, will be more effective than one that does not (Nagy, 1988).

Principal B described that in the past, students have demonstrated their ability to recognise and pronounce words from vocabulary lists but at times they did not know the meaning behind the words. He concluded that English vocabulary instruction is an old concept and that the whole language approach (in English) is more ideal rather than isolated incidences. Given the complexity of processes involved in comprehending text (in English), a high level of English word knowledge may be needed in order for any student to reach the English reading comprehension levels that are at or above the NZ national norm.

Thereby, there is a need for a comprehensive, multifaceted approach to increase students' English vocabularies so that it might impact on reading comprehension. These needs are likely to be even greater in the context of bilingual instruction such as the Tongan bilingual classes.

Domain 3: STAR student achievement results in reading comprehension in Tongan bilingual units

As mentioned in the previous chapter, the STAR assessments are used in many schools across the nation as a form of standardised testing. Principal B stated that 2008 was the first year that the STAR assessments were administered across their school so the testing needs to be checked. Teachers have undergone staff development on the execution and marking of the STAR assessments. In addition, support is provided for teachers to understand how the test results can be used in order to inform further teaching practices. The STAR assessments were introduced in 2008 as another tool to supplement achievement tests that already exists within the school such as the PATs¹² tests.

Summary of Principals: Knowledge and beliefs in Phase One

As a reminder, the 15-30minute semi-structured interviews took place between the researcher and each of the school Principals to gauge insight into the establishment and the vision of the Tongan bilingual units at their schools and the education of Tongan students with a particular focus on vocabulary and reading comprehension.

From the semi-structured interviews with each school Principal, it was found that the Tongan bilingual units from each school were established as a result of requests made by the parents within each of their communities. This suggests that Tongan families are supportive of their children's education and in particular, parents want their children to be provided with opportunities to learn in the Tongan language as well as the English language at school and it highlights the school's willingness to form a

¹² The Progressive Achievement Tests (PATs) assess students' Mathematics, Listening Comprehension, Punctuation and Grammar, Reading Comprehension, and Reading Vocabulary. PATs are a series of standardised tests developed specifically for use in New Zealand schools.

partnership with the parents and community. Bilingual education offers many social, cultural, attitudinal and intellectual advantages as well as obvious linguistic ones (Holmes, 1987).

The vision to establish the Tongan bilingual units within each mainstream school is in agreement with the notion that teachers who share students' cultural and linguistic backgrounds can often apply their cultural knowledge to establish positive relationships with students thus teaching in a culturally responsive manner (Holmes, 1987).

Principal A and Principal B were in agreement that explicit English vocabulary instruction is a necessary component to include in literacy programmes particularly for Tongan students. Each of the Principals' pedagogical content knowledge about vocabulary instruction were aligned with the belief that robust vocabulary instruction that is multi-component can impact on students' reading comprehension levels. Principal A oriented towards an explicit focus on word knowledge with a language experience approach and Principal B oriented towards the provision of rich language contexts and metalinguistic awareness.

Both Principals confirmed that each of their schools administered and used the STAR assessments to measure the reading achievement of students. It was noted that the STAR assessments were used alongside other standardised assessments at each school. Therefore, the STAR assessment tool was the only standardised tests that they each had in common and was used to measure reading achievement for students in this study.

6.3 Tongan bilingual Teachers: Knowledge and beliefs in Phase One

At *Time 2* (mid-year in *Phase One*), 20-30 minute semi-structured interviews took place with each the three Tongan bilingual teachers thus providing insights into their knowledge and beliefs regarding vocabulary instruction, reading comprehension and their experiences in teaching within Tongan bilingual classes. Subsequently, a meeting was hosted by the researcher with the three teachers to discuss vocabulary development and reading comprehension in an informal discussion.

In addition, the three Tongan bilingual teachers were filmed during 3 of their classroom instruction at *Time 6* (end of year in *Phase One*) that took place within each of their literacy programmes. As a reminder, the purpose for filming class vocabulary instruction for this study was to capture the way in which vocabulary instruction is conducted by each teacher within their classroom contexts. In addition, the filming of class vocabulary instruction was conducted to also observe how student learning takes place in the context of a literacy lesson or activity.

This section presents the teachers knowledge and beliefs organised into four main domains: Domain 1: The importance of English vocabulary instruction. Domain 2: Best methods for English vocabulary teacher instruction. Domain 3: The selection of English vocabulary to be taught explicitly in the class. Domain 4: The advantages and/or barriers to teaching in a Tongan bilingual class/context (in relation to English vocabulary instruction and reading comprehension).

Teacher A

Teacher A was responsible for a class of Year 4, 5 and 6 students (Class A) in *Phase One*. The STAR reading achievement for Teacher A's class showed that by the

end of *Phase One*, Class A achieved a high mean score in *Subtest 1: Word recognition*, an average mean score in both *Subtest 2: Sentence Comprehension* and *Subtest 4: Vocabulary* but a low mean score in *Subtest 3: Paragraph Comprehension*. In addition, by the end of *Phase One*, 68.96% of Teacher A's students achieved stanines either *at* or *above* the national norm; however, 31.04% of her students achieved *below* the national norm.

Teacher A described her knowledge and beliefs about vocabulary development, vocabulary instruction and reading comprehension in the semi-structured interview that was conducted at *Time 2* (mid-year in *Phase One*). Subsequently, she attended a meeting with the researcher and other teachers to engage in collaborative discussion regarding vocabulary and reading comprehension. At *Time 3* (end of year in *Phase One*), Teacher A was filmed during the delivery of a few of her literacy lessons with students.

This sub-section presents the knowledge and beliefs of Teacher A, based on her interview and the filmed observations of her class instruction, which are organised into four main domains: Domain 1: The importance of English vocabulary instruction. Domain 2: Best methods for English vocabulary teacher instruction. Domain 3: The selection of English vocabulary to be taught explicitly in the class. Domain 4: The advantages and/or barriers to teaching in a Tongan bilingual class/context (in relation to English vocabulary instruction and reading comprehension).

Domain 1: The importance of English vocabulary instruction

Teacher A stated that vocabulary instruction is very important for students particularly upon entry to school with the focus on developing student awareness of

English vocabulary. This stance is consistent with the notion that beginning readers (of the English language) use English words in their existing oral language to make sense of the English words that they see in print and as students learn to read more advanced texts in English, they acquire the meaning of new English words that are not part of their existing oral vocabulary (Biemiller, 2005; Stahl, 1999). Her assertion was:

“Vocabulary instruction in English should also be emphasised in the new entrants programme.” (T 1: Response 2)

Nagy (1988) asserts that English vocabulary knowledge derives from wide reading and that English vocabulary instruction alone is insufficient for students to attain the breadth and depth of the English vocabulary that they require for comprehending texts. In Teacher A’s experience, she believes the more English words that her students learn the better their level of understanding will be of reading materials that they work with. She stated:

“If students don’t understand words then they will not understand the texts (books) that they read.” (T 1: R 24)

Teacher A indicated that she was aware of the learning needs of her students and that she had observed that her students needed to be exposed to a wide range of reading material that would provide them with opportunities to encounter known and unknown words. She stated:

“I have a literacy block which includes reading a selection of texts that are topic based are used in order to expose children to unfamiliar words, also guided reading which is primarily focused on vocabulary work and language features.” (T 1: R 4).

Teacher A's pedagogical practice is consistent with the notion that by tailoring English vocabulary instruction to the learning needs of the students, will have a positive influence on the learning of new words. Explicit instruction on English vocabulary can deepen students English vocabulary knowledge (Nagy, 1988). She stated:

"My class is divided into 4 ability groups for reading and writing. With the low ability groups I focus on (English) word learning strategies and with the top ability groups I focus on (English) vocabulary comprehension."

(T 1: R 18)

Domain 2: Best methods for English vocabulary instruction

Teacher A considered that the best method of English vocabulary instruction in her teaching practice was the incorporation of a range of vocabulary learning based activities. This is in agreement with the view held by her school Principal. One of the activities that Teacher A has implemented in her class is called 'picture interpretation' which is an activity that involves pictures (cut out from magazines) that are handed out to groups of students who are then encouraged to generate adjectives from what they see in the pictures. This particular activity has worked positively with her students. Teacher A stated:

"I had a picture of an island and I asked students to describe what it looks like, the different sounds that they might hear on an island, what it might feel like to be on the island – this encouraged them to think beyond." (T 1:

R 13)

Teacher A's pedagogical practice parallels with the understanding that oral language lessons are effective in fostering growth in students' knowledge about words and concepts thus creating an awareness about words (Biemiller, 1999; Stahl and Nagy,

2006). Teacher A's pedagogical practice is consistent with Stahl and Nagy's (2006) assertion that in the primary grades, while students are still in the process of acquiring the mechanics of reading, it is important that teachers make effective use of oral language to promote vocabulary growth. For example, as shown in the transcript excerpt below, which was filmed as *Lesson 1* in Teacher A's class, she was working with the whole class on the mat where students were organised into small groups for the *picture interpretation* activity (as she mentioned in her interview). Each group of students received a picture (cut out from a magazine) from Teacher A and they were asked to write down adjectives that they thought describes the picture. Teacher A specifically asked students to imagine themselves in the picture in order to help generate vocabulary using prompts from the Y-chart¹³ (i.e. sounds like, looks like, smells like or feels like). (Please note: T = teacher. S1 = student number 1. S2 = student number 2. S3 = student number 3).

Transcript 7

- T: Imagine you're in here [*pointing to a picture of an island in her hand*] and you show something about what's around the environment, what's in the surrounding and what's in the bushes. Think about it if there are bushes there. Think about it. What's inside the water? What's on the trees? Do you understand? As many words as you can... [*Teacher walks around to each group.*] Very good, I can see three over here. Well done. Sit nicely.
- T: You can write it in Tongan if you do not know the English words. [*The group sitting closest to the camera was made up of three children: S1, S2 and S3. Their picture is of a tornado. S1 and S2 are writing words on their bits of paper. S1 writes the word 'thunder' on their piece of paper. She looks over to S2 and S3 and asks.*]
- S1: Whose done hurricane?... Ok, I'll do it. [*She writes 'hurricane' on her strip of paper.*] Ok what else? [*S3 continued to write words down on separate strips of paper.*]
- T: [*Speaks to the whole class*] Feels like, looks like, sounds like, smells like, tastes like...
- S1: Smells?... stink
- S3: What else?... It's windy?
- S1: Terrifying
- S3: Horrible
- [*S2 writes her words down quietly. S1 picks up the picture and talks to her group*]
- S1: Um it smells like [*waves her pencil in front of her nose*]
- S3: Stink
- S1: It smells like... do you see smoke?
- S3: Cloudy

¹³ Y-chart is a student can use a Y-Chart to help organize what they know about a topic by writing

As shown in the transcript excerpt above, the *picture interpretation* activity enabled the students to engage in vocabulary talk within their small groups which prompted them to draw upon their prior knowledge and prior learning experiences as well as their existing oral vocabulary. Furthermore, students were exposed to vocabulary that other members of their group came up with thus enabling students to be exposed to new and unfamiliar words as they worked collectively to generate vocabulary including synonyms.

The words that were generated from each of the small groups in the *picture interpretation* activity were placed in vocabulary charts/lists and were later displayed on their classroom walls for the students to refer to during other literacy based activities. It was noted that Teacher A had not specifically extended, added semantic depth to most of the words that the students had generated within their small groups and this could be due to the fact that the words were known or familiar to the students. However, this could be something that Teacher A could add to her *picture interpretation* activity in order to extend students' knowledge of word meanings.

In the semi-structured interview, Teacher A provided examples of oral language components that she includes in her literacy programme for her class:

"I have a language period which at the moment the focus is on recount. An example of how I would carry out a typical lesson would be to use a big book as a shared reading activity. We would read the big book together as a class, identify language features during the course of reading, students are then asked to create their own word bank in their writing books. Students can then refer back to their word bank list during their recount writing." (T

1: R 16)

Teacher A claimed that by implementing a range of vocabulary based activities in her class, she observed that vocabulary growth for some of her students were evident. Teacher A stated that her aim with vocabulary based activities is to engage her students in thinking and using alternative words in their existing vocabulary because she believed that it contributed to students' developments in English vocabulary. This is in agreement with the notion that extended instruction that promotes active engagement with English vocabulary improves English word learning (Beck, McKeown and Kucan, 2002). In addition, teaching definitional and contextual information encourages student's active processing of new words (Padak, 2006).

Domain 3: The selection of vocabulary for instruction

Teachers are required to make a professional decision when it comes to selecting English words for instruction in order to engage and teach students thus working towards meeting the learning needs of students. Stahl's (1999) model of effective vocabulary instruction suggests that vocabulary instruction: (a) includes both definitional information and contextual information about each word's meaning, (b) involves children more actively in word learning and (c) provides multiple exposures to meaningful information about the word. This is the case for Teacher A. She stated that she searches for topic based vocabulary and words that she considered important for her students learning. Teacher A stated:

"I select words in a number of ways. Firstly, from a topic list provided in the Assessment Resource Banks (a website for schools and educators developed under contract for the New Zealand Ministry of Education) and other methods would include searching for topic based words that I think will be important for students to know. There are a number of strategies

that I use once these words are selected and they include verb frame, nouns/adjectives.” (T 1: R 6)

An environmental approach to vocabulary instruction, as described by Hillocks (1986), is when teacher focus on student interaction while encouraging fluent and elaborate discussions. The picture interpretation activity, as described by Teacher A, suggest that she takes an environmental approach to the teaching of vocabulary. For example, she stated:

“I select certain words because in my class there is a lack of synonyms used. So I try and get students into using new words. This is done through a warm-up activity and I also use pictures to draw out vocabulary that students already know and for them to learn new vocabulary by use of synonyms.” (T 1: R 9).

Teacher A’s pedagogical practice for vocabulary instruction is consistent with the notion of drawing on words and concepts that are known and familiar to students. Teacher led discussions that were focused on how new words relate to students familiar words and concepts, enable students to relate and contribute stories of their own to the discussion, thus building on the students vocabulary knowledge and promoting word consciousness within the discussions can positively influence student learning.

Domain 4: The advantages and/or barriers to teaching in a Tongan bilingual class

Teacher A found that having a dual language medium of instruction in her classroom has benefits for student learning. She noticed that when students were unsure of English vocabulary or concepts, they were able to ask questions in the Tongan

language and she was able to clarify in either the Tongan language or the English language. Teacher A stated:

“For students who are fluent speakers of the Tongan language but not the English language, teaching in a Tongan bilingual class is beneficial for them because I can refer to the Tongan language for instruction and clarification.” (T 1: Response 36)

Code-switching is the term used to describe the change when using two different languages through conversation. In the context of the classroom, code-switching is used to express a word or a phrase that is not immediately accessible in another language (Garcia & Nanez, 2011). The determining factor for code-switching is the relative fluency of the speaker. It is when children have competence in both languages that code-switching is used as a verbal or communicative strategy and as markers of group membership (Garcia & Nanez, 2011). Thus, in the case of Teacher A’s students, code-switching among her students suggest that they are not able to immediately access words in one language and thereby switch to the other language. A student’s ability to code-switch within the classroom context can be seen as a learning strength within the context of bilingual classrooms.

Teacher A stated that the positive expectations that she has set for her students can impact on her students learning development. Teacher A has encouraged her students to set learning goals for themselves and in doing so, she has invited their parents to monitor their child’s goals by checking on their child’s progress from time to time. The student goals were discussed and clarified in both the Tongan and English languages. Teacher A stated:

“Each student owns a planner which states their goals for each week and I go through it and make a personal note confirming which goals have been met. Parents are also advised to check up on their child’s planner and to read my notes each week.” (T 1: Response 32)

Teacher A’s pedagogical practice aligns with the vision of the school and the inclusion of parents/caregivers in the education of their child(ren) thus building and maintaining home-school partnerships.

In *Lesson 2* which was filmed in Teacher A’s class, she worked with 10 students on the mat for a guided reading lesson. At the beginning of the lesson, Teacher A stated the learning intentions and explains to the students what was expected from them in terms of their contribution to the guided reading session. In the transcript excerpt below, there is evidence of Teacher A stating the learning intention at the beginning of the lesson and there is evidence of students use of code-switching. (Please note: T = Teacher, G = Group, S4 = student number 4. S6 = student number 6).

Transcript 8

- T: This is our learning intention here, we are going to use our personal experience to understand and relate to the text. Are you looking at your book? What’s the title of the book?
- G: A quilt for Kiri.
- T: A what?
- G: Quilt for Kiri.
- T: How do you say that word? [*Teacher A points to the word ‘quilt’ in the title.*]
- G: QUILT/KILT
- T: S6 say it?
- S6: Quilt
- T: Quilt. Ok, what is that? What is a quilt?
- S4: It’s like a blanket?
- T: It’s like a blanket Anything else? Do you have anything like that in our house?
- G: Yes.
- T: It’s like a blanket she said. Is it made of wool?
- G: No.
- T: What is it made of?
- G: inaudible
- T: What is it in Tongan? What’s the word for it in Tongan? Koeha `ae lea fakaTonga ki he? (*What is the Tongan word for that?*)
- S6: Kafu. (*Blanket*)

Also, Teacher A discussed the content of the story by linking it to the students' prior knowledge which was a similar process to the *picture interpretation* activity and it affirmed what Teacher A had explained in her interview with the researcher at *Time 2*. Furthermore, Teacher A's pedagogical practice of referring to picture cues to assist with the comprehension of the students is aligned with Stahl and Stahl's (2004) "picture walk" which usually takes place at the beginning of a guided reading session with a small group of students who have been allocated into reading groups according to their reading age. Stahl and Stahl (2004) assert that pictures (in a story book) are used to facilitate discussion and encourage prediction. This is also identified and described in the works conducted by Clay (1991; 2001) where she discusses the emergent literacy instruction for young primary school children.

Teacher A identified that for students who are English language learners (ELLs), English vocabulary is their weakness. Teacher A explained:

"Most of the students have English as their second language. Although, some of my students are not fluent in either the Tongan language or the English language which I think slows their learning." (T 1: R 30)

Furthermore, Teacher A identified that the lack of prior experiences to English vocabulary teaching that her students had before they reach Year 4 could be seen as a barrier to the teaching of English vocabulary in a Tongan bilingual context. This echoes the Principal's emphasis on the importance of providing learning experiences for students such as school trips which enrich their learning within the class and it also highlights that vocabulary in the early years of schools are vital. These views are aligned with Nagy's (1988) assertion when the meaning and concepts of new vocabulary can be linked to a student's prior knowledge then the teachers are engaging

in a process of integration. Teacher A believed that the careful and purposeful selection of books is a process that should be recognised by teachers as important particularly for guided reading lessons in order to assist the process of linking the students' prior experiences and/or their prior knowledge to the context of the story.

Summary of Teacher A in Phase One

From the semi-structured interview and the filmed class observations, Teacher A's pedagogical practice varied in content and delivery of vocabulary instruction. She claimed that the best methods for vocabulary involved a mixture of activities which affirms her belief that a multi-component approach to vocabulary instruction is required in order to meet the learning needs of the students, in particular reading comprehension. In addition, she suggested that the careful and purposeful selection of books can assist students in making connections to the context of the stories by relating it to their prior knowledge or prior experiences.

Teacher A's perspective on teaching students in a Tongan bilingual class centred on the positive aspects of a dual language medium of instruction. In addition, the positive expectations that she held for her students learning saw positive outcomes for her students, including the student goal setting and inviting parents to help monitor their child's progress thus forming a home and school partnership.

In relation to the specific components about vocabulary instruction, Teacher A had not specifically mentioned decoding, teaching word parts, teaching phonemic awareness or phonological awareness or parts of speech nor did she specifically mention teaching words within the context of a text and/or relating the teaching of words to text.

However, the filmed observations of her classroom instruction demonstrated specific aspects of vocabulary instruction that she focused on.

In relation to the STAR student achievement, Teacher A needed to help shift more of her students from achieving *below* the national norm into achieving *at* or *above* the national norm in *Phase One* in order to meet or exceed the expected national levels within the stanine distributions.

In relation to the guided reading lessons, Teacher A demonstrated checking with her students on their understanding of the contexts of the story and the probing for their understanding of vocabulary encountered in texts. Furthermore, Teacher A activated her students' prior experiences and their prior knowledge by making links to the context of the texts. This is consistent with what she had stated in her baseline interview, that a barrier in teaching in a Tongan bilingual context is the lack of prior experiences that the students have. Her teaching practice demonstrated her attempts at engaging the students' attention and understanding of the context of the story, for example, by implementing different questioning strategies and adding extra elements such as the PMI¹⁴ chart.

Teacher A stated in her interview that she had a literacy block where lessons of reading and guided reading were used to focus on vocabulary work and language features and this was demonstrated in these three filmed observations of English vocabulary instruction.

¹⁴ A PMI chart is a graphic organiser in which a student examines the Plusses, Minuses, and Interesting things (or Implications) and in the context of the lesson, the PMI of the story that the students were reading.

Overall, Teacher A's interview and her filmed class instruction indicated that her pedagogical content knowledge about vocabulary instruction, vocabulary development and reading comprehension were relative to her students learning needs. Her classroom instruction focused on implementing different strategies to assist her students in their diverse learning skills. However, it was noted that possibly more teaching of word meanings or concepts would help improve Teacher A's students breadth and depth of vocabulary knowledge.

Teacher B

Teacher B was responsible for a class of Year 5 and 6 students (Class B). In the STAR subtest analyses of her students, a high mean score was attained in *Subtest 1: Word Recognition*, average mean scores were attained in *Subtest 2: Sentence Comprehension* and *Subtest 3: Paragraph Comprehension* and a low mean score was attained in *Subtest 4: Vocabulary*. By the end of *Phase One*, 0% of her students attained *above* the national norm, 91.67% attained *at* and 8.33% attained *below*.

Teacher B provided insight into her knowledge and beliefs about vocabulary development, vocabulary instruction and reading comprehension in the semi-structured interview that was conducted at *Time 2* (mid-year in *Phase One*). Subsequently, she attended a meeting with the researcher and other teachers to engage in collaborative discussion regarding vocabulary and reading comprehension. Teacher B was filmed during the delivery of a few of her literacy lessons with students at *Time 3* (end of year in *Phase One*).

This sub-section presents the knowledge and beliefs of Teacher B, based on her interview and the filmed observations of her class instruction, which are organised into

four main domains: Domain 1: The importance of English vocabulary instruction. Domain 2: Best methods for English vocabulary teacher instruction. Domain 3: The selection of English vocabulary to be taught explicitly in the class. Domain 4: The advantages and/or barriers to teaching in a Tongan bilingual class/context (in relation to English vocabulary instruction and reading comprehension).

Domain 1: The importance of English vocabulary instruction

Teacher B stated that:

“Teaching (English vocabulary) is very important for it is one of the vital strategies to build up the children’s knowledge about language.” (T 2: R 2)

Furthermore, Teacher B explained that students will benefit from daily explicit vocabulary instruction in so doing it will:

“...improve their (students’) learning of words, better understanding of texts and build up their vocabulary knowledge which helps them be expressive in their writing.” (T 2: R 12)

Teacher B’s statements are consistent with Beck, et al. (1987) assertion that students’ learning experiences of English vocabulary in the class context should be comprised of explicit instruction and incidental encounters of English words, within and across different contexts, and with exposure to different reading materials. In addition, Stahl and Nagy (2006) assert that written language is typically decontextualised relying heavily on word choice for communicative effect. It is valuable to draw students attention to distinctive characteristics of written language and to help them learn to read like a writer and write with an audience in mind.

Teacher B identified that when her students write using different genre’s they are introduced to new adjectives that they can use in their writing which assists them with

their vocabulary development. This is consistent with the notion that vocabulary learning should be generative so that students will have opportunities to use vocabulary in different contexts of learning. For example, Teacher B stated that:

“Using surface and deep features will help build up vocabulary and it will help with their grammar.” (T 2: Response 20)

In addition, teacher B identified specific areas with which her students needed to focus on for vocabulary development which included:

“...root word meanings, other parts of words, parts of speech, sound homophone, prefix, suffix, synonym and antonym.” (T 2: R 10)

This indicated that Teacher B was acutely aware of the phonological and morphological components in vocabulary learning and instruction that her students need to be taught.

On some occasions, Teacher B provides her students with reading material that are related to their personal experiences and/or prior knowledge which is similar to what Teacher A shared in her interview. In so doing, the students are readily able to connect with the context of the stories. Teacher B stated that the students who do not have a sound knowledge of the context of the story and/or students who are not familiar with concepts used in stories are placed at a disadvantage and it hinders their students reading comprehension. For example, in *Lesson 1* of the filmed teacher instruction within Teacher B’s class, she worked with a group of 7 students for guided reading. She started the lesson by asking students to make comparisons between the roads in Tonga and those in New Zealand. This enabled some of the students to engage in a discussion with Teacher B about the story that they were about to read. The transcript excerpt

below show that Teacher B and her group of students were part way through the discussion (Please note: T = teacher. S1 = student number 1. S2 = student number 2).

Transcript 10

- T: *Koeha `ae me`a `oku ke fakatokanga`i `i he hala `o fakataata ki he hala koe ni `o Nu`u Sila ni? (What have you noticed about the roads in comparison to NZ roads?). `Oku ha `ae hala ia `i ai? (What are the roads like?).*
- S1: *It's bumpy.*
- T: *`Io (Yes).*
- S2: *No traffic lights?*
- T: *No traffic lights he? `Oku `ikai `i ai ha traffic lights ia `i Tonga `o hange ko ia `i Nu`u Sila ni he. (There are no traffic lights in Tonga like there are here in New Zealand). Sai (good), koe `aho ni (Today), te tau fai `etau ki`i trip (we will go on a trip). Tau ki`i trip he `aho ni ki Korea (we will take a trip to Korea). He? (ok?) Korea. Sai, hiki nima koe `oku ke `Osi fanongo `i he fonua ko ia? (Good, raise your hand if you have already heard of that country). Korea, Korea. Hiki nima koe `oku ke `Osi fanongo ai (raise your hand if you have already heard of it). Tu`u `a Korea `i fe? (Where is Korea located?) [She points to the large atlas]. Sio mai ange pe te ke lava `o `ilo pe `oku `i fe `a Korea heni pe te ke fakakaukau nai pe `oku tu`u `a Korea `i fe (Look this way and see if you can figure out where Korea is located). Where is Korea? [The group look around on the atlas in search for Korea's location].*

In the transcript excerpt above, Teacher B's pedagogical practice enables students to relate their prior experiences and prior knowledge to the context of the story.

Domain 2: Best methods for English vocabulary instruction

English words were pre-selected by Teacher B for her class vocabulary instruction with particular links to classroom content. Teacher B described that the best methods of English vocabulary instruction for her students were to connect the content of vocabulary instruction with the learning intentions in the class. She stated:

"I give them words (in English) that relate to what they are currently learning." (T 2: R 4)

This pedagogical practice is particularly useful and meaningful and is in agreement with Stahl and Nagy's (2006) assertion that when students have at least

partial prior knowledge of the word, vocabulary instruction with scaffolding or support enables the learning to be more manageable.

Teacher B stated:

“I teach vocabulary first before reading, writing, topic or math. Also, I use wall boards to display vocabulary so they (students) will refer to it when needed. I have found that it works for my class.” (T 2: R 14)

Teacher B identified that her students learn best when English words are taught at the beginning of each lesson. The pedagogical practice is consistent with Nagy’s (1988) assertion that pre-teaching words before students encounter it in texts will assist students with the anticipation of the general content or topic selection and can lead to activating prior knowledge.

Teacher B stated that she implements explicit English vocabulary instruction across all curriculum areas. McKeown and Beck (2004) asserts that a key to a successful vocabulary programme is to use both formal and informal encounters of words and word learning so that attention to vocabulary is happening any time and all the time. Teacher B demonstrates that by providing her students with opportunities to share and teach English vocabulary across all curriculum areas which helped create a rich verbal environment with the classroom. This is especially important for students who do not have a language rich environment at home as it exposes them to new and unfamiliar vocabulary thus promoting word consciousness.

Domain 3: The selection of vocabulary for instruction

Teacher B identified that one of the methods of word selection that she uses is based on her students' reading levels. She stated:

“My students are all at different levels, so I make sure that English words are pre-selected according to their ability groups.” (T 2: R 8)

The purpose in pre-selecting words, according to ability groups for instruction is to ensure that students are provided with opportunities to build their existing vocabulary knowledge identified within their reading age. This is sensible pedagogical practice as it aligns vocabulary instruction with students' vocabulary learning needs.

For example, in *Lesson 2* from the filmed teacher instruction, Teacher B worked with a group of 8 students for an English vocabulary activity. Teacher B had prepared cards which either had a word on it or a definition of a word on it. The students were asked to select one card and then find their matching pair. For example, if student 1 had a card with a word written on it then they were expected to find another student who had a card with the definition of their word. In the transcript excerpt below, the students had already picked their cards and found their matching pair. The transcript excerpt below begins during the time Teacher B was checking if the students' had indeed found their correct match (word and definition). (Please note: T = Teacher. Pair 1a = 1st student in Pair 1. Pair 1b = 2nd student in Pair 1).

Transcript 11

- T: Ok, stand together now, you listen to these two to see if it's correct or not, alright? *She stands behind the pair:* ok, read your word, yes Pair 1a, show it to them.
- Pair 1a: *holds up his card and reads it but with a quiet voice*
- T: say it again?
- Pair 1a: *inaudible*
- T: sprinted. *Teacher looks over to the other student:* what is the meaning of sprinted?
- Pair 1b: *student reads out the definition written on her card:* runs fast with speed
- T: fast with speed, is that right or wrong?
- G: right
- T: right, pasipasi ki he ongo ua ko ia (clap for these two). Right thank you. *Tu`u pe ki `olunga* (just stand). Ok next. (*Teacher points to the next pair*). *Lau* (read).
- Pair 2a: dragged
- Pair 2b: to pull out or caused to come
- T: listen again, say it louder
- Pair 2a: dragged
- Pair 2b: to pull out or caused to come
- T: is that right?
- G: yes
- T: is that the meaning of dragged?
- G: yes
- T: *pasipasi ki ai* (clap to that) [*Children clap*]. Next.

The notion behind this vocabulary activity, as shown in the transcript excerpt above was, to provide the students with an opportunity to correctly match words to definitions. This required students to think about their word and definition. Teacher B had pre-selected a group of words that were past tense verbs. She wanted her students to learn the past tense verbs as part of the language features. This demonstrated Teacher B's efforts to incorporate the teaching of word meanings and language features in an English vocabulary activity.

Teacher B provides her students with English word lists to learn from which were related to the topic that they were learning in class. She stated:

"I select words from the text that they have read or about to read, words that relate to topics, high frequency words and family words. For example, the topic may be "family" so a list will be provided for the kids which may include mum, dad, aunty or uncle." (T 2: R 6)

This pedagogical practice is consistent with the notion that multiple exposures to words produce a better understanding of those words (Stahl and Fairbanks, 1986).

Domain 4: The advantages and/or barriers to teaching in a Tongan bilingual class/context

For some of Teacher B's students, the Tongan language is the native language spoken in their homes. Garcia and Nanez (2011) argues that some parents consciously limit English or require their children to speak exclusively in their native language at home with the knowledge that their children will acquire English through interaction with English-speaking peers outside the home environment and upon entering formal education. This is similar in Tongan homes and for students in this study. For bilingual classrooms, the dual language medium of instruction helps to overcome the language difficulties that students may face and it provides students with an opportunity to gain context or clarification from their teacher in either their first language (L1) or their second language (L2). For example, Teacher B stated that:

“Using two languages as a medium of instruction is making a difference for the learning and teaching of English vocabulary. Children who struggle in both languages can understand better when teaching them in Tongan and English. Koe fakaaonga`i `ae lea `e ua (utilising two languages) is an advantage.” (T 2: R 36)

Teacher B noted that her students were able to read the English words but not fully understand the text, and that it took time for her students to answer questions that were related their reading material. She believed that comprehension will increase greatly if English vocabulary was known and understood by her students and her belief was that students with very good vocabulary knowledge have a better chance at

understanding texts. Her beliefs are aligned with Nation's (1999) assertion that vocabulary instruction for English language learners (ELLs) should include concepts and English word meanings, multiple meanings of words, compound words, synonyms, antonyms, homonyms, figurative meanings of words such as similes, metaphors and idioms.

Teacher B explained that issues in Tongan students' learning of English vocabulary could be attributed to the:

"...differences between the English alphabet and the Tongan alphabet For example, we don't have b, c, d, j, q, w, x, y, z (in the Tongan alphabet) and children struggle with some words that contain these letters. Also, the different pattern of spelling for the vowel sounds." (T 2: R 34)

As noted in *Chapter 2*, the letters in the Tongan alphabet are pronounced differently to that of the English alphabet and the letters that Teacher B has identified in the statement above here are not included in the Tongan alphabet which could contribute to the theorising of the education of Tongan students, particularly in addressing the disparities in literacy achievement.

As noted earlier, the difficulties in reading comprehension achievement may be contributed to the mismatch in the content of the reading texts (i.e. books) and her students' prior experiences and/or their prior knowledge. For example, Teacher B stated:

"Children (her students) do not have a sound knowledge of the background of some of the stories and English words occurring in other languages in the text (i.e. book)... Texts that use ideas above children's [her students] understanding level." (T 2: R 30)

Her statement is aligned with the notion that fluency of English texts/vocabulary and comprehension relies not only on phonics but also on context in the case of Tongan students. To demonstrate Teacher B's view, in *Lesson 3* of the filmed observation of instruction that took place in her class, she continued with the story book *Walking on the grass* which she and a group of students worked on in the previous day. In the transcript excerpt below, Teacher B was reflecting on what they had covered in the previous lesson to check for students' comprehension of the story. (Please note: T = teacher. S1 = student number 1, S2 = student number 2 and so forth until S8 = student number 8).

Transcript 12

- T: *Koeha leva e me`a na`e hoko? (What happened?) Yes [looks at S3]*
 S3: Image flashed through her vein. Oh her brain!
 T: *`Io koe ha leva e me`a na`e flash ai hono brain (Yes, so what flashed in her brain?). What was in her brain now? Because remember she said 'oh there's somebody from that house watching us'. Yes S2.*
 S2: She thought she was in jail when she wasn't.
 T: *Yea she thought oh `osi taimi ni ia te ta osi māhino pe te ta ō taua ia ki jail (Yea, she thought after this we will definitely go to jail). Koeha me`a na`e fakakaukau pehe ai? Ha me`a na`e fakakaukau pehe ai? (Why did she think like that?). Yes [the teacher looks at S8].*
 S8: She thought she was in Korea.
 T: *Yea think about ia ki Korea, fakakaukau ia ki Korea `a ia koe taimi pe `oku pehe ai pehe ia `o pau pe koe tā e motu`a ki he polisi o tala ki ai `ae me`a koeni `oku hoko he. Pea ha? (Yeah, she thought about Korea. She thought that when things like that happen, the man would have to ring the police and let them know what has happened. And what else?). Ha me`a na`e talaange e mum? (What did her Mum say?). Talaange e Mum ia don't worry. (Mum said don't worry). Yes S6*
 S6: They haven't walked on the grass.

In the transcript excerpt above, Teacher B engaged students in thinking about the events within the story by her method of questioning. This pedagogical practice affirmed what she had stated in her interview about allowing her students to refer to contextual information to help with their comprehension of texts.

Summary of Teacher B in Phase One

From the interview and the filmed observations of Teacher B's teacher instruction, her pedagogical practices are aligned with the students learning needs. Her pedagogical practice for vocabulary included explicit teaching of words, enriching phonological, morphological and metalinguistic awareness, surface and deep features of words, and probing questions.

Teacher B's pedagogical content knowledge about vocabulary development, vocabulary instruction and reading comprehension are aligned with the notion that a multi-component approach is required for the teaching of vocabulary and reading comprehension, which is similar to Teacher A.

Teacher B identified that the differences between the Tongan and English alphabet (the number of letters in the alphabet as well as the phonological aspects of it) could be a contributing factor to the learning difficulties that Tongan students may encounter in their literacy development. For example, the letter 'p' in the Tongan alphabet is pronounced as the sound of the letter 'b' in the English alphabet and the letter 't' in the Tongan alphabet is pronounced as the sound of the letter 'd' in the English alphabet. Teacher B's specific concern is valid but not recognized across within the educational context of the New Zealand education system. As described in *Chapter 2* and *Chapter 3*, Tongan students arrive at formal education with family literacy practices embedded within a socialisation process that that have been developed within the home and possibly within church settings where the Tongan language is used as the primary medium of literacy instruction. Mainstream teachers of Tongan students may wish to take this into consideration.

Teacher B highlighted an issue with the time that is allocated for students to undertake the New Zealand standardised tests in literacy. She believes that the time allocated for the students to complete the test is insufficient for some of her students. She identified this as one of the barriers for accurately measuring what her students have learned within the Tongan bilingual classroom. This suggests that her students are capable of answering the questions but not with the timeframe allocated.

Furthermore, a notable feature in the classroom observations was that Teacher B used the Tongan language quite frequently in her lessons in which the students understood and responded to well. In doing so, Teacher B provided opportunities for learning for her students in both the Tongan and English languages.

Teacher B demonstrated that her focus during guided reading lessons was on engaging her students to understand the context of the story with very minimal focus on English vocabulary instruction. In her interview at *Time 2* (mid-year in *Phase One*), she stated that she pre-selected words that she taught based on what the topic study or literacy learning intentions and that she would teach words before a guided reading lesson, guided writing lesson, topic study or maths but that is not shown in her three filmed observations of teacher instruction.

Teacher B's students achieved an overall low mean score on *Subtest 4: Vocabulary* at *Time 3* which affirms that English vocabulary development is an area of focus for Teacher B but maybe that her vocabulary instruction could be focused more on defining and elaborating on words, particularly in the context of guided reading lessons.

Teacher C

Teacher C was responsible for a class of Year 3 and Year 4 students (Class C) in *Phase One*. The subtest analysis for her class demonstrated that by the end of *Phase One* her students achieved a high mean score in *Subtest 1: Word recognition*, average mean scores in *Subtest 2: Sentence comprehension* and *Subtest 4: Vocabulary*; however, her students achieved a low mean score in *Subtest 3: Paragraph comprehension*. By the end of *Phase One*, 94.12% of her students achieved stanines *at* (35.30%) or *above* (58.82%) the national norm and 5.80% of students achieved *below* the national norm.

At *Time 2* (mid-year in *Phase One*) Teacher C provided insight into her knowledge and beliefs about vocabulary development, vocabulary instruction and reading comprehension in a semi-structured interview. Subsequently, a meeting that was hosted by the researcher by which Teacher C and other teachers attended. At this meeting, collaborative discussions regarding vocabulary and reading comprehension took place. At *Time 3*, Teacher B was filmed during the delivery of a few of her literacy lessons with students.

This sub-section presents the knowledge and beliefs of Teacher C, based on her interview and the filmed observations of her class instruction, which are organised into four main domains: Domain 1: The importance of English vocabulary instruction. Domain 2: Best methods for English vocabulary teacher instruction. Domain 3: The selection of English vocabulary to be taught explicitly in the class. Domain 4: The advantages and/or barriers to teaching in a Tongan bilingual class/context (in relation to English vocabulary instruction and reading comprehension).

Domain 1: The importance of English vocabulary instruction

Teacher C asserts that in order for her students to read English texts well and fluently, the use of different strategies for English vocabulary instruction is pertinent. She believes that the daily teaching of English vocabulary for students would help to develop their reading skills thus enabling them to become independent. For example, Teacher C stated:

“I believe that it is important for children as second language learners to know the words that are related to what we are talking about, writing about and reading about.” (T 3: R 16).

Teacher C’s statement above is indicative of her approach to vocabulary instruction particularly for students who have English as a second language. It highlights the importance of engaging Tongan students, and in general English language learners (ELLs), in both receptive and productive learning of English vocabulary. Nation (1999) explains that *receptive learning* of vocabulary is the ability to recognise a word and recall its meaning when encountered in speech and/or written form and *productive learning* of vocabulary includes elements of receptive learning together with the ability to speak or write needed vocabulary at the appropriate time. These are similar to Kamil and Hiebert’s (2005) distinctions between *receptive vocabulary* and *productive vocabulary* as noted in *Chapter 2*.

Teacher C identified three main aspects that her students needed to know about vocabulary (in English) which illustrates her multi-component approach to vocabulary instruction:

“Phonological approach – looking at print and sounding each letter and groups of letters throughout the whole word. Spelling patterns – such as a

vowel always follow a diagraph. Meaning of words – I look at this during our reading and writing time.” (T 3: R 10)

Domain 2: Best methods for English vocabulary instruction

Teacher C explained:

“For my class I believe spelling and attending to content words¹⁵ are the best methods of vocabulary instruction. I believe it is so because it helps them cope with the school language.” (T 3: R 14).

Teacher C’s statement above identifies the “school language” which refers to not only the English language but also the features of language that are associated with the school context (e.g. figurative language, parts of speech and academic language). In addition, Teacher C explained that the phonemic and phonological aspects of vocabulary instruction require students’ attention as she believes that it can impact positively in other curriculum areas. She stated:

“Spelling is revisited so that children know how to use it in order for the text that they’re reading which will enhance their writing, oral language and reading.” (T 3: R 4)

As noted in *Chapter 3*, Tongan students arrive at formal education with literacy practices that are inextricably bound to their culture and socialisation process, and for some Tongan students this could mean that the language contexts differ to the context of the school. Teacher C’s reference to spelling and attending to content words as best methods of vocabulary instruction, rests on the notion that Tongan students, like many other English language learners, are faced with the double challenge of not only

¹⁵ Content words are words such as nouns, verbs, adjectives and adverbs that refer to objects.

learning new vocabulary but also working towards closing the gap between the number of words that English native speakers know and the number of words that they need to learn. Her perspective assumes that spelling and content words (along with other methods) will enable her students to begin to develop knowledge and awareness about words particularly within the context of learning.

Teacher C's pedagogical practice for vocabulary instruction includes teaching her students how to: look at print, sound out letters or a cluster of letters and attend to spelling patterns (e.g. vowels and diagraphs). For example, in *Lesson 1* of the filmed class observation of instruction in Teacher C's class, she was working with a group of students in a guided reading lesson on a story book as a continuation from a previous lesson as shown in the transcript excerpt below. Once the students read the passage quietly, Teacher C joined the students in reading the text aloud. In the transcript excerpt below, the group of students were in the middle of reading the text altogether. (Please note: T = teacher. S = student. G = group).

Transcript 13

- G: [A small group of children read aloud from text] “Just on the other side of the fence we came across... on the ground. “Please help me” he begged [the word “begged” was mispronounced by the group].
- T: He...?
- G: be-goned
- T: He...? [She picks up her whiteboard marker and writes the word ‘begged’ on the whiteboard]. Right, break it down, “b-egg-ed” ...“b-egg-ed”... Right I want you to break it down, what is the first sound? The first sound? [Teacher points to the letter b].
- S: B
- S: B-ged
- T: E G G is what?
- S: double
- T: [She picks up the whiteboard marker again and wrote the letter b in isolation on the whiteboard]. What is this sound again?
- G: B
- T: [She continues to write the word ‘egg’ beside the letter b] What is this sound?
- S: EGG
- T: [She continues to write the letters ‘ed’ beside the word ‘egg’] and what is this sound?
- S: ED
- S: B- egged
- G: BEGGED!
- T: What is the word?
- G: BEGGED!
- T: Begged. [Teacher points to the word again on the whiteboard]. What is the word? Beg?
- G: Begged!
- T: What is the word? Begged. Right what is another word for begged?
- S: Begold
- T: What is another word for begged? [Refers to that part of the story] Right it says...it says “Please help me” begged ... What is another word for begged?
- S: A call for help?
- T: What did Toma do?
- S: He called for help
- T: He called for help...He was...
- G: Crying
- S: Lying down on the ground
- T: Yes yes, he was lying down on the ground ...

As shown in the transcript excerpt above, the students had difficulty pronouncing the word “begged”. Teacher C focused on the surface features of the word “begged” first by breaking it down into clusters of letters. She also used the context of the story to enable students to gain an understanding of the definition of the word “begged” and she checked to see if the students understood the meaning of the word by asking students to provide a synonym. In this example, Teacher demonstrates her use of

a multi-component approach to vocabulary at a phonological level, contextual level and comprehension level.

Students may encounter English words that represent complex concepts that are not part of their everyday experiences and for some Tongan students and ELLs, this is assumed to be true. Thereby, in-depth knowledge of English word meanings and the concepts that each English word represents should be explicitly taught (Stahl and Nagy, 2006). For example, Teacher C identified most of her students use picture cues to assist with unknown words in reading but she highlighted that her students require vocabulary instruction that was contextualized in order to assist them in developing the skills in their comprehension. She stated:

“I help my children put words into contexts so that they know how to contextualise them.” (T 3: R 24)

Furthermore, Teacher C explained that teaching spelling and content words in English were pertinent aspects to include in English vocabulary instruction; however, she believes that it is only the beginning and that it will lead students to a deeper understanding thus contributing to their vocabulary learning. She stated:

“To read well, words are important. Spelling is only a surface feature of learning words but it leads to a deeper understanding. If they have more word knowledge then the better their understanding will be.” (T 3: R 2).

Domain 3: The selection of vocabulary for instruction

Teacher C’s method for word selection for instruction which was similar to Teachers A and B:

“I select words according to the level of each child. For children who struggle, the focus is on learning high frequency words. I select words from the books that children read and also topic related words which are content words. For example, our topic at the moment is on the Olympics and so in order for them to understand I select content words from that topic area. I also allow children to select words from their spell write and dictionary.”

(T 3: R 6)

In addition to the selection of content words for explicit instruction, Teacher C identified that she also focuses on teaching high frequency words for students who may have difficulties in reading. This is consistent with Nation’s (2001) assertion that students who are non-native English speakers need to learn high-frequency words which make up a relatively small group of words but deserve time and attention and that the arguments against direct teaching apply to low-frequency words for non-native English speakers.

Teacher C’s pre-selection of words for explicit instruction was based on words that were unknown or unfamiliar to the group of students that she was working with. While this pedagogical practice demonstrates Teacher C’s attempt to align vocabulary instruction to the learning needs of the students, the students were unable to immediately draw on context cues to make sense of a word which suggests further vocabulary instruction may have been required. For example, in *Lesson 2* of Teacher C’s filmed observation of her class instruction, she posted 7 flashcards onto the whiteboard with the words: *duck-bill*, *nibbled*, *herd*, *loved*, *parsnip* and *flowers*. She referred to all flashcards at the beginning of the lesson as a note to the students that those words will appear in the story. In the transcript below, Teacher C focuses on the

word “herd” as it appeared in the text (which was one of the words that she had pre-selected for instruction). However, as demonstrated in the transcript excerpt below, the students were unable to provide the teacher with a synonym of the word “herd” and as a result she proceeded to give a synonym in order to help students in their comprehension of text. (Please note: T = teacher. C = student. S1 = student number 1. S2 = student number 2. S3 = student number 3).

Transcript 14

- T: What do you think a herd of duck-bill means? A lot of [*she points to S2*]
S2: Dinosaurs
T: What is another word? A lot of dinosaurs. What is another word that you can explain a herd of duck-bill? [*Teacher uses hand action as a hint*]
S3: *inaudible*
T: Right if you are dinosaurs, [*teacher still pointing around at the group*]
What can I call you? A....?
G: *Silence...*
T: A...? A group. A group of dinosaurs. [*Teacher re-reads the sentence*].
A herd of duck-bill means a group of dinosaurs.

Teacher C’s recognition of student difficulties in vocabulary learning and development prompts her to find and implement strategies that will assist her students with word learning and in particular reading comprehension. This is a responsible pedagogical practice. Furthermore, Teacher C identified that her students decoding skills are not very strong hence her decision to pre-select words in order to teach words within the context of a guided reading lesson. She identifies the difficulty that her students face when they encounter unknown words particularly in reading. Teacher C explained:

“I ask children [her students] to look at the whole word but students struggle at looking at the whole word. Their decoding skills are not strong. I give words before I read to the children also but it’s a struggle.” (T 3: R 8)

Included in Teacher C’s pedagogical practice for vocabulary instruction, is the students involvement in selecting words for her to teach. For example, Teacher C

encourages her students to look for unknown words from their assigned word lists to provide her with for instruction. This particular activity enables her students to actively look for unknown or unfamiliar words for Teacher C to define and discuss as a class. This contributes to their word learning experiences in the class in a decontextualised way. Teacher C explained:

“Words are in levels [wall dictionary] and I ask children to go to their word lists and write words that are unknown. I focus on the words that appear most on their unknown lists and we discuss this as a class.” (T 3: R 8)

Domain 4: The advantages and/or barriers to teaching in a Tongan bilingual class/context

The Tongan bilingual unit at Teacher C’s school aims to be a communicative support system for the education of Tongan students. Teacher C explained:

“The bilingual unit here uses the Tongan language as a means of communication to support children in their understanding. So the use of the Tongan language is to enhance skills and experiences.” (T 3: R 4)

Existing research have confirmed that bilingualism is not an impediment to student learning; instead, bilingualism can contribute to positive learning outcomes. Teacher C stated:

“Being bilingual is a plus for students. Tongan and English instruction will provide them with an area for teaching, of contextualisation, in two languages.” (T 3: Response 34)

Teacher C believes that being a bilingual teacher is beneficial for her students as she is able to contextualise her teaching and student learning in both the Tongan language as well as the English language. However, she identified a concern that she has with her students regarding their ability to develop their second language (L2) to a level of proficiency that would allow the students to cope and to prosper in New Zealand. She explained:

“English for my students need to be enhanced in order to cope here in New Zealand. It is debatable. Bilingual learners need to catch up.” (T 3: R 30)

Teacher C identified the following issues that she considers to be barriers in teaching in a bilingual classroom: assessments, students’ background knowledge of the English language, limited resources (i.e. books for the use of instructional guided reading). In relation to the standardized assessments, Teacher C explained:

“There is a mismatch between class content instruction and the assessment of students’ learning for example STAR.¹⁶” (T 3: R 28).

Teacher C’s identification of the mismatch between class content instruction and the STAR assessment highlights an issue that needs to be addressed within the school and at a local and national level.

Summary of Teacher C in Phase One

In the baseline interview, Teacher C identified three main aspects that her students needed to know about English vocabulary: phonological approach (looking at print and sounding each letter and groups of letters throughout the whole word), spelling patterns (such as vowel always follows a diagraph) and meaning of words. These aspects are evident in her vocabulary instruction in the transcript above.

¹⁶ STAR stands for Supplementary Tests of Achievement in Reading (see *Chapter 5* for descriptions).

Teacher C demonstrated the multi-level approach to vocabulary instruction that she spoke of in her baseline interview: spelling, phonological approach and meaning. Her instruction around unknown words/phrases and/or unfamiliar words/phrases were discussion based. She prompted the students to follow her demonstration of using word learning strategies which would help them gain meaning from context and build on their knowledge and skills. Her belief that the teaching of spelling contributes to reading comprehension is reflected in her pedagogical practice. In saying that, the *Phase One* STAR subtest analysis showed that her students' paragraph comprehension was below average which could suggest that spelling might not in fact contribute to the improvement of English reading comprehension.

In addition, Teacher C identified that she focused on strategies that looked at letter sounds as she felt that her students' decoding skills were not strong. However, the subtest analysis of the STAR achievement data indicates that on average, her students had high decoding skills as shown by the high scores achieved by her students in *Subtest 1: Word Recognition*.

Moreover, Teacher C identified that picture cues are one of the methods in which her students use to determine unknown or unfamiliar words or contexts when they encounter it in text. This is a common practice for young students; however, specific skills in reading need to be taught in order for students to be able to determine unknown words or contexts more effectively.

A concern that Teacher C raised was that the standardised test STAR does not capture what students have been taught and what they know which is similar concern raised by Teacher A and Teacher B.

Overall, Teacher C's pedagogical practice for vocabulary were prevalent on three levels; phonological approach, spelling patterns and the meaning of words thus suggesting that Teacher C is more oriented towards phonics based teaching of vocabulary.

Collaborative discussions with the teachers at Time 2 (mid-year of Phase One)

A meeting that was organised by the researcher at *Time 2* (mid-year of *Phase One*) saw the three teachers in attendance. The meeting took place on site at one of the school premises at *Time 2*. The permission to audio-record this meeting was not sought by the researcher based on the notion that the meeting was to allow general collaborative discussions to transpire; however, the researcher took notes from this meeting which was used to gain further insight into the pedagogical practices of the teachers as well as their teaching experiences within the Tongan bilingual unit with specific reference points made to the vocabulary instruction and reading comprehension of Tongan students. The main points from the collaborative meetings are explained next.

The teachers were in agreement that some of their students were achieving below the expected level of achievement for national standardised assessments e.g. STAR, asTTle¹⁷ reading and PATs¹⁸ tests and the learning disparities of Tongan students and

¹⁷ asTTle is a standardised assessments designed to asses students in reading, mathematics and writing.

more generally, Pasifika students were attributed to a number of factors (e.g. language barriers, prior knowledge or prior experiences, contexts of instructional texts).

The teachers expressed that the knowledge of the English language for a few of their students were minimal. The Tongan language is the first language for some (if not most) of the students in the bilingual units and the majority of the students in their classes were identified to have the Tongan language as their first language (L1). For other students in their classes, the Tongan language is the only language spoken in their homes. Teacher A identified that some of her students are not proficient in either the Tongan language or the English language.

The teachers identified that students found it difficult to grasp the context of the stories due to unfamiliarity or a gap between home/background experiences. Teachers identified that some students do not understand the words (in the text) to begin with which limits their ability to comprehend sentences or the story as a whole. Teacher A identified that some of her students do not respond to comprehension questions after reading a text or passage.

Most of the activities that were described by the teachers for their vocabulary instruction included providing students with activity worksheets, small group activities for students to find words and/or asking students to find definitions using a dictionary. The teachers had expressed that they were open to implementing new methods of teaching vocabulary and to work towards raising the reading comprehension levels of their students. In so doing, one of the teachers requested that the researcher suggest

¹⁸ The Progressive Achievement Tests (PATs) assess students' Mathematics, Listening Comprehension, Punctuation and Grammar, Reading Comprehension, and Reading Vocabulary. PATs are a series of standardised tests developed specifically for use in New Zealand schools.

vocabulary activities they could implement with their students during small group activities or lessons. A follow up meeting was agreed upon to be scheduled for the beginning of next year.

Overall summary of teachers knowledge and beliefs in Phase One

This summary is presented from the analysis of the semi-structured interviews, collaborative discussion, and the filmed class observations with the teachers that took place in *Phase One*. The three teachers provided insight into their knowledge and beliefs about vocabulary, vocabulary development and reading comprehension. They also demonstrated their pedagogical practices within their classroom settings which were captured on film. The three teachers were in agreement that English vocabulary instruction is important for the language development (in English) of students in Tongan bilingual contexts which is consistent with the beliefs of the Principals.

There were two concepts that were noted earlier, receptive and productive learning of vocabulary. Nation (1999) posits that if productive learning is deemed important particularly for vocabulary development and reading comprehension, then the development of the quality of learning a small vocabulary is important. Intensive practice in using vocabulary in speech and/or writing is therefore a useful activity. Furthermore, Nation (1999) asserts that if receptive learning is important, then quantity of vocabulary is the main goal. Techniques which give familiarity with a large number of words are needed. As learners read and listen, the quality of knowledge of these words will develop without further attention from the teacher.

The three Tongan bilingual teachers had similar methods of selecting words which were based on its relevancy to content (of a lesson or book) or topic (in the

curriculum). Existing research literature has shown that effective class vocabulary instruction is conducted by a teacher who has a rich literacy-based environment and also different learning strategies in place to cater for the diverse learning needs that their students in their class may exhibit. In the case of this study, all the classrooms displayed the literacy work of the Tongan students as well as teaching and learning resources that the students can refer to such as English vocabulary lists and literacy-based activity stations. All teachers' classroom set up each reflected a rich literacy-based environment which was used to vibrantly encourage and enrich the students learning.

Although each teacher had multi-component approach to the teaching of vocabulary within each of their classes, there were apparent differences in the emphasis that they each had. For example, Teacher A mainly encouraged students to generate vocabulary by drawing on their existing oral vocabulary in order to extend their use and knowledge of synonyms. Teacher B provided contextual information for her students during vocabulary instruction in order for students to understand the word meanings and Teacher C primarily focused on developing her students' spelling, phonological and phonemic awareness of vocabulary.

There was a consensus among the three teachers with regard to possible factors with may hinder the reading comprehension of students. The teachers indicated that some, if not most, of the instructional texts that students encounter in guided reading have contexts that are abstract to the students thus viewed by the teachers as a challenge that their students face. If the contexts of the instructional texts are foreign to the Tongan students, the three teachers work towards connecting their students with the context of the instructional text by providing students with a brief introduction of the story prior to the lesson.

There is a general consensus from these interviews that teaching in a bilingual context has its advantages in the dual language teaching and learning opportunities that it has provides Tongan students. Tongan students are able to access information in either Tongan or English which has been said to be beneficial to their learning.

It was evident in the transcript excerpts provided in this section that Teacher B used more of the Tongan language in comparison to Teacher A and Teacher C. In general, the filmed observations of teacher instruction for each Tongan bilingual teacher affirmed the statements that they had made in their interview at *Time 2* (mid-year in *Phase One*) about their pedagogical practice of English vocabulary and the activities that they used to help students improve their reading comprehension. While each teacher differed in their style of teaching; they shared commonalities such as their use of supplementary resources. Another example was the Tongan bilingual teachers shared was within the guided reading contexts the teachers activated students' prior knowledge by making links to what they might already know with the context of the story. They provided students with an introduction to the story before the guided reading lesson began. Also, throughout the duration of the guided reading lesson, the teachers checked whether students' understood the context of the story. By getting students to think about experiences in their own lives and making links to the context of the story may seem unnecessary but it appears that for Tongan students, they need that guidance in order to help bring the knowledge they possess to bear when reading or when learning new words. What is also useful about activating the prior knowledge of the Tongan students is that the teachers can ensure that new concepts and words can be made meaningful to their students.

Teacher A displayed a few different activities in which she used in the teaching of English vocabulary and also in the teaching of guided reading. Her vocabulary teaching style was directive but she set positive examples for students in order to engage the students and parents in their learning. In addition, Teacher A used questions to prompt students to consider different aspects vocabulary for her vocabulary activity entitled *picture interpretation* in order for the students draw on their existing oral vocabulary. This allowed opportunities for students to share ideas with their peers as they were generating different words and concepts.

Teacher B had a greater use of Tongan language within her class instruction which the students understood. Her vocabulary teaching style was innovative whereby she used different activities that allowed her students to experience English vocabulary instruction in new ways. For example, *Lesson 2* the students had to physically move around the room to find their matching pair in a word and definition activity which encouraged students to engage with others in their learning of vocabulary.

Teacher C's teaching style for vocabulary was more oriented to the visual and auditory aspects. For example, her use of flashcards for new and/or unfamiliar words for her students to learn from and the attention placed on the spelling of the words suggests that her primary focus was to ensure that her students understood the phonological and phonemic aspects of word learning.

Undoubtedly, the three teachers have a culturally inclusive approach to teaching and more specifically to vocabulary instruction and reading comprehension. Overall, it was noted from these filmed observations that the interaction between the Tongan bilingual teachers and the Tongan students were mainly teacher-led and the verbal

contributions that the Tongan students made during the observed guided reading lessons, guided writing lessons and vocabulary activities were minimal. As a general observation, the pedagogical practices of the three teachers were teacher-focused, whereby their students are engaged in problem-based style of learning. It was observed in the filmed teacher instruction that on most occasions, the teacher facilitated the learning and the students remain reserved or silent. Thereby, instances of student participation in the instructional guided lessons were minimal in *Phase One*.

6.4 Chapter summary

The key findings from *Phase One* (first year of data collection) are summarised at the end of each section of this chapter. The sections include: STAR achievement results, the knowledge and beliefs of Principals and teachers and the collaborative discussions with teachers. In this *chapter summary*, the key findings from *Phase One* that contributed to the rationale for the development of the two new vocabulary boards are outlined.

The *Ako Conceptual Framework* is used in this case to explain how the findings of *Phase One* informed and contributed to the underpinnings of the rationale for the development of the two new vocabulary boards in *Phase Two*. In so doing, the following 5 elements were used to highlight the findings from *Phase One*: the *taumu`a`oe ako* (a purpose for teaching and learning), *founga ako* (knowledge systems), *feinga ako* (learning endeavours), the *vā* (the space where connections and relationships can be formed) between the teacher and the student and the *vā* between the home and the school. The key findings from *Phase One* are highlighted under the following 5 elements thus introducing the two new vocabulary boards that were introduced in this study at the beginning of *Phase Two*.

The first element is *taumu`a `oe ako* (a purpose for teaching and learning) which includes the focus on vocabulary instruction and reading comprehension. This element stems from the research aims and hypothesis of this study together with the existing research literature at the local, national and international levels. The development of the two new vocabulary boards is seen as a contribution to the vocabulary instruction and reading comprehension of the Tongan students in this study.

The second element is *founga ako* (knowledge systems) which includes the key findings from the *Phase One* semi-structured interviews, collaborative discussions and the filmed observations of teacher instruction that focused on vocabulary instruction and reading comprehension.

Notably, in *Phase One* it was found that students were grouped according to their reading age for guided reading lessons. Two out of the three teachers included explicit vocabulary instruction in their guided reading lessons at *Phase One*; the other focused on vocabulary instruction in vocabulary based activities. The forms of explicit vocabulary instruction that occurred in the guided reading lessons included: attending to phonemic and phonological aspects of words, attending context cues and picture cues to gain meaning from known or unknown words and defining words.

Also in *Phase One*, it was also found that words for explicit instruction were pre-selected, by teachers, from word lists (including high frequency words) and texts that were related to the topic study or text that the students were working with in their guided reading lessons. However, there was not much evidence gained from the filmed observations of teacher instruction in *Phase One* that involved the elaboration of

specific words, such as the identification of different meanings as well as the concepts of the words, within the observed guided reading lessons.

There were similarities in the knowledge and beliefs about vocabulary, reading comprehension and the Tongan bilingual units that all teachers exhibited which include: the knowledge and belief that vocabulary instruction is pertinent to reading comprehension, the knowledge and belief that vocabulary instruction needs to consist of a range of strategies in order to enrich students' phonological, morphological and metalinguistic awareness of words including the learning the surface and deep features of words; the knowledge and belief that there are positive aspects of a dual language medium of instruction and bilingualism, and the knowledge and belief that Tongan students, like other English language learners, face challenges in their literacy development thus impacting on their literacy achievement.

However, differences were noted in the pedagogical practices of the teachers as were identified in the filmed observations of their class instruction. Teacher A implemented the *picture interpretation* activity, as a whole class activity, to encourage students to generate adjectives and synonyms from pictures within small groups. Teacher A used prompts from the Y chart (i.e. what the object looks like, feels like or smells like). In addition, Teacher A demonstrated that careful and purposeful selections of book are pertinent to the reading comprehension of students and the contributions that it can make between the context of the story and the students' prior knowledge or experiences. Teacher B selected words for explicit instruction prior to teaching lessons in guided reading, guided writing, topic study and math. She believed that vocabulary instruction should occur across all curriculum areas. Her focus on explicit vocabulary was usually conducted in vocabulary based activities as opposed to guided reading

lessons. Teacher C was the only teacher who asked students to search for and provide her with unknown words (from their assigned word lists) for instruction. Furthermore, Teacher C focused mainly teaching spelling and content words within her methods of vocabulary instruction.

From the filmed observations of teacher instruction it was observed that the styles of vocabulary instruction were linked to reading comprehension particularly within the context of a guided reading lesson which included: assessing and activating prior knowledge or prior experiences, helping learners structure knowledge (e.g. making links between reading and writing), probing for understanding, reading aloud of a text with the teacher responding to miscues in various ways, silent reading of a text followed by teacher questions (usually in relation to comprehension), teacher reading aloud while learners follow the text individually, followed by teacher asking comprehension questions, explicit teaching of a skill, followed by a series of written exercises, independent reading of material over a period followed by answering of written questions and discussion of the answers as a group. However, the three teachers engaged their students in a problem-based style of learning, whereby the teacher facilitates the learning and instances of student participation are minimal.

The problem-based style of learning that were evident in the filmed observations of teacher instruction was one of the key findings that prompted the researcher to develop supplementary teaching resources to help transform the pedagogical practices of the teachers with a specific focus on vocabulary instruction and reading comprehension within guided reading lessons.

The third element is *feinga ako* (learning endeavours) which includes the key findings from the STAR achievement data in *Phase One* across all classrooms. It was demonstrated by the baseline data at *Time 1* (beginning of the year in *Phase One*) of this study that the Tongan students achieved high mean scores in *Subtest 1: Word Recognition*, achieved average mean scores in *Subtest 2: Sentence Comprehension* but low mean scores *Subtest 3: Paragraph Comprehension* and *Subtest 4: Vocabulary*. This is one of the key findings from *Phase One* which is similar to the findings of other studies that demonstrate that the baseline STAR achievement data of Māori students, Samoan students and other Pasifika students achieve low English reading comprehension scores (Amituanai-Tolosa, 2005; Amituanai-Tolosa & McNaughton, 2008; McNaughton, MacDonald, Amituanai-Tolosa, Farry, & Lai, 2006).

More specifically, the *Phase One* STAR achievement data show that 34.38% of Tongan students, in this study, attained critical stanines at the baseline but the percentage of students who achieved critical stanines was reduced to 17.14% by the end of that year, thus indicating shifts of improvements for Tongan students in reading achievement. Furthermore, the baseline results demonstrated that 77.00% of Tongan students achieved stanines at or above the national norm. By the end of *Phase One*, the percentage of Tongan students increased to 82.86% thus exceeding the expected national level of achievement in STAR assessments. The *t*-tests demonstrated significant differences between Time 1 and Time 3 with an effect size of $d=0.57$.

Moreover, statistical analyses of the STAR achievement data from *Time 1* (beginning of the year in *Phase One*) and *Time 4* (end of year in *Phase Two*) demonstrated that students in Class A made statistically significant gains in the mean scores for *Subtest 1: Word recognition* and *Subtest 2: Sentence comprehension*.

Students in Class B demonstrated positive shifts in mean scores across subtests (although not statistically significant). Students in Class C achieved gains in mean scores that were statistically significant across all subtests.

The results presented in Table 6 and Table 7 suggest that the teachers need to focus on: teaching decoding skills for familiar words in their students reading and spoken vocabulary, the explicit teaching of reading vocabulary and the teaching of reading skills that students could use to gain meaning from text.

The key statistical findings highlighted above (detailed accounts provided in the preceding sections of this chapter) confirmed the importance of focusing on vocabulary instruction for the Tongan students within this study thus prompting the researcher to develop the two new vocabulary boards to enable students to engage in vocabulary instruction as active participants of their learning.

The fourth element is *the vā between the teacher and students*. As explained in *Chapter 4*, the concept of *vā* is identified in the *Ako Conceptual Framework* as the space between people where social connections and professional relationships can be formed. The Tongan concept of *vā* differs to Western notions of ‘distance between or distance apart’ as *vā* is seen as one of the Tongan values that helps to foster and govern social connections and professional relationships.

From the key findings in *Phase One*, the filmed observations of teacher instruction demonstrated that the interaction between the teachers and the Tongan students, particularly within guided reading lessons, were mainly teacher led with minimal contributions made by the students. Furthermore, students did not query about

unknown or unfamiliar words that they might have encountered in their text during guided reading lessons which suggests that there were moments where opportunities for teaching and learning were missed.

Thereby, the key findings highlighted above (detailed accounts provided in the preceding sections of this chapter) prompted the researcher to provide students with a safe space to identify new and/or unfamiliar English vocabulary that they want and/or need to learn within the context of a guided reading lesson and/or guided writing lesson and/or vocabulary activity. In so doing, the two new vocabulary boards were designed to help create opportunities for connections to be made in the *vā between the teacher and the students* and also in the *vā between teaching and learning*. The boards would allow the teaching and learning of vocabulary to be student-focused and hands-on thus demonstrating the philosophy of inquiry-based learning which would also reflect a co-constructivist approach to learning.

The fifth and final element is *the vā between the home and school* which includes the findings from semi-structured interviews and filmed observations of teacher instruction that were focused on activating students prior knowledge and prior experiences. It was found in *Phase One* that pedagogical practices of teachers that focused on reading comprehension included elements of activating students' prior knowledge and/or prior experiences during guided reading lessons in an attempt to make links to the context of the story.

In addition, it was found in *Phase One* that the dual language medium of instruction provided across all classrooms contributed to the culturally inclusive approach with which the teachers exhibited in their pedagogical practices. Furthermore,

in *Phase One*, teachers identified that they included and encouraged the parents of their students to be involved in the education of their children as this would help parents to reinforce the learning that takes place within the classroom.

The key findings highlighted above (detailed accounts provided in the preceding sections of this chapter) contributed to the final element, that underpins the rationale for the development of the two new vocabulary boards, based on the premise that connections in *vā between the home and school* can be made by way of the teacher accessing the prior knowledge and the prior experiences of the students in relation to the context of their lesson. In the context of this study, it is theorised that the prior knowledge and the prior experiences of Tongan students are grounded in their socialisation process and family literacy practices within the context of their home and within the Tongan kinship structure (as highlighted in *Chapters 2, 3 and 4*).

The next chapter presents a more detailed account of the development of the two new vocabulary boards and the results from *Phase Two* (second year of data collection).

Chapter 7: Results Phase Two

7.0 Chapter overview

To reiterate, the data collection for this study was conducted over two phases. *Phase One* refers to the first year of data collection and *Phase Two* refers to the second year of data collection. *Phase One* consisted of three time points of which data was gathered: *Time 1* (beginning of the year), *Time 2* (mid-year) and *Time 3* (end of year). In addition, *Phase Two* consisted of three time points with which data was gathered: *Time 4* (beginning of the year), *Time 5* (mid-year) and *Time 6* (end of the year).

A series of statistical analyses was conducted on the STAR achievement data that was collected for this study (in both phases). As a reminder, the subtest analyses of that STAR data showed that in *Phase One* Tongan students achieved high mean scores in *Subtest 1: Word recognition*; however, achieved low mean scores in *Subtest 3: Paragraph Comprehension* and *Subtest 4: Vocabulary*. The findings from the STAR achievement data in *Phase One* also indicates that by the end of the year (*Time 3*) 17.14% of the Tongan students in this study achieved *below* the national norm, 60.00% of the Tongan students in this study achieved *at* the national norm and 21.43% of the Tongan students in this study achieved *above* the national norm.

This chapter presents the results from *Phase Two*. As a reminder, the results from *Phase One* (see chapter summary of *Chapter 6*) contributed to the design and rationale for the development of the two new vocabulary boards. The two new vocabulary boards were developed by the researcher at *Time 4* (beginning of the year in *Phase Two*) and implemented by the teachers in their class literacy programmes also at *Time 4*. A

detailed account of the development and implementation of the two new vocabulary boards are presented at the beginning of this chapter.

In following, the results from a series of statistical analyses on the STAR subtest scores, stanines and longitudinal cohort of the STAR achievement data of the Tongan students during *Phase One* and *Phase Two* are presented.

In addition, a summary of the meeting that took place at *Time 5* (mid-year in *Phase Two*) with the Principals, teachers, University educators and the researcher. At this meeting, collaborative discussions that transpired focused on methods of English vocabulary instruction that occurred within the classes in *Phase One* with references made to reading comprehension.

Moreover, at *Time 6* (end of year in *Phase Two*) in the semi-structured interviews, the Tongan bilingual teachers identified the modifications that they made to their vocabulary instruction. The teachers also provided accounts of how they implemented the two new vocabulary boards within each of their class and how their students' responded to it. A report on these findings is presented as the next section of this chapter.

In the final section of this chapter, a report on the findings from the filmed observations of class vocabulary instruction in *Phase Two* is presented. At *Time 6* (end of year in *Phase Two*), there were three filmed observations of class vocabulary instruction that were conducted in each class.

7.1 The development and implementation of the two new vocabulary boards

As noted earlier, the two new vocabulary boards were developed by the researcher at the beginning of *Time 4* (beginning of the year in *Phase Two*) and implemented by the Tongan bilingual teachers in each of their class literacy programmes by the end of *Time 4*.

The two new vocabulary boards were labelled as *Words I would like to know more about* and *Fascinating words*. The rationale, aims and intended outcomes are explained in this section with the accounts of the implementation of the two new vocabulary boards presented at the end of this chapter.

The rationale for the development of the two new vocabulary boards

As explained in the chapter summary of *Chapter 6*, the *Ako Conceptual Framework* was used to explain how the findings of *Phase One* informed and contributed to the underpinnings of the rationale for the development of the two new vocabulary boards in *Phase Two*. In so doing, the following 5 elements were used to highlight the key findings from *Phase One*: the *taumu`a `oe ako* (a purpose for teaching and learning), *founga ako* (knowledge systems), *feinga ako* (learning endeavours), the *vā* (the space where connections and relationships can be formed) between the teacher and the student and the *vā* between the home and the school (see *chapter summary* at the end of *Chapter 6* for the details).

As part of the educational intervention for this study, the development of the vocabulary boards were designed to provide teachers with new supplementary teaching resources that will help foster word consciousness within guided reading lessons and in a broader context within the classroom. In addition, the two new vocabulary boards

were designed to help to create a safe space for students to voice out their learning needs and interests, thus making the lessons student-focused and hands-on and demonstrating the philosophy of inquiry-based learning that is reflective of a co-constructivist approach to learning. By this means, the overarching aim for the two new vocabulary boards was to add to the teachers' vocabulary instruction with the intention to positively impact the reading comprehension of the Tongan students in this study and to help contribute to the improvement of their Tongan students' reading achievement. As a reminder, word consciousness refers to the knowledge and dispositions necessary for students to learn appreciate, and effectively use words including an increased metalinguistic awareness (see *Chapter 3*).

The aims of the intervention: The two new vocabulary boards

The aims for the two new vocabulary boards, as part of the intervention for this study, were devised from the findings in *Phase One* of this study. The aims consist of the following:

- to provide a supplementary teaching resource for Tongan bilingual teachers in the promotion of English vocabulary teaching and learning
- to help create a safe space for students to express their learning interests and/or needs on different English vocabulary by encouraging them to become active participants in their English vocabulary learning within the context of guided instructional lessons
- for teachers to provide definitional and/or contextual information on words that students have inquired about within the context of guided instructional
- to increase the teacher's level of awareness about their students' learning interests and/or their learning needs in the area of English vocabulary development

- to create opportunities for dialogue about English vocabulary to arise between students and their teachers within the context of guided instructional lessons thus reinforcing the construct that language and literacy can be socially constructed within a class context
- to make vocabulary instruction student-focused and hands-on thus demonstrating the philosophy of inquiry-based learning which is reflective of a co-constructivist approach to learning.

The development of the two new vocabulary boards

The planning and development of the intervention of this study was informed by research literature related to the English vocabulary development and vocabulary instruction in classroom practice and the collaborative discussions that took place between the researcher and teachers about the key findings from *Phase One* (as highlighted in the *chapter summary* in *Chapter 6*) which includes:

- STAR reading achievement data
- domains from the semi-structured interviews with Principals
- domains from semi-structured interviews with teachers
- filmed observations of class vocabulary instruction

As noted earlier, the two new vocabulary boards were labelled as *Fascinating words* and the *Words I would like to know more about*. Each teacher was provided with a set of the two new vocabulary boards which consist of the following:

- *two back boards*

Each back board had velcro strips attached on it so that students could post their word cards onto it. By posting the word cards onto the back board, it

provided each Tongan bilingual teacher and their students with an opportunity to see the groups of words that have been identified by the students. It also acted as a reminder for each teacher to discuss words that were selected by students within the context of a lesson.

- *a set of laminated cards*

Students used the laminated card(s) to write their selected word(s) on. Students were instructed to write one word per card and they were encouraged to do so during each guided reading and/or writing lesson. At the back of each laminated card there was a velcro strip which allowed the students to post their card(s) onto the matching velcro strip that were attached on the back board of each board. By providing students with card(s) to write their selected word(s) on each, this gave students the skillset to take responsibility for their learning and voice out their learning needs and/or interests within English vocabulary development in the context of a guided reading and/or writing lesson.

- *a set of whiteboard markers*

Students used the whiteboard markers to write their selected word(s) with. By using whiteboard markers to write on the laminated cards, this allowed for the words to be easily wiped off after the lesson (or when necessary). This provided the Tongan bilingual teachers and their students with cards that were reusable and the boards thereby were used a number of times throughout the day.

The concept behind the *Fascinating words* board was to provide students with an opportunity to inquire about English words that they found interesting within the context of a guided reading and/or guided writing lesson. For example, an English word

that is identified by a student to post onto this particular board could be a known word and/or a new word and/or an unfamiliar word. This board was focused on encouraging students to be more conscious of English words that they encounter in their reading and/or writing and to be able to articulate their thoughts on their selected English word(s) in relation to the context of the guided reading and/or guided writing lesson.

The concept behind the *Words I would like to know more about* board was to provide students with a positive approach to identifying English word(s) that they feel that they *need* to learn within the context of the lesson. For example, an English word identified by a student to post on this particular board could be a word that they have never seen before or a word that they have seen before but maybe unfamiliar with the word's meaning(s) and/or pronunciation. This board was focused on providing students with a safe space to learn new and unfamiliar words.

The pedagogical practices for the application of the two new vocabulary boards

In the early stages of *Time 4* (beginning of the year in *Phase One*), the researcher introduced and explained the aims and the intended outcomes of the vocabulary boards at a meeting with the teachers. In following, each teacher was provided with two new vocabulary boards including the laminated cards and whiteboard markers to implement in their literacy programmes.

The pedagogical practices by which the researcher suggested for the teachers to use in the application of the two new vocabulary boards within their classrooms, centre on the philosophy of *inquiry-based learning*¹⁹ which is reflective of a socio-cultural theory and the works of Vygotsky (1978) and McNaughton (1995) (see *Chapter 3*). The

¹⁹ Inquiry learning emphasises constructivist ideas of learning, where knowledge is built from experience and process, especially socially based experiences.

socio-cultural theory maintains that a child's construction of knowledge and more broadly, a child's expertise in action, is created first in and through social interactions. The cultural and social meanings that are expressed and constructed within social interactions convey notions of identity and expertise (McNaughton, 1995). By this means, the following pedagogical practices were provided for the teachers to use within a guided reading lesson:

- The boards are to be placed near the teacher where it is visible to the students. In addition, the laminated cards and whiteboard markers are placed within the students' reach.
- During the lesson, the teacher may want to remind and encourage students to inquire (using the laminated cards and boards) about any words that they may find fascinating or words that they would like to know more about.
- The students' inquiry of words (using the laminated cards and boards) are conducted quietly to ensure that the flow of the lesson is not interrupted. For example, if a student identifies a word in text, they would reach out for the laminated card and whiteboard marker and write their word and post onto the board (during or after the lesson).
- At the end of the lesson, the teacher may refer to words that were posted onto the boards by first asking students probing questions that will allow students to consider, for example, contextual cues, phonological or phonemic cues, access their prior knowledge, as a means for determining the meaning of the selected words.
- If students are unable to ascertain the meaning of a word immediately, the teacher may wish to define the word at that particular point in time

with reference to the text, followed by probing for their students' understanding.

- As a follow up activity, the teacher may consider asking the students to record the words into their word notebooks for later use or provide it as homework.

The researcher suggested to the teachers that they introduce the two new vocabulary boards to the students with instructions for use; however, the researcher emphasised to the teachers that the students must be advised that the use of the resources during guided instructional lessons was optional. The researcher advised the teachers that they were at liberty to adjust the pedagogical practices within the context of their lessons in order to meet the learning needs of each of their students.

By the end of *Time 4* (end of year in *Phase One*) each teacher introduced and applied the two new vocabulary boards into their existing literacy programmes, including guided reading lessons and guided writing lessons. The findings from the application of the two new vocabulary boards within the classrooms are referred to in the following sections of this chapter.

7.2 STAR Reading Achievement in Phase Two

As a reminder, the stanines from 1 to 3 are identified as *critical scores* indicating that students are achieving *below* the national norm. Stanines from 4 to 6 are identified as the *typical nationwide range scores* for students achieving *at* the national norm. Stanines from 7 to 9 are identified as *high scores* indicating that students are achieving *above* the national norm.

STAR stanine distributions for Tongan students in Phase Two (n=55)

Figure 16 presents the STAR stanine distributions of 55 Tongan students in Tongan bilingual classes in comparison with the national norm in *Phase Two*. It is important to note that there was a decrease in the number of students in *Phase Two* ($n=55$) from the number of students in *Phase One* ($n=55$) due to the fact that some students only sat the STAR reading test either at the beginning of *Phase Two* and not at the end of *Phase Two* or vice versa. Therefore, the 55 students shown in *Figure 16* are only the students who sat the STAR assessments in *Phase Two* at both *Time 4* (beginning of the year) and at *Time 6* (end of the year).

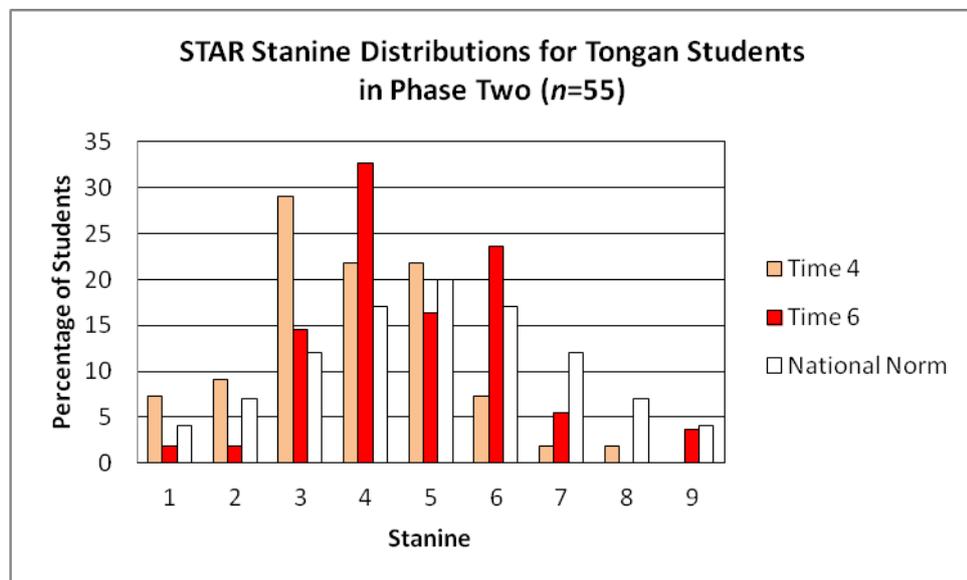


Figure 14 STAR stanine distributions for Tongan students in *Phase Two* ($n=55$)

Figure 14 shows that 3.64% of students attained stanines within the high range (from 7 to 9) at *Time 4* (beginning of the year) and that figure increased to 9.09% by *Time 6* (end of the year). This demonstrated that students at this level had mastered the necessary skills that were appropriate to their age in close reading. They can be identified as frequent readers, good at decoding words in context or in isolation, able to comprehend a wide range of texts and have an extensive vocabulary.

Moreover, 50.91% of students as shown in *Figure 14* attained stanines within the mid-range (from 4 to 6) at *Time 4* (beginning of the year) which increased to 72.73% by *Time 6*. This demonstrated a shift in improvement for student learning in reading and students within this achievement range can be identified seen within the nationwide typical range in aspects of close reading.

Furthermore, at *Time 4* (beginning of the year) there were 45.45% of students that attained stanines within the critical range (from 1 to 3) and by *Time 6*, that figure was reduced to 18.19%. The students that were in this range of achievement required teacher attention to assist with their vocabulary and reading development.

Overall, a paired samples t-test indicates a statistically significant difference in the means stanines between *Time 4* ($m=3.78$) and *Time 6* ($m=4.75$); $t(44)=-6.37$, $p<0.01$ with an effect size of $d=0.57$, greater than half a standard deviation.

Class Achievement Patterns for Tongan students in Phase Two

Table 8 shows the STAR subtest mean scores across each classroom in *Phase Two* and Table 9 shows the gain in mean scores, the standard deviations SD and the effect sizes d .

As shown in Table 8, all classes attained high mean scores by the end of *Phase Two* in *Subtest 1: Word recognition*. A paired-samples t-test showed that there was a statistically significant shift in mean scores between *Time 1* ($m=5.80$) and *Time 3* ($m=7.87$) for Class C; $t(14)=-3.66$, $p<0.01$ with an effect size of $d=0.98$ (as shown in Table 10). However, the positive shifts in mean scores were not statistically significant

for Class A; $t(15)=-0.62$, $p = 0.55$ and Class B; $t(23)=-0.22$, $p = 0.83$ and each class had small effect sizes d (as shown in Table 9).

Table 8

The STAR subtest scores across Tongan bilingual classes in Phase Two

Classes	Subtest 1: Word Recognition		Subtest 2: Sentence Comprehension		Subtest 3: Paragraph Comprehension		Subtest 4: Vocabulary	
	Time 4	Time 6	Time 4	Time 6	Time 4	Time 6	Time 4	Time 6
Class A ($n=16$)								
<i>M</i>	8.75	9.00	6.31	7.31	5.94	7.31	4.25	6.25
<i>SD</i>	(1.81)	(1.63)	(2.06)	(2.27)	(4.54)	(5.64)	(2.38)	(2.49)
Class B ($n=24$)								
<i>M</i>	8.08	8.17	5.63	5.92	5.67	9.08	3.58	4.29
<i>SD</i>	(2.21)	(1.61)	(2.04)	(2.00)	(4.06)	(3.12)	(2.28)	(1.49)
Class C ($n=15$)								
<i>M</i>	5.80	7.87	3.87	5.53	4.20	6.73	2.87	4.87
<i>SD</i>	(2.60)	(1.64)	(1.64)	(2.10)	(3.41)	(3.17)	(1.73)	(2.45)

Note. Time 4 = beginning of the year in Phase Two. Time 6 = end of the year in Phase Two. n = number of students. m = mean. SD = standard deviation. n = number of students.

By Time 6 (end of year in Phase Two), the mean scores for each class were either at or above average for *Subtest 2: Sentence comprehension* as shown in Table 8. A paired-samples t-test indicates a statistically significant shift in mean scores from Time 4 to Time 6 in *Subtest 2: Sentence Comprehension* for Class C; $t(28)=-2.90$, $p<0.01$ with an effect size of $d=0.89$ (as shown in Table 9). However, there was no statistically significant differences in the mean scores in *Subtest 2: Sentence Comprehension* for Class A; $t(15)=-1.77$, $p>0.05$ with an effect size of $d=0.44$ or Class B; $t(23)=-0.70$, $p>0.05$ with an effect size of $d=0.14$ (as shown in Table 10).

Table 9

The differences in STAR mean scores and effect sizes d across Tongan bilingual classes in Phase Two

	Subtest 1: Word Recognition		Subtest 2: Sentence Comprehension		Subtest 3: Paragraph Comprehension		Subtest 4: Vocabulary	
	Diff T4-T6	Effect size d	Diff T4-T6	Effect size d	Diff T4-T6	Effect size d	Diff T4-T6	Effect size d
Class A ($n=16$)								
m	+0.25	0.15	+1.00	0.44	+1.37**	0.27	+2.00*	0.80
SD	(1.72)		(2.25)		(5.09)		(2.52)	
Class B ($n=24$)								
m	+0.09	0.05	+0.29	0.14	+3.41**	0.95	+0.71	0.38
SD	(1.91)		(2.02)		(3.59)		(3.77)	
Class C ($n=15$)								
m	+2.07**	0.98	+1.66**	0.89	+2.53**	0.77	+2.00**	0.96
SD	(2.12)		(1.87)		(3.29)		(2.09)	

Note. Time 4 = beginning of the year in Phase Two. Time 6 = end of the year in Phase Two. n = number of students. m = mean. SD = standard deviation. Diff T1-T3 = difference between Time 1 and Time 3. Diff T4-T6 = difference between Time 4 and Time 6. n = number of students. * $p < 0.05$ ** $p < 0.01$

Despite the low mean scores across each classroom in *Subtest 3: Paragraph comprehension* (see Table 8), there were statistically significant differences between *Time 4* and *Time 6* for each class; Class A; $t(15) = -3.02$, $p < 0.01$ with an effect size of $d = 0.27$, Class B $t(23) = -6.84$, $p < 0.01$ with an effect size of $d = 0.95$ and Class C $t(14) = -3.06$, $p < 0.01$ with an effect size of $d = 0.77$.

Also shown in Table 8, the mean scores for each class by *Time 6* were low (Class B $m = 4.29$ and Class C $m = 4.87$) or average (Class A $m = 6.25$) in *Subtest 4: Vocabulary*. Although, a paired-samples t-test indicates that there were statistically significant shifts in mean scores for Class A; $t(15) = -2.43$, $p < 0.05$ with an effect size of $d = 0.80$ and for Class C; $t(14) = -3.63$, $p < 0.01$ with an effect size of $d = 0.96$ but not for Class B; $t(23) = -1.50$, $p = 0.15$ with an effect size of $d = 0.38$ (as shown in Table 10).

STAR Stanine Distributions for Class A (n=16)

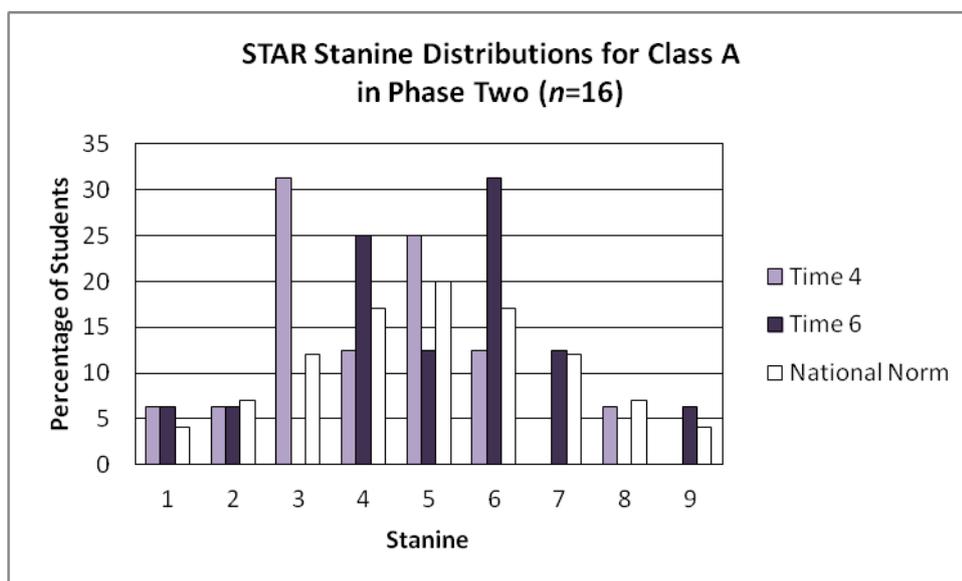


Figure 15 STAR stanine distributions for Class A in *Phase Two* (n=16)

Figure 15 presents the STAR stanine distributions of the Tongan students in Class A. Only 16 of the students in this class sat the STAR reading tests at *Time 4* (beginning of the year) and at *Time 6* (end of the year). The stanines of these students were compared with the national norm.

Figure 15 shows that 6.25% of students attained stanines within the high range from 7 to 9 at *Time 4* (beginning of the year) and by *Time 6* (end of the year) that figure increased to 18.75%. This demonstrated a positive shift in student reading achievement. Those students can be identified as having mastered the necessary skills that were appropriate to their age in close reading.

Moreover, *Figure 15* shows that 50.00% of students achieved stanines within the mid-range from 4 to 6 at *Time 4* (beginning of the year) which increased to 68.75% at *Time 6* (beginning of the year) thus showing signs of improvement.

Also shown in *Figure 15*, 43.75% of students attained stanines within the critical range (stanines 1 to 3) which demonstrates that they were achieving *below* the national norm at *Time 4* (beginning of the year in *Phase Two*). However, in *Time 6* there were 12.50% of students within the critical range which demonstrates a major positive shift for the students in Class A.

STAR stanine distributions for Class B (n=24)

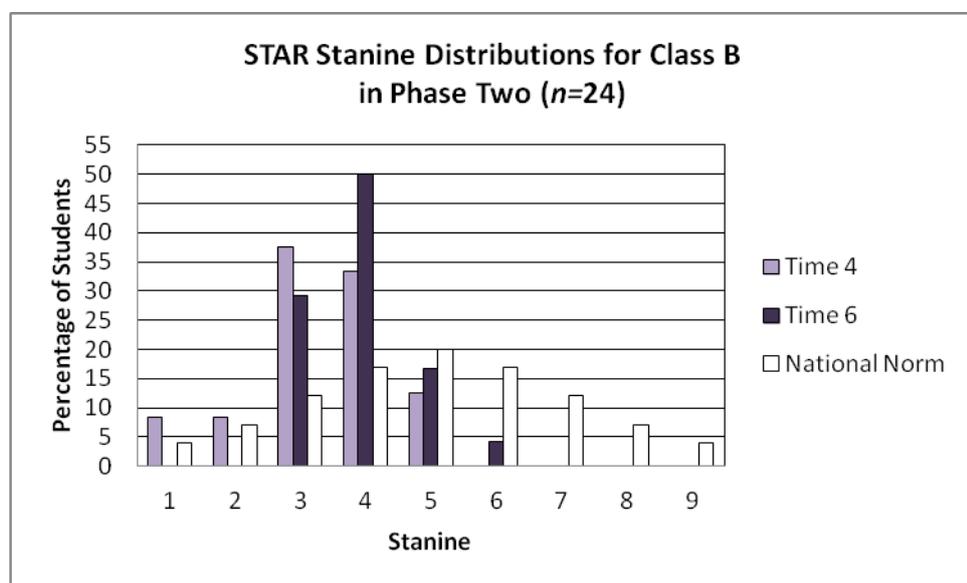


Figure 16 STAR stanine distributions for Class B in *Phase Two* (n=24)

Figure 16 presents the stanine distributions for Class B. There were 24 students in class who sat the STAR reading test both at the beginning and at the end of the year. The student stanine distributions were compared with the national norm. At *Time 4*, 45.83% students attained stanines that were within the mid range from 4 to 6 which is the typical range within the national norm. At *Time 6*, that figure increased to 70.84% which demonstrated a positive shift in improvement.

Furthermore, at *Time 4* (beginning of the year) 54.16% of students attained stanines within the critical range from 1 to 3 which were below the national norm. That figure was reduced to 29.17% at *Time 6* (end of the year) which also demonstrated a shift in improvement. However, in this phase, there were no students that had attained stanines within the high range (i.e. stanines from 7 to 9) at *Time 4* (beginning of the year) and at *Time 6* (end of the year).

STAR stanine distributions for Class C (n=15)

Figure 17 presents the stanine distributions of Tongan students in Class C for *Phase Two*. Only 15 students in this class sat the STAR reading tests at *Time 4* (beginning of the year) and at *Time 6* (end of the year). The students in this class were in Year 3 and Year 4.

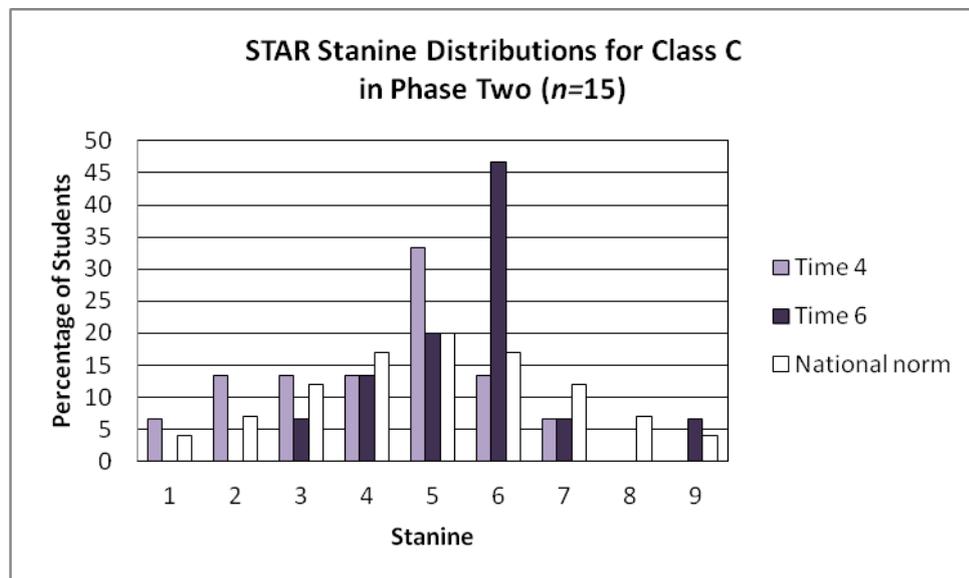


Figure 17 STAR stanine distributions for Class C in *Phase Two* (n=15)

At *Time 4*, *Figure 17* shows that 6.67% of students had attained stanines that were within the high range (7 to 9). At *Time 6*, that figure increased to 13.34% which

indicates that by the end of *Phase Two* more students were achieving *above* the national norm.

Moreover, 59.99% of students attained stanines within the mid range (4 to 6) at *Time 4* (beginning of the year) which is the typical range nationwide. At *Time 6*, that figure increased to 80.00% which indicates that a larger percentage of students were achieving *within* the national norm.

Additionally, 33.33% of students attained stanines within critical range (1 to 3) at *Time 4* and was reduced at *Time 6* (6.67%). This indicates that by the end of *Phase Two* less students were achieving *below* the national norm.

Comparisons across STAR stanine distributions in Phase One and Phase Two

Table 10 shows that the percentages of students that attained stanines *below* the national norm (1 to 3) had decreased by the end of each phase with a greater decrease (-27.27%) in *Phase Two*. This indicates that in *Phase Two* there was a larger percentage of students who shifted from attaining critical stanine (1 to 3) to attaining within the typical range scores nationwide (4 to 6) in comparison to *Phase One*.

Table 10

The STAR stanine distributions for all Tongan students in this study

Stanine Range	Expected national level	Phase One (n=70)			Phase Two (n=55)		
		Time 1	Time 3	% Diff	Time 4	Time 6	% Diff
1 to 3	23.00%	30.00%	17.14%	-12.86%	45.45%	18.19%	-27.27%
4 to 6	77.00%	62.86%	61.43%	-1.43%	50.91%	72.73%	+21.82%
7 to 9	23.00%	7.15%	21.43%	-14.29%	3.64%	9.09%	+ 5.45%

Note. Time 1 = beginning of the year in *Phase One*. Time 3 = end of the year in *Phase One*. Time 4 = beginning of the year in *Phase Two*. Time 6 = end of the year in *Phase Two*. % Diff = the difference between the percentage scores at the beginning of the year and at the end of the year for each phase. n = number of students.

Also shown in Table 10, the percentages of students that attained stanines *at* the national norm (4 to 6) decreased in *Phase One* (-1.43%) but increased in *Phase Two* (+21.82%). This demonstrated that in *Phase Two*, there were more students who attained stanines within the typical range scores nationwide which is indicative of the improvements that were made in the overall reading achievement of Tongan students in this study. Furthermore, the percentages of students that attained stanines scores *above* the national norm increased at each phase. However, there was a lower percentage increase in *Phase Two* (+5.45%) than there were in *Phase One* (+14.29%).

Comparisons across classes in Phase One and Phase Two

There were two different cohorts of students in each phase of this study. In *Phase One* (first year of data collection), there were 29 students in Class A, 24 students in Class B and 17 students in Class C who sat the STAR reading tests at *Time 1* and *Time 3*. In *Phase Two* (first year of data collection), there were 16 students in Class A, 24 students in Class B and 15 students in Class C who sat the STAR reading tests at *Time 4*

and *Time 6*. The stanines for STAR reading achievement for the different cohorts of students in each phase are shown in Table 11.

Table 11

The STAR stanines across Tongan bilingual classes in this study

	Phase One (<i>n</i> = 70)				Phase Two (<i>n</i> = 55)			
	Time 1	Time 3	Diff T1-T3	Effect size <i>d</i>	Time 4	Time 6	Diff T4-T6	Effect size <i>d</i>
Class A	<i>n</i> =29				<i>n</i> =16			
<i>m</i>	3.66	4.62	+0.96**	0.54	4.13	5.13	+1.00**	0.54
SD	(1.84)	(1.74)	(1.79)		(1.75)	(1.96)	(1.86)	
Class B	<i>n</i> =24				<i>n</i> =24			
<i>m</i>	4.46	4.38	-0.08	-0.09	3.33	3.96	0.63**	0.66
SD	(1.02)	(0.77)	(0.90)		(1.09)	(0.81)	(0.95)	
Class C	<i>n</i> =17				<i>n</i> =15			
<i>m</i>	4.47	6.71	+2.24**	0.81	4.13	5.60	+1.47**	0.95
SD	(1.37)	(1.67)	(1.51)		(1.68)	(1.40)	(1.54)	
Overall	<i>n</i> =70				<i>n</i> =55			
<i>m</i>	4.13	5.04	+0.91**	0.57	3.78	4.75	+0.97**	0.64
SD	(1.52)	(1.72)	(1.62)		(1.50)	(1.54)	(1.52)	

Note. *Time 1* = beginning of the year in *Phase One*. *Time 3* = end of the year in *Phase One*. *Time 4* = beginning of the year in *Phase Two*. *Time 6* = end of the year in *Phase Two*. *Diff T1-T3* = difference between *Time 1* and *Time 3*. *Diff T4-T6* = difference between *Time 4* and *Time 6*. *n* = number of students. * $p < 0.05$ ** $p < 0.01$

As shown in Table 11, Class A had similar stanine gains between *Time 1* and *Time 3* ($m=0.96$ stanine) and *Time 4* and *Time 6* ($m=1.00$ stanine) and each with the same effect size of $d=0.54$. A paired-samples t-test indicates that both stanine gains in each phase were statistically significant; *Phase One* $t(28)=-5.51$, $p<0.01$ and *Phase Two* $t(28)=-3.31$, $p<0.01$.

Table 11 also shows difference in the mean stanines for Class B between *Time 1* and *Time 3* was $m=-0.08$ stanine with an effect size of $d=-0.09$ and the difference between *Time 4* and *Time 6* was $m=0.63$ stanine with an effect size of $d=0.66$. A paired-samples t-test indicates that there was no statistically significant difference in the mean scores in *Phase One* $t(23)=0.40$, $p>0.05$. However, there was a statistically significant difference in the mean scores in *Phase Two* $t(23)=-3.72$, $p<0.01$ with an effect size of $d=0.66$.

For Class C, there was a gain of $m=2.24$ stanine between *Time 1* and *Time 3* with an effect size of $d=0.81$ and there was a gain of $m=1.47$ stanine with an effect size of $d=0.95$. A paired-samples t-test indicates that the mean differences were statistically significant for Class C in *Phase One* $t(16)=-7.37$, $p<0.01$ and in *Phase Two* $t(14)=-4.36$, $p<0.01$.

Furthermore, there were statistically significant shifts in the overall mean across *Phase One*; $t(69)=-5.63$, $p<0.01$ with an effect size of $d=0.57$ and *Phase Two*; $t(54)=-6.37$, $p<0.01$ with an effect size of $d=0.64$ (as shown in Table 12).

Comparisons across STAR Subtests in Phase One and Phase Two

Table 12 presents the STAR subtest mean scores of all Tongan students across *Time 1* and *Time 3* (*Phase One*) and *Time 4* and *Time 6* (*Phase Two*). As shown in Table 12, there were positive gains made in all subtests at each phase.

Table 12

The STAR reading achievement mean scores and standard deviations SD for the two different cohorts of Tongan students across subtest raw scores

STAR subtests	Phase One (n=70)				Phase Two (n=55)			
	Time 1	Time 3	Diff T1-T3	Effect size <i>d</i>	Time 4	Time 6	Diff T4-T6	Effect size <i>d</i>
Subtest 1								
<i>m</i>	7.46	9.01	+1.55**	0.88	7.65	8.33	+0.68*	0.33
<i>SD</i>	(2.20)	(1.34)	(1.77)		(2.47)	(1.66)	(2.07)	
Subtest 2								
<i>m</i>	5.10	6.59	+1.49**	0.68	5.35	6.22	+0.87**	0.40
<i>SD</i>	(2.10)	(1.94)	(2.20)		(2.14)	(2.19)	(2.17)	
Subtest 3								
<i>m</i>	6.79	7.70	+0.91*	0.20	5.35	7.93	+2.58**	0.64
<i>SD</i>	(4.70)	(4.25)	(4.48)		(4.03)	(4.09)	(4.06)	
Subtest 4								
<i>m</i>	3.79	5.40	+1.61**	0.67	3.58	5.02	+1.44**	0.61
<i>SD</i>	(2.30)	(2.49)	(2.40)		(2.20)	(2.56)	(2.38)	

Note. *Time 1* = beginning of the year in *Phase One*. *Time 3* = end of the year in *Phase One*. *Time 4* = beginning of the year in *Phase Two*. *Time 6* = end of the year in *Phase Two*. *Diff T1-T3* = difference between *Time 1* and *Time 3*. *Diff T4-T6* = difference between *Time 4* and *Time 6*. *m* = mean. *SD* = standard deviation. *n* = number of students. * $p < 0.05$ ** $p < 0.01$

Despite having identified that Tongan students achieved low scores in *Subtest 3: Paragraph comprehension* and in *Subtest 4: Vocabulary* in both phases; there were notable differences. For example, in *Subtest 3: Paragraph Comprehension* there was a

positive gain between *Time 1* and *Time 3 (Phase One)* $m=0.91$ score with an effect size of $d=0.20$ and a positive gain between *Time 4* and *Time 6 (Phase Two)* was $m=2.58$ score with an effect size of $d=0.64$. Each gain in the mean scores for *Subtest 3: Paragraph comprehension* were statistically significant; *Phase One* $t(69)=-2.23$, $p<0.05$ and *Phase Two* $t(55)=-7.30$, $p<0.01$. Also shown in Table 12, the gains that were made between the *Time 4* and *Time 6* means were greater than the gains made between *Time 1* and *Time 3*.

Furthermore, for *Subtest 4: Vocabulary* there was a statistically significant shift in the means between *Time 1* and *Time 3 (Phase One)* $m=1.61$ gain score with an effect size of $d=0.67$. And there was a statistically significant shift in the means between *Time 4* and *Time 6 (Phase Two)* $m=1.44$ gain score with and an effect size of $d=0.64$. A paired samples t-test confirmed in *Phase One* $t(69)=-4.95$, $p<0.01$ and *Phase Two* $t(54)=-4.06$, $p<0.01$ (see Appendix M & N).

Achievement Patterns for Longitudinal Cohort Only in Phase One and Phase Two (n =24)

There were 70 students in *Phase One* and 55 students in *Phase Two*. Out of those figures, there were only 24 students that were present in both phases. The analysis for the longitudinal cohort is made up of 24 students that were present in both *Phase One* and *Phase Two*.

Table 13 presents the STAR reading achievement mean stanines and standard deviations across the three classes at each phase. Also included in Table 13 are the gains in mean stanines and the effect sizes for each phase and between *Time 1* and *Time 6*.

Table 13

The STAR stanine means across classes for the longitudinal cohort (n=24)

Classes	Phase One				Phase Two				Overall Diff	
	Time 1	Time 3	Diff T1-T3	Effect size <i>d</i>	Time 4	Time 6	Diff T4-T6	Effect Size <i>d</i>	Diff T1-T6	Effect Size <i>d</i>
Class A	<i>n</i> =10									
<i>m</i>	4.20	5.30	+1.10*	0.48	3.90	5.00	+1.10**	0.51	+0.80	0.35
SD	(2.25)	(2.36)	(2.31)		(1.97)	(2.36)	(2.17)		(2.31)	
Class B	<i>n</i> =11									
<i>m</i>	4.73	4.64	-0.09	-0.11	3.64	3.91	+0.27	0.33	-0.82	-1.03*
SD	(0.90)	(0.67)	(0.79)		(0.92)	(0.70)	(0.81)		(0.80)	
Class C	<i>n</i> =3									
<i>m</i>	4.33	7.33	+3.00	2.26	5.67	6.00	+0.33	0.42	+1.67*	2.11
SD	(0.58)	(2.08)	(1.33)		(0.58)	(1.00)	(0.79)		(0.79)	
Overall	<i>n</i> =24									
<i>m</i>	4.46	5.25	+0.79*	0.46	4.00	4.63	+0.66*	0.39	+0.17	0.10
SD	1.56	1.87	(1.72)		1.53	1.74	(1.64)		(1.65)	

Note. Time 1 = beginning of the year in Phase One. Time 3 = end of the year in Phase One. Time 4 = beginning of the year in Phase Two. Time 6 = end of the year in Phase Two. Diff T1-T3 = difference between Time 1 and Time 3. Diff T4-T6 = difference between Time 4 and Time 6. Diff T1-T6 = difference between Time 1 and Time 6. *m* = mean. *SD* = standard deviation. *n* = number of students. * $p < 0.05$ ** $p < 0.01$

Table 13 shows that Class A made positive gains made at each phase. A paired-samples t-test indicates that there were statistically significant differences in the mean stanines for Class A between *Time 1* ($m=4.20$) and *Time 3* ($m=5.30$); $t(9)=-3.161$, $p<0.01$ and between *Time 4* ($m=3.90$) and *Time 6* ($m=5.00$); $t(9)=-3.50$, $p<0.01$.

Also shown in Table 13, for *Class B* there was a decline in the mean difference between *Time 1* and *Time 3* ($m=-0.09$) with a negative effect size of -0.11. However,

there was a positive shift in the mean stanines between *Time 4* and *Time 6* $m=0.27$ with an effect size of 0.33 for Class B.

Class C had positive shifts in mean stanines in both *Phase One* and *Phase Two* as shown in Table 13. There was also a positive shift in mean stanines shown between *Time 1* and *Time 6* ($m=1.67$) with an effect size of 2.11 which was statistically significant; $t(2)=-5.00$, $p<0.05$.

The overall mean stanines as shown in Table 13 indicates a slight gain in stanine means between *Time 1* and *Time 6*, $m=0.17$ with an effect size of $d=0.10$. A paired-samples t-test showed that difference between the mean stanines at *Time 1* and *Time 6* were not statistically significant; $t(23)=-0.624$, $p>0.05$. However, there was a statistically significant difference in mean stanines between *Time 1* ($m=4.46$) and *Time 3* ($m=5.25$); $t(23)=-2.686$, $p<0.01$ with an effect size of $d=0.46$ showing that there was a medium effect on the longitudinal cohort of Tongan students ($n=24$). In addition, there was also a statistically significant difference in the mean stanines between *Time 4* ($m=4.00$) and *Time 6* ($m=4.63$); $t(23)=-3.158$, $p<0.01$ with an effect size of $d=0.39$ indicating a medium effect on the longitudinal cohort of Tongan students ($n=24$).

Table 14 presents the means of the STAR reading achievement subtest scores for the longitudinal cohort ($n=24$) in *Phase One* and *Phase Two*. As shown in Table 14, there were positive gains made in both *Phase One* and *Phase Two* across all subtests. More specifically, in *Phase One* there was a statistically significant difference in the mean scores for *Subtest 1: Word recognition* $t(23)=-3.14$, $p<0.01$ with an effect size of $d=0.70$ and there was also a statistically significant difference for *Subtest 2: Sentence*; $t(23)=-2.44$, $p<0.05$ with an effect size of $d=0.40$. In *Phase Two* there was a statistically

significant shift in mean scores for *Subtest 3: Paragraph comprehension* $t(23)=-3.76$, $p<0.01$ with an effect size of $d=0.46$ and there was also a statistically significant shift in mean scores for *Subtest 4: Vocabulary* $t(23)=-2.106$, $p<0.05$ with an effect size of $d=0.46$.

Table 14

The STAR subtest means for the longitudinal cohort (n=24)

Subtests	Phase One				Phase Two				Overall Diff	
	Time 1	Time 3	Diff T1-T3	Effect size d	Time 4	Time 6	Diff T4-T6	Effect size	Diff T1-T6	Effect size d
1										
<i>m</i>	7.33	8.71	+1.38*	0.70	8.92	9.13	+0.21	0.16	+1.80**	1.02
SD	(2.44)	(1.52)	(1.98)		(1.50)	(1.08)	(1.29)		(1.76)	
2										
<i>m</i>	5.38	6.33	+0.95*	0.44	6.54	7.08	+0.54	0.30	+1.70**	0.75
SD	(2.39)	(1.97)	(2.18)		(1.50)	(2.15)	(1.83)		(2.27)	
3										
<i>m</i>	6.83	8.17	+1.34	0.32	7.88	9.79	+1.91**	0.46	+2.96**	0.69
SD	(4.17)	(4.32)	(4.25)		(3.93)	(4.35)	(4.14)		(4.26)	
4										
<i>m</i>	3.58	4.71	+1.13	0.40	4.46	5.79	+1.33*	0.46	+ 2.21**	0.89
SD	(2.36)	(2.66)	(2.51)		(2.47)	(2.60)	(2.54)		(2.48)	
Overall	<i>n</i> =24									
<i>m</i>	4.46	5.25	+0.79	0.46	4.00	4.63	+0.66	0.39	+0.17	0.10
SD	(1.56)	(1.87)	(1.72)		(1.53)	(1.74)	(1.64)		(1.65)	

Note. Time 1 = beginning of the year in Phase One. Time 3 = end of the year in Phase One. Time 4 = beginning of the year in Phase Two. Time 6 = end of the year in Phase Two. Diff T1-T3 = difference between Time 1 and Time 3. Diff T4-T6 = difference between Time 4 and Time 6. Diff T1-T6 = difference between Time 1 and Time 6. *m* = mean. *SD* = standard deviation. *n* = number of students. * $p < 0.05$ ** $p < 0.01$

In addition, Table 14 indicates that the largest gain that was made between mean scores at *Time 1* and *Time 6* was in *Subtest 3: Paragraph Comprehension* with $m=2.96$

score with an effect size of $d=0.69$. The next highest gain was made in *Subtest 4: Vocabulary* with $m=2.21$ score with an effect size of $d=0.89$ which indicates that the intervention also had a large effect on the mean scores *Subtest 4: Vocabulary* for the longitudinal cohort ($n=24$). Additionally, the difference between the mean scores at *Time 1* and *Time 6* for *Subtest 1: Word Recognition* was $m=1.80$ score with an effect size of $d=1.02$. The large effect size suggests that the educational intervention had a large effect on *Subtest 1: Word Recognition* within the longitudinal cohort ($n=24$). Furthermore, Table 14 also shows that there was a positive shift between *Time 1* and *Time 6* in *Subtest 2: Sentence Comprehension* which was $m=1.70$ score within an effect size of $d=0.75$.

Summary of STAR reading achievement in Phase Two

In *Phase Two*, there were positive gains within the STAR reading achievement of the Tongan students in comparison to the baseline reading achievement data thus suggesting that the educational intervention implemented in this study was associated with the improvement in achievement.

Furthermore, the percentage of students who shifted from the critical stanine range of (1 to 3) at the beginning of the year to achieving scores within the mid stanine range (4 to 6) or above (7 to 9) at the end of the year occurred at a greater rate in *Phase Two* in comparison to *Phase One*. This finding was consistent with each Tongan bilingual class thus indicating that a greater rate of Tongan students were achieving *at or above* the New Zealand *national norm* at the end of *Phase Two* than there were in *Phase One*.

The STAR achievement results in *Phase Two* suggest that *Subtest 3: Paragraph Comprehension* and *Subtest 4: Vocabulary* are interconnected and despite the positive gains that were made by the Tongan students in this phase, paragraph comprehension and vocabulary are the two subtests which remained a rich challenge for Tongan students in this study.

In relation to the STAR stanines of the longitudinal cohort (see Table 13), there was a statistically significant difference in mean stanines between *Time 1* ($m=4.46$) and *Time 3* ($m=5.25$); $t(23)=-2.686$, $p<0.01$ with an effect size of $d=0.46$ showing that there was a medium effect on the longitudinal cohort of Tongan students ($n=24$). In addition, there was also a statistically significant difference in the mean stanines between *Time 4* ($m=4.00$) and *Time 6* ($m=4.63$); $t(23)=-3.158$, $p<0.01$ with an effect size of $d=0.39$ indicating a medium effect on the longitudinal cohort of Tongan students ($n=24$). These findings suggest that the educational intervention for this study had a positive impact on the students' vocabulary learning and reading comprehension.

Moreover, a key finding within the analysis of the STAR longitudinal cohort demonstrated that there the largest gain that was made between mean scores at *Time 1* and *Time 6* was in *Subtest 3: Paragraph Comprehension* with $m=2.96$ score with an effect size of $d=0.69$ (see Table 14). The next highest gain was made in *Subtest 4: Vocabulary* with $m=2.21$ score with an effect size of $d=0.89$ which indicates that the intervention also had a large effect on the mean scores *Subtest 4: Vocabulary* for the longitudinal cohort ($n=24$). Additionally, the difference between the mean scores at *Time 1* and *Time 6* for *Subtest 1: Word Recognition* was $m=1.80$ score with an effect size of $d=1.02$. The large effect size suggests that the educational intervention had a

large effect on *Subtest 1: Word Recognition* within the longitudinal cohort ($n=24$). Furthermore, Table 14 also shows that there was a positive shift between *Time 1* and *Time 6* in *Subtest 2: Sentence Comprehension* which was $m=1.70$ score within an effect size of $d=0.75$.

The key findings highlighted here are crucial to the overall study given that *Subtest 3: Paragraph comprehension* and *Subtest 4: Vocabulary* were the two subtests that the students encountered difficulty with at the baseline (*Time 1*, beginning of the year in *Phase One*).

7.3 Collaborative discussions in Phase Two

As noted in *Chapter 5*, the permission to audio-record this meeting was not sought out by the researcher based on the notion that the meetings were to allow general collaborative discussions to transpire; however, the researcher took notes from each meeting. Each meeting were approximately 60 minutes in length of time. There were two meetings that were organised in *Phase Two*, the first at *Time 4* (beginning of the year in *Phase Two*) and *Time 5* (mid-year in *Phase Two*).

Collaborative discussions at Time 4 (beginning of the year in Phase Two)

The aim of the collaborative discussions at *Time 4* was for the researcher to re-connect with the three teachers to discuss the STAR achievement results, strategies for instruction in vocabulary and reading comprehension, assessments for vocabulary and reading and to also introduce the two new vocabulary boards. The main points from this meeting are identified next.

One of the concerns that were raised by the teachers in *Phase One* was the standardised assessments that are administered by their school. At the meeting in Time 4, when the teachers were asked whether the provision of a Tongan-based vocabulary or reading assessment would be able to measure students learning more effectively, the Teachers expressed that it may not be necessary their main focus is for their students to achieve well on the prescribed standardised tests that their school policy requires them to administer. Essentially Tongan students are expected to develop the skills and knowledge in English as it is the dominant language for education in New Zealand thus the issues concerning the assessments remains a rich challenge.

Furthermore, at the meeting in Time 4, Teachers expressed that they began to focus more on aspects of their vocabulary since the study began which has enabled them to modify their pedagogical practices where they felt necessary. In relation to the selection of vocabulary for explicit instruction, the teachers were given a couple of academic word lists in the meeting that took place at *Time 2* (mid-year in *Phase One*) to refer to and use at their discretion. The teachers explained that the words on the lists were not relevant to the reading age of the students and each teacher felt that the teaching of high frequency words and content words were more appropriate to choose words from for explicit vocabulary instruction. Each teacher believed that it was important for their students to learn words that were within the context of their classroom programmes such as topic study or words that appear in the texts (reading material) that the students would read as part of their reading programmes.

Also included in the meeting at Time 4 was the introduction of the two new vocabulary boards. The researcher explained the aims and the intended outcomes of the two new vocabulary boards. To reiterate, the pedagogical practices by which the

researcher suggested for the teachers to use in the application of the two new vocabulary boards within their classrooms, centres on the philosophy of *inquiry-based learning*²⁰ which is reflective of a socio-cultural theory and the works of Vygotsky (1978) and McNaughton (1995) (see *Chapter 3*). The socio-cultural theory maintains that a child's construction of knowledge and more broadly, child's expertise in action, is created first in and through social interactions. The cultural and social meanings that are expressed and constructed within social interactions convey notions of identity and expertise (McNaughton, 1995). By this means the following pedagogical practices were provided for the teachers to use within a guided reading lesson:

- The boards are to be placed near the teacher where it is visible to the students. In addition, the laminated cards and whiteboard markers are placed within the students' reach.
- During the lesson, the teacher may want to remind and encourage students to inquire (using the laminated cards and boards) about any words that they may find fascinating or words that they would like to know more about.
- The students' inquiry of words (using the laminated cards and boards) are conducted quietly to ensure that the flow of the lesson is not interrupted. For example, if a student identifies a word in text, they would reach out for the laminated card and whiteboard marker and write their word and post onto the board (during or after the lesson).
- At the end of the lesson, the teacher may refer to words that were posted onto the boards by first asking students probing questions that will allow students to consider, for example, contextual cues, phonological or

²⁰ Inquiry learning emphasises constructivist ideas of learning, where knowledge is built from experience and process, especially socially based experiences.

phonemic cues, access their prior knowledge, as a means for determining the meaning of the selected words.

- If students are unable to ascertain the meaning of a word immediately, the teacher may wish to define the word at that particular point in time with reference to the text, followed by probing for their students' understanding.
- As a follow up activity, the teacher may consider asking the students to record the words into their word notebooks for later use or provide it as homework.

As noted earlier in this chapter, the researcher suggested to the teachers that they introduce the two new vocabulary boards to the students with instructions for use; however, the researcher emphasised to the teachers that the students must be advised that the use of the resources during guided instructional lessons was optional. The researcher advised the teachers that they were at liberty to adjust the pedagogical practices within the context of their lessons in order to meet the learning needs of each of their students. In following, each teacher was provided with two new vocabulary boards including the laminated cards and whiteboard markers to implement in their literacy programmes.

In closing, the teachers agreed to attend a follow up meeting for collaborative discussions with the school Principals, two University educators and the researcher.

Collaborative discussions at Time 5 (mid-year in Phase Two)

The aim of the collaborative discussions at Time 5 (mid-year in *Phase Two*) was to connect the teachers, school Principals, University educators and the researcher in

order to help navigate the teaching and learning of English vocabulary and to improve the English reading achievement of Tongan students. Therefore at *Time 5* (mid-year in *Phase Two*), a meeting was organised by the researcher for collaborative discussions to take place between the three Tongan bilingual teachers, the two school Principals, two University educators and the researcher.

At the meeting in Time 5, the University educators led the discussion on English vocabulary instruction and English reading comprehension with examples from local and international research. The Principals and the Tongan bilingual teachers shared their experiences and perspectives on the teaching of Tongan students and in particular on the reading achievement of their students. This discussion was centred on the achievement patterns of all students at each of the schools involved in this study and more specifically Tongan students within Tongan bilingual classes. The concerns about the low and underachievement of Tongan students in each school were acknowledged and discussed at this meeting with the agreement that more work needed to be conducted towards the enhancement of the education of Tongan students. The Principals also highlighted that they have good home and school partnerships and their aim is to continue to foster positive relationships with the parents and caregivers of the students at each of their schools.

Furthermore, the Principals shared about the achievement results of the Pasifika students at each of their schools which led teachers to share about the achievement results of the Tongan students highlighting the concern that some students achieve low achievement scores or achieve below the national norm. The issues surrounding underachievement particularly in the reading achievement of Tongan students were evident in the standardised tests such as STAR, asTTle reading and P.A.T tests.

Furthermore, the teachers led the discussion about the English vocabulary instruction which took place in *Phase One* within each of their classes. The teachers each expressed that the main factor that they believed hindered students' reading comprehension levels were the gap between the contexts of the stories and the prior experiences and/or prior knowledge of Tongan students. The school Principals agreed with the teachers and stated that they would need to plan for more field trips to help provide more learning experiences for Tongan students and students in general at each of the schools.

Additionally, the teachers each shared about the progress of the implementation of the two new vocabulary boards within each Tongan bilingual class which began in *Time 4* (beginning of the year in *Phase Two*) which they described was working positively within each of their classes. The school Principals were interested about what the teachers shared which led to the invitation of teachers to present the two new vocabulary boards at their staff meeting.

A University educator shared about findings in other Pacific bilingual classes which were similar to the achievement levels of the students in the Tongan bilingual unit and suggested that vocabulary instruction might have a positive impact on the students' reading comprehension. The other University educator shared about how Beck, et al. (2002) have categorised words into three tiers. For example: Tier One consists of the most basic words – clock, baby, happy – rarely requiring instruction in school, Tier Two are high frequency words for mature language users – coincidence, absurd, industrious - and thus instruction in these words can add productively to an individual's language ability, and Tier Three includes words whose frequency of use is

quite low, often being limited to specific domains - isotope, lathe, peninsula – and are probably best learned when needed in a content area (p. 15-16). In following, a discussion took place on types of vocabulary that would be most beneficial for the explicit instruction.

The researcher added that Beck, et al. (2002) argued that vocabulary in the primary grades should emphasise “Tier Two words” that are less likely to be learned at home, especially in what they have asserted as ‘disadvantaged homes’. The research suggested that the teaching of “Tier Two words” could be something for the teachers to consider given that the students are not necessarily from ‘disadvantaged homes’ that Beck, et al. (2002) have identified, but because the home language for most of the students is Tongan.

The Principals and Teachers engaged in the discussion about the Tier Two words and agreed that teaching Tier Two words may be useful. The teachers agreed that they will look into the study of Tier Two words to see whether it could apply to their teaching of vocabulary in their classes and highlighted that the types of vocabulary that they have selected for explicit instruction are linked to the curriculum areas taught within each of their classrooms (as noted in the previous meeting). Furthermore, Teacher C noted at the meeting in Time 5 that before she can teach ‘high frequency words for mature language users’ she would need to first ensure that her students can confidently use high frequency words that are in its basic forms.

The discussions move onto the researcher describing how the findings in *Phase one* prompted the development of the two new vocabulary boards in *Phase Two*. The

teachers led the discussion on the implementation of the two new vocabulary boards in each of their classrooms.

Upon hearing about the two new vocabulary boards for the first time, the Principals and University educators had an opportunity to ask questions about the vocabulary boards which included: How did the students respond to the boards? Have there been any noticeable changes in the students' learning? The teachers reported positive feedback at the meeting in Time 5 which prompted the Principals' decision to create replicas the vocabulary boards to present and offer to the other teachers at each of their schools.

There were the unexpected outcomes that were a direct result of the collaborative discussions that transpired between the school Principals, the three Tongan bilingual teachers, the two University educators and the researcher at *Time 5* (mid-year in *Phase Two*). One of those unexpected outcomes was that the school Principals from each school invited the three teachers to present the two new vocabulary boards at their staff meeting. In addition, the Principals created replicas of the new vocabulary boards. As a result, other teachers who were within the schools of the Tongan bilingual teachers and other teachers from schools outside of this study took the two new vocabulary boards or the concept of it and applied it into their class literacy programme.

Reflections by the Tongan bilingual teachers on their presentations of the two new vocabulary boards at staff meetings

At the semi-structured interviews at *Time 6* (end of year in *Phase Two*) the three teachers expressed their feelings of empowerment when they were invited by their school Principal to become information providers for their fellow staff members in the

presentation of the two new vocabulary boards at staff meetings including school cluster meetings. This demonstrates one of the positive outcomes from the collaborative discussions that took place at Time 5, the Principals provided their teachers with the opportunity to share their knowledge and pedagogical practices with the school and other schools within the community. The three teachers described that the teachers and Principals from within their schools as well as other schools (outside of this study) were impressed with their presentation of the two new vocabulary boards and they took the concept on board and implemented the supplementary teaching resources within their literacy programmes.

Teacher A explained that subsequent to her presentation at her school staff meeting, fellow teachers at her school visited her classroom to observe how she incorporates the two new vocabulary boards into her literacy programme. In following, she was invited to present at a local cluster meeting. She explained:

“I have already talked about the boards and maybe next year I will become the formative assessment person... Explaining to them (staff) about the boards and having them come into my class became a part of the AUSAD²¹ presentation.” (T 4: R 56 & 64)

For Teacher B, she explained that after the collaborative discussions at Time 5, she received an opportunity to present the two new vocabulary boards at her school staff meeting where some of the teachers had taken the concept of the boards and incorporated it into their own class teaching practice. She stated:

²¹ AUSAD stands for *Analysis and Use of Achievement Data* which is an initiative based in two South Auckland districts designed to improve the capacity of the schools to analyse, share and learn from their student achievement information.

“Ko e kau faiako `e ni`ihi na`a nau talamai `oku nau sa`ia `i he board mo e me`a ka koe`uhinga koe ngaue`aki ko e `i he loki ako. `Oku ou fa`a hū ai pe ki he loki ako `e ni`ihi `oku nau hanga kinautolu ia `o ngaue`aki `ae boards

Translation: Some of the teachers told me that they like the boards because it can be used within the class. I have gone into some of the classes and they [the teachers] were using the boards.” (T 5: R 62)

In Teacher C’s experience, she explained that she was invited to present the two new vocabulary boards at a couple of staff meetings. She explained:

“I have presented in our staffroom twice. I presented it at the management meeting and also at the staff meeting. They were really impressed, the Principal and the teachers. Some of them (teachers) are using the boards and they (teachers) were asking for the boards to be a sample for them.” (T 6: R 2)

The reflections of the three teachers regarding one of the positive outcomes of the collaborative discussions at Time 5 demonstrate the significance of making connections within the *vā* between teachers and Principals. The Principals’ invitations for the teachers to present the two new vocabulary boards at the staff meetings stemmed from the collaborative discussions that transpired at Time 5 with the teachers, the Principals, the University educators and the researcher. Consequently, the teachers expressed their feelings of empowerment as they became information providers for their schools and other schools in the presentation of the two new vocabulary boards.

The reflections by the three teachers highlight the significance of the Tongan concept of the *vā* as described in *Chapter 4*. In the context of this study, *vā* is the space

where social connections and professional relationships can be formed, nurtured and maintained. The *vā* is particularly important in relation to the collaborative discussions in this study as it highlights the significance in making connections in the *vā* between the teachers, Principals, University educators and the researcher.

It is pertinent to form social connections and professional relationships in the *vā*; however, it is theorised that in order to strengthen the education of Tongan students, *tauhi vā* (a Tongan strengths-based value explained in *Chapter 2*) needs to be followed through, which is to nurture and maintain the social connections and professional relationships that have been established. In so doing, working towards enhancing the reading achievement of Tongan students, and in general English language learners, will be managed positively in a collaborative approach.

Summary of the collaborative discussions in Phase One and Phase Two

The collaborative discussions that took place at the meetings can be seen as the *lalava* (lash/lashing in the *Ako Conceptual Framework*). As a reminder, the *lalava* in the context of the *Ako Conceptual Framework* is the sennit that ties, binds and holds all the components of the *kalia* (double hull canoe). The *kalia* in the context of the *Ako Conceptual Framework* is a metaphorical representation of the education of Tongan students.

In the context of this study, the *lalava* is a metaphorical representation of the social connections and professional relationships that bind, ties and holds together all components of the education of Tongan students. The meetings where the collaborative discussions took place in *Phase One* and *Phase Two* brought together:

- *fakatou katea* (double hulls) = school settings and student's background

- *lā* (sail) and *fanā* (mast) = students' learning needs and learning interests
- *fohe`uli* (steering oar) = the teachers' inquiry into new knowledge and the actions they take towards aligning the *taumu`a `oe ako* (purpose for teaching and learning) with their *founga ako* (knowledge systems) and their *students' feinga ako* (learning endeavours) in developing culturally responsive pedagogies
- *`eikivaka* (navigator) = teacher/expert

The binding of knowledge systems, expertise and leadership becomes a matter of priority in the understanding and theorising of education of Tongan students in the quest for academic success.

The aim for these collaborative discussions was achieved in the form of connections that were made between the Tongan bilingual teachers, the two Principals, the two University Educators and the researcher. The collaborative discussions were centred on explicit vocabulary instruction as a means of improving reading comprehension for Tongan students which helped reinforce establishing and maintaining social connections and professional relationships between: teachers and students, teachers and the Principals, the Principals and schools, school and home, school and University educators and the researcher with all participants. The social connections and the professional relationships that were formed in the *vā*, were strengthened by the collaborative discussions.

As a result of these collaborative discussions, the application of the two new vocabulary boards unexpectedly extended beyond the parameters of this study which saw teachers from other classes and other schools climb on board by implementing the

two new supplementary resources within their literacy programmes. This finding suggests that social connections and professional relationships can become effective agents of change in the education of not just the Tongan students in this study, but all students across all sectors of the education system.

7.4 The semi-structured interviews with Tongan bilingual teachers in Phase Two

This section presents examples of transcript excerpts taken from the audio-recordings of the semi-structured interviews with each teacher at *Time 6* (end of the year in *Phase Two*). The examples are highlighted under the following domains:

- *Domain 1: Modifications to English vocabulary teacher instruction*
- *Domain 2: Application of the two new vocabulary boards*
- *Domain 3: Teaching Tongan students*

An overall summary of the main findings from the interviews is presented at the end of this section.

Teacher A

Domain 1: Modifications to English vocabulary teacher instruction

In comparison to *Phase One* (first year of data collection), Teacher A explained that her method of vocabulary instruction in *Phase Two* (first year of data collection) was more specific to the text and that she selected and used for her guided reading lessons and shared reading activities. Teacher A stated:

“I’m sort of like more focussed on their words and the purpose in the text and why the author chose it. So it’s more like explaining the purpose of the text and how the author uses it and why he or she chose to use those words.” (T 4: R 2)

Teacher A focused on specific words in text and she steered her students' attention to focus on specific words and language features within the context of a text. She stated:

“This year was more specific ‘cos I chose the text and I made them underline and highlight the text that they are looking at and so it was very specific to the topic.” (T 4: R 11)

In comparison to *Phase One*, Teacher A used word lists to select words to teach from whereas in *Phase Two* she stated that there was a change in her process of selecting vocabulary for explicit teaching. She stated:

“This year is more of context and topic choice... like last term we were on fairy tales so we read the books on fairy tales and we picked words from there making them aware of what and how they are going to use the words.” (T 4: R 7)

The change that is notable in Teacher A's statement above is that she inferred that she and her students selected words for explicit instruction. This indicates that the teacher took on board the philosophy of inquiry-based learning and engaged the students in the learning process.

Domain 2: Application of the two new vocabulary boards

Teacher A applied the two new vocabulary boards during her guided reading and guided writing sessions as shown in the filmed observations of class vocabulary instruction at *Time 6* (end of the year in *Phase Two*). She explained that the boards provided a safe space for her students to identify their learning interests and/or needs

with regards to their inquiry for vocabulary. In reference to the students using the boards, Teacher A stated:

“They take risks; it’s non-threatening because we’re sharing.” (T 4: R 37)

Teacher A explains further:

“It [the boards] makes it more easier for them when we share things... If I ask one child they get scared because they think that I’m picking on them. But just giving it [the opportunity] to them to write it down and put it on [the boards], nobody knows whose words is whose. So I put it up on the board and talk about it and give them the dictionaries and then they find the words and the synonym and we talk about it. Yeah so it’s more – it’s like a safe learning thing. I like them [the boards], I like them [the boards] very much. I want to use that with other things like ‘parts of speech’ – finding the adjectives and things like that.” (T 4: R 116)

This is an important finding in this study as Teacher A indicated that her students had gained a sense of confidence which enabled them to participate during the guided reading and guided writing lessons. Additionally, Teacher A explained how she continued to also use her picture interpretation activity which was observed in *Phase One*. She stated:

“I’ve also used with low capable groups. I use pictures instead of a word so I call it picture interpretation. So they put the words around the picture.” (T 4: R 41)

Teacher A described that the students responded positively to the introduction of the two new vocabulary boards within their lessons. The visibility of the boards within

the classroom acts as a source of reminder to the students thus contributing to fostering word consciousness within the classroom. She stated:

“They like it [the two new vocabulary boards] because it helps them. It’s like a dictionary. Maybe what we need to do, is to find a word and then put the meaning next to it but because of the buddy system they remember like a capable child will tell the other one, remind them or tell them everyday what the meaning of the word is.” (T 4: R 105)

Teacher A identified that there was an increase in word consciousness within her class and that the learning of vocabulary was transferred into her students’ written language. This is one of the positive outcomes of this study and particularly the implementation of the two new vocabulary boards. For example, she stated:

“It [vocabulary talk] has increased, ‘cos I can tell with their writing especially the capable kids. I think I had a level 4 for this year for writing – three level 4’s and it’s all the words that we’ve used. The higher group after we get the words then I ask them to put them in a phrase like as a metaphor or anything.” (T 4: R 107)

Teacher A also identified that the two new vocabulary boards were extended onto other curriculum areas within their study with the focus on vocabulary instruction and as a result her students were able to grasp onto the different concepts of English vocabulary that they had identified and posted onto the two new vocabulary boards. For example, Teacher A stated:

“The linking of the reading and writing were also very supportive with that because then we were very specific on what words that they are looking at and how does the author use that for the audience and the context and then

after that they write their own story putting those words into sentences with their understanding or extend on them.” (T 4: R 109)

In addition, Teacher A noted the two new vocabulary boards assisted in her pedagogical practice particular when she links reading and writing in the context of her students learning. The intention of linking words encountered in reading with words to be used within writing is for the students to demonstrate their knowledge and understanding of how words can be used within different contexts. She explained:

“The board with the unknown words... The kids already know about the fascinating words board as they only pick the words that they know. But the words that I would like to know more about was very very good because it added onto our words, to our word bank. So then, because they didn’t know those words then they didn’t know how to use it in a sentence. So that’s something that I should look at next year, specifically to make sure they know sentences to make it meaningful.” (T 4: R 114)

Teacher A was optimistic about the changes that she had observed with her students learning. She stated that the teaching and learning of English vocabulary of her students should be better next year. When teacher A was asked if she would continue to use the two new vocabulary boards she stated:

“Yes, even if I teach Form 7 (Year 13). It’s very good. And I use that too when kids are planning for their writing. I tell them, have a word bank like that [the boards] so that you know your words and they do – when they write they have a word bank using that.” (T 4: R 54)

Teacher A has indicated that the two new vocabulary boards have encouraged her students to take responsibility for their learning of words by recording the words into their word banks and by including the words in their writing. She also identified that every class at their school now has a set of vocabulary boards with which they use within their literacy programmes.

“It’s very good and also, like the whole school – every class here has the boards.” (T 4: R 39)

Domain 3: Teaching Tongan students

Teacher A spoke about the advantages of teaching in a Tongan bilingual class. She stated:

“If I give them the English work and if they struggle, I have to go back and explain it to them in detail in Tongan. Also I would relate them to what they knew before. It’s like translating and also elaborating on it.” (T 4: R 85)

Teacher A noted that most of her students are not fluent in either Tongan or English which could be attributed to the achievement results. However, notably her reference to the Tongan student who was fluent in both the Tongan language and the English language was identified as a gifted learner. This can be attributed to the linguistic interdependence hypothesis as described in *Chapter 3*.

Most of the students in her class are NZ born and there was only one Tongan born student in her class in *Phase Two*. She stated that:

“I think last year there were more proper Tongan and proper English last year. So this year’s lot is sort of like half and half in both languages. Except for one girl and she’s talkative in the class, she’s fluent Tongan and fluent

in English. She's NZ born. Yeah, she's stanine 9 in STAR. She was in the gifted programme but she didn't like it, she pulled out.” (T 4: R 89)

When asked to talk about the possible barriers of teaching in a Tongan bilingual class, Teacher A stated:

“I think for them it's a lack of being exposed to different things... I use lots of books and pictures from the islands things that they have been exposed to – then you can see that they know all those things but then the NZ context.. I think it's the environment, it's the places – the change of experiences there varies... and I think they know more from than back there [Tonga] than here. Even though some of them haven't been there but some of the stories that their parents have told to them they have heaps of knowledge about that then.” (T 4: R 91)

The point that Teacher A is making here is that Tongan students, like other English language learners (ELLs), do not lack prior knowledge or prior experiences, instead Tongan students are not provided with learning experiences within the classroom context that connects their prior knowledge or prior experiences to the context of the lesson. Teacher A's statement above highlights the line that is drawn between a deficit perception of learning and a strengths-based perception of learning. She believes that students need more exposure to activities that are New Zealand-based. She also stated that students need:

“...to be able to relate to whatever text or whatever type of reading material that they have to work to they should be able to know things about it.” (T 4: R 93)

The above statement highlights the importance of home-school partnerships and school coherence as the driver for conversations to take place regarding the issues that Teacher A has addressed.

Teacher A believed that the reading materials that were used in the class hindered the learning of her students because the contexts of the stories were mostly unfamiliar to her students. She also identified that the assessments used by the school did not provide an accurate measurement of her students' English reading achievement. She stated:

"I've got one child in my class and I don't think that she should be tested. I think that we are teaching everything and we're not specific on especially them. You know, if they haven't been exposed to so many things they won't know about this thing in the test. I think it has to be something that they are related to." (T 4: R 95).

When asked if her concern with the standardised assessments were due to the vocabulary or the context of the story Teacher A responded with:

"It's the context, the vocabulary – it's everything. Especially the inferencing you have to work really hard on that. They can read, they recognise the words but they cannot tell you... like if you ask them to retell the story it's just like a word unless you give them another word and then another word and it's like word for word, it's not like sentence. I'm really working hard on that. They can explain but I think it's scared of making a mistake." (T 4: R 99)

Teacher B

Domain 1: Modifications to English vocabulary teacher instruction

Modifications were made to Teacher B's delivery of her English vocabulary instruction in *Phase Two*. Teacher B explained:

“Last year I just focused on the words that were related to the topic and also the words in their reading so mostly those were the only words that I focussed on last year. But this year I just added on some high frequency words and also like descriptive words, adjectives, verbs and also some other words like suffix, prefix you know all those words so I just add onto the vocab that we are using. And also another change is teaching of words, you know the way that I teach like I used all the strategies like the one that you gave me like the boards...

Sometimes I don't have time to work with them on some words that they learn but this year I spent most of my time to make sure that they can use the words so that they know the words and they use the words in their sentences and also use them in talking. So those are the changes that I've made this year...

I think ko ho`o ha`u pea `oku hange leva ia na`ane toe `omai leva ia... toe empower mai ke toe fai `ae tokanga makehe ki he vocab `a ia koe fakahoko leva `a ho fo`i me`a pe koe ha `ae me`a ke toe fai ke tokanga makehe ki ai `ae vocab.” Translation: I think when you came it gave... it empowered me to focus on vocabulary and to implement the boards and other methods or strategies that focused on vocabulary. (T 5: R 2)

Teacher B focused on more specific aspects of teaching vocabulary in *Phase Two*. She stated that the researcher and the two new vocabulary boards empowered her to focus more on vocabulary instruction. She noted that she spends time ensuring that her

students learn and use vocabulary that they have worked on and she wants to see the students use the words within their written language as well as their oral language. She also felt empowered when she saw the increase in her students' STAR results. Teacher B stated:

“Nau ongo`i empowered koe`uhinga na`aku sio pe ki he ola `o `enau performance koe `o hange `i he STAR moe me`a ko ia. Ko `enau taha ia `i he me`a `oku nau vaivai`anga `oe vocab. `Io moe hange koe selection of words, hange koe word studies with the same meaning, moe me`a ko ia. Lahi leva `emau ngaahi activities ki ai this year.” Translation: I felt empowered because I could see the results of their performance like in STAR. Vocabulary is one of their weaknesses. Yes and like the selection of words, like word studies with the same meaning and things like that. There were many activities this year. (T 5: R 4)

When asked about whether high frequency words or academic words should be the priority in the teaching of the Tongan students, Teacher B stated:

“Io high frequency words he koe`uhinga hange ko e writing `a ia koe taimi ko e `oku mau hange `o asses `enau writing `a ia `oku base ia he high frequency words. `A ia `oku fie ma`u ia pe `oku anga fefe leva `enau ngaue`aki ko ia pea sio level ki he`enau pattern pe `oku nau hanga `o nau lava `o ngaue`aki `ae taimi ko ia `oku write ai. `A ia `oku mei base `enau assess ia `ae kau leka meimei base pe ia he high frequency words. ... Ka koe taimi koe `enau reading `oku fiema`u leva `ae academic words ai. Hange ko `eku sio `oua fu`u tuku `ae academic words he koe`uhinga koe taimi ia ko ia `oku nau reading ai, `oku nau struggle kinautolu he?” Translation: Yes, high frequency words because like in writing when we assess their writing it

is based on high frequency words. So we want to see how they use the words and we look at their patterns whether they are able to use the time that they are given to write in. So the assessments for the young students are mainly based on high frequency words. But when it comes time for reading, they need to work on the academic words. For example, I believe that we can't leave the academic words because the time to teach and learn them is during their reading. (T 5: R 34)

Domain 2: Application of the two new vocabulary boards

Teacher B identified that there were advantages in the application of the two new vocabulary boards. She stated:

“Oku `aonga `aupito – `oku advantage `aupito ia ki he kau leka.”

Translation: It is very useful – there are many advantages for the children.

(T 5: R 74)

Teacher B explained that her students responded quite well to the two new boards and that they enjoyed using it as well as other English vocabulary activities. In her observation, she noticed that the students would prefer to use the vocabulary boards over other vocabulary-based activities which highlight a positive outcome. She stated:

“A ia ko e lahi `ete provide `ae different activities `oku ou sio leva au ia, ko e lahi ange ia pea toki fili ai pe `ae kau leka koeha `ae me`a `e learn more ai. `Oku `i ai `ae ngaahi kau leka `oku ou sio au ia `oku lahi ange `enau ngaue`aki `ae boards he `oku tokoni lahi ia kiate kinautolu.” Translation:

When I provided many different activities for students, I noticed that that the students would choose the activity that they would learn from and I observed that the children would often select the boards. (T 5: R 74)

Teacher B spoke specifically about the *Words I would like to know more about* board thus describing how useful they were for the students as well as for her teaching practice. She stated:

“It’s important `ae ‘Words I would like to know more about’ board he koe`uhinga leva `oku hanga leva `o `ai ke nau fakakaukau. Koe taimi `e ni`ihi `oku nau sio pe kinautolu ki he lea pea `oku nau pehe `oku ou `ilo pe au `ae lea koe ka `oku `ikai ke nau know more about that word koe`uhinga `oku lahi pe `enau fanongo `i he ngaahi fo`i lea pea lahi pe `enau sio ka `oku `ikai ke nau fu`u `ilo lahi `i he anga `o use that word in different ways and in different context. `A ia `oku fiema`u lea ia ke nau `ilo lea. `A ia koe fo`i lea, ‘Words I would like to know more about’ pea lahi lea ‘ete nofo ai lea ke ne ngaue`aki `ae fo`i lea ko ia `i he different ways hono ngaue`aki `ae fo`i lea he? But it’s good, `oku ou tui `oku sai `aupito `ae fo`i board lea ko ia.” Translation: It’s important, the *Words I would like know more about* board, because it enables them to think. Most of the time they have seen the words or have heard the words but without really knowing how to use the words in different ways and in different contexts. So there is a need for them to learn. That is, the title, *Words I would like to know more about* enabled me to think about how to use the word in different ways. But it’s good, I believe the boards are very good. (T 5: 80)

Teacher B believed that the two new vocabulary boards added to the understanding of the teaching and learning of English vocabulary. She stated:

“Io `oku `aonga `aupito ia... `Oku sai `aupito ia... `oku tokoni lahi `aupito ia ki he `enau understand `ae text.” Translation: Yes, it is very useful... It

is very good... It helps a lot with their understanding of the text. (T 5: R 86).

Additionally, Teacher B mentioned that students are able to explore meanings for the words that they identified on the boards. She stated:

“`Oku nau kumi ai `enau meaning `i he dictionary. `Oku lava lava ia ke nau hanga leva `o `omai `ae ngaahi meaning pea `oku nau to`o mai leva `ae ngaahi meaning hoko `oku relate ko ia ki he text ke nau understand. Te nau lava lava `o comprehend `ae story, `ae text `i he taimi ko ia.” Translation: They look for meanings in the dictionary and they are then able to bring the different meanings and they are able to extract meanings that are related to the text so that they understand. They are then able to comprehend the story. (T 5: R 86)

Furthermore, Teacher B stated:

“`A ia `oku ou hanga pe `o toe ki`i fakalahi atu pe hono fakamatala`i kiate kinautolu `ae ngaahi fo`i lea. Ka koe meimei lahi pe ho nau `ai `ae `Words I`d like to know more` about `a ia `oku ou meimei sio pe. `A ia `oku sio leva ki he ngaahi lea koe `oku `ikai ke nau `ilo – `ae ngaahi hard words. `Oku lahi ange pe `enau tohi `ae Words that I`d to know more about board `i he `ai koe `ae `fascinating words` board.” Translation: I add onto the boards by providing them with explanations for each word. They mainly use the ‘Words I would like to know more about’ board from what I have observed. I have seen the words that they do not know – the hard words. They mainly use the ‘Words that I`d like to know more about’ board than the ‘Fascinating words’ board. (T 5: R 74)

Teacher B has illustrated the positive aspects of using the boards and how she extended its use to benefit the learning of her students. When Teacher B was asked if she would continue to use the two new vocabulary boards, her response was:

“Yes I will. Definitely I will.” (T 5: R 182)

Domain 3: Teaching Tongan students

Teacher B referred to another standardised test known as asTTle which she believed did not assess what her students know given that the time limit for asTTle was not sufficient for her students to answer appropriately. She stated:

“Ko e asTTle koe kuo `omai koe fo`i story ia `e fiha `oku `omai ke nau lau `i he fo`i miniti pe `e 45 pea kou sio atu leva ia ki he tau fanau Pasifiki faka`ofa leva `ae levolo `oku `i ai `enau reading foki... Ka `oku kei fai pe `ae argue ai, kei fai pe `ae talanga fekau`aki pea mo e me`a, fekau`aki moe asTTle ko hono `omai.” Translation: The asTTle assessments consist of a number of stories that they students have to read in 45 minutes and I see that our Pasifika students are sadly at a low level in their reading achievement. But there are still arguments and there are still discussions that are linked to asTTle and the delivery of it. (T 5: R 36)

Teacher B explained that there were students that might have been affected by low marks that they attain but she believed that they have the potential to achieve good marks. She stated:

“Oku ou fa`a nofo he taimi `e ni`ihi `o pehe ka sivi ha ki`i leka ia ai pea te ne ongo`i leva ia `oku `ikai ke `i ai `oku me`a koe`uhinga ko `ene maaka `ana ia `oku ma`ulalo hili ko ia `oku `i ai hono fu`u tu`unga ma`olunga ia `i

he fa`ahinga tafa`aki te ne lava ia ka `e lava he achievement ko ia ke ne push `e ia ki lalo... Ko e me`a ia `oku ou fa`a sio ki ai `oku ou fa`a nofo au `o fakakaukau ke pehe... `Oku `i ai `ae kau fanau `oku pehe.” Translation: At times, I reflect on the assessments and whether there is a young student that feels that they can’t achieve because their marks are low but in actual fact they are achieving at a high level but in another aspect of their learning but the achievement [marks] pushes them down ... Those are the things that I see and that I always think about... There are students who are like that. (T 5: R 38)

Teacher B identified that one of the advantages of teaching in a Tongan bilingual class is having the medium of instruction in both the Tongan and English languages. She also spoke about the advantages of teaching in a Tongan bilingual class. She stated:

“Koe`uhinga foki you know the children are not fluent in English and they are not fluent in Tonga and I think koe sio koe ki he mahu`inga ko e `ae bilingual education `ete ngaue`aki koe `ae bilingual learning pea koe teach `a kinautolu in English... He koe`uhinga sometimes they can speak the language ka `oku `ikai ke nau understand `e kinautolu ia `ae me`a.”

Translation: Because you know the children are not fluent in English and they are not fluent in Tongan and I think from what I have seen there is an importance for bilingual education and the implementation of bilingual learning or the teaching of students in English... Because sometimes they can speak the language but they do not understand. (T 5: R 88)

Teacher C

Domain 1: Modifications to English vocabulary teacher instruction

Teacher C illustrated that she has a transformative pedagogy and that the modifications that she had made reflected on re-aligning her teaching to meet the learning needs of her students. Teacher C explained the difference in the process of selecting words from *Phase One* to *Phase Two*. She stated:

“From last year I focused my teaching words, my word lists on the spell and write and most of the time was on the spell and write and the dictionary. I would pick words from the dictionary because I know that they Year 4 that they should have learned a certain amount of words but for this year I have changed a bit.

Rather than focussing on the dictionary and spell and write, I used more of the words that they made a mistake with. You know they make mistakes [with words] with their writing or reading then I would write it down as a teaching point for the next day.

Even the words, the ‘fascinating words’ or the words that they would like to know more about. Those two go hand in hand and that is my focus on my words because I think that the words they make mistakes with are their needs, that’s the basis of their needs and that’s why I’m putting it into practice in my writing and reading.” (T 6: R 12)

Domain 2: Application of the two new vocabulary boards

Teacher C noted that part of the changes that she had made to her English vocabulary instruction in Phase Two were the application of the two new vocabulary boards. She had adapted the boards so that it worked for her students. She stated:

“While they [students] are reading, I’m talking about guided reading, I will allow them to do silent reading. I know that they can’t do it for some of the words that they don’t know but I just want to give them time to have a go, to

have a try. After that then we would read, they would read the first sentence and I would read the second one and that is my way of testing whether they are on track or not. And if they struggle with some of the words then we'll have to discuss the word straight away and if not then I will put it down as a spelling word and that could be an activity later on after reading to look for the meaning... but most of the time I get them to get the meaning from the dictionary but I also emphasise to them the meaning from the dictionary is not always the exact meaning. You know, they have to understand the word deeper and use it in a sentence to be able to comprehend the sentence... I have seen that it has progressed in their understanding.” (T 6: R 16)

Teacher C noticed an improvement in an area of her students learning words and she noted that she made a record of the words that the students selected which helped inform her practice. For example she explained:

“I have noticed that they have developed their word knowledge. They have learned more words with the meaning as well. And they have the list and for the two boards that you gave. I was dealing with each and every week and sometimes every day and I made a record of those words.” (T 6: R 2)

Teacher C identified that her students responded positively to the introduction of the boards. She stated:

“They're really keen. As I've said they are really keen to put down their words and they know that I have to go back and check with them the words so I think our relationship is much more secure. They know that I will definitely go back to the board and work on it. So they know and they put down their words knowing that I will come back to them. I was thinking

because most of the time I was very busy and for the beginning I forgot to but they reminded me which is good. They reminded me and I have to do the boards straight away you know. And it helps them with their language development, writing and reading.” (T 6: R 24)

In addition, she identified a sense of confidence that she noticed her students gained in their use of the vocabulary boards. Teacher C stated:

“Yeah and I think they are proud of themselves if they put down a word. They will just point out, oh that’s my word I put that down” (T 6: R 30).

Teacher C stated that one of the benefits of implementing the two new vocabulary boards was the generation of the words that it reinforced. She indicated that it provided students with more words to use within their writing and reading. She explained:

“It [the vocabulary boards] gives them more words to use in their writing and even in their reading.” (T 6: R 8)

Teacher C believed that the application of the two new vocabulary boards encouraged students to take responsibility for their learning by inquiring about vocabulary within the context of lessons. This reinforces the co-constructivist view that learning. Teacher C stated:

“Yes, they feel more responsible with their own learning so knowing that the environment is for them you know? They can write down what they want to write down, it’s not a teacher’s job to write down the words for them.” (T 6: R 32).

Teacher C also stated that the boards provided a safe space for the students to speak up knowing that other students would also be making the same inquiries about words:

“You know because sometimes as Tongans we are too shy to speak up but that’s a good opportunity for them to write words down knowing that others would do the same.” (T 6: R 36)

Teacher C has illustrated a positive experience with the implementation of the two new vocabulary boards. When Teacher C was asked whether she would like to continue to use the two new vocabulary boards, she stated:

“Well definitely yes, for next year I am hoping to make two more – two of the fascinating and two of the other boards because I reckon that one board is not enough because especially for some of the days a lot of them would like to put down words but I have to say you take turns and you take today and you wait until tomorrow.” (T 6: R 28)

Domain 3: Teaching Tongan students

Teacher C talked about the advantages of teaching in a Tongan bilingual context. She stated:

“It helps them with their comprehension, knowing the words, meaning that they’re knowing the meaning, it’s not knowing the spelling only. Knowing a word is the meaning, the pronunciation, the letter content – the content of letters and everything... The meaning will lead them on to comprehension and that will come out from their sentences. I really think that the... learning of English is really good.” (T 6: R 52)

Teacher C identified a concern that both Teacher A and Teacher B had raised also which is in regards to the standardised assessments.

“I do have a concern... I think the [education] system have set them up to fail because I can see a big difference from what is implemented in STAR and the asTTle and what we are trying to teach.” (T 6: R 52)

In addition, she believed that the abilities that her students have demonstrated in the class are not reflected in the STAR assessments or in the asTTle tests. She stated:

“There is a big difference and well it’s not that we are not doing our job because we are trying our best but it’s taking a different picture of us at a national [level].” (T 6: R 56)

Furthermore, Teacher C described the strategies of vocabulary and comprehension instruction that she implemented in *Phase Two*. She stated:

“If they don’t know how to pronounce a word, [I would tell them to] break it down into syllables – they know how to work out syllables. Syllables or even the blends, sounding out blends and sometimes it may not be right but it’s good to try.” (T 6: R 20).

Summary of teacher interviews in Phase Two

In general, the examples of the transcript excerpts presented in this section depict the knowledge, beliefs and pedagogical practices of the three teachers and the modifications that were made to each vocabulary instruction in *Phase Two*.

The general consensus among the teachers was that the application of the two new vocabulary boards were well received by each of their class of students and all teachers observed positive changes in their students learning of vocabulary. According to

McNaughton (1995), teachers' actions are influenced by whether they believe relationship between settings influence children's development and whether their role includes contribution to creating of such relationships. In that light, the three teachers expressed that they would continue to use the boards as part of their literacy programmes even after this study thus suggesting that the teachers believe that these boards were genuinely making a difference for the teaching and learning of English vocabulary for each of their students.

Moreover, the three Tongan bilingual teachers mentioned in each of their interviews that after introducing the two new vocabulary boards, the students were no longer 'shy' or 'scared' to 'take risks' in the class by participating within the context of a guided reading and/or guided writing lessons and inquire about words that they would like to know more about as well as fascinating words. The teachers described their students as 'feeling proud of themselves' and the students were 'keen' to identify words that they would like to know more about or that they find fascinating within the contexts of a guided reading lesson and/or guided writing lesson. Teachers' observed that their students developed their knowledge of words and that their students felt responsible for their learning. These findings suggest that the two new vocabulary boards successfully created a safe space for the Tongan students to express their learning needs and interests and helped to make learning connections in the *vā* between the teacher and the students.

A concern that the three teachers raised was the gap between the contexts of the stories within prescribed instructional texts and standardised tests and their students' prior knowledge or prior experiences. It is viewed that the gap is not perceived to be a lack of the student prior knowledge or prior experiences; but rather, a gap in the education system. The three teachers believe that Tongan students have prior knowledge

and prior experiences within the Tongan context; however, it may differ to the Euro-centric prescribed texts and the Euro-centric assessments. These issues raise an important concern which requires the support from local, national and international research, leadership and governance (identified in the *Ako Conceptual Framework* as the navigational tools that help guide the education of the Tongan students).

Each teacher mentioned in their interviews in both *Phase One* and *Phase Two* and also demonstrated in the filmed teacher instructions, that in order to make connections between the contexts of the stories and the prior experiences and/or prior knowledge of their students, they conducted brief introductions and conversed with the students in order to make connections prior to the lessons or during the lessons. It is argued then that Tongan students do not lack prior experience and/or prior knowledge but rather there is a gap in the teaching and learning of students which can be filled with the Tongan bilingual teachers' expertise which lies in making connections between the context of texts and student understanding by using the Tongan language.

In relation to the *Ako Conceptual Framework*, the teacher is seen as the *`eikivaka* (navigator), the Tongan students are seen as the *kauvaka* (crew) and the students' learning needs and their learning interests are represented as the *lā* (sail) and the *fanā* (mast). The teacher in this context is responsible for the steering the *fohe`uli* (teachers' inquiry into new knowledge in the development of culturally responsive pedagogies) of the *kalia* (traditional Tongan double hull canoe represented as the education of Tongan students).

The next section presents the comparisons are made on the frequency of instances with which students participated within guided reading lessons in *Phase One* and *Phase Two*.

7.5 Teacher instruction and student participation in *Phase One* and *Phase Two*

In *Phase One*, it was found that within guided reading lessons, the three teachers engaged their students a style of learning that was reflective of problem-based learning (e.g. teacher-centred instruction with minimal contributions made by students). Thereby, with the introduction of the two new vocabulary boards at the beginning of *Phase Two*, the researcher explored whether there were any differences in the frequencies of interaction between *Phase One* and *Phase Two*.

As noted in the previous section, teachers modified their pedagogical practices in *Phase Two* with intentions to focus on vocabulary instruction. With the introduction of the two new vocabulary boards and the support of the school Principals, the teachers reported positive outcomes in their students learning of vocabulary. The modifications in the delivery of English vocabulary instruction which each teacher had spoken of in each of their semi-structured interviews at *Time 5* (mid-year in *Phase Two*) were captured in the filmed observations of class vocabulary instruction at *Time 6* (end of year in *Phase Two*) including the implementation and use of the two new vocabulary boards.

Thereby, this section presents the frequencies of teacher instruction and student participation within guided reading lessons with a specific focus on vocabulary and reading comprehension. For the purposes of making the comparisons between *Phase One* and *Phase Two*, the selection of only two filmed lessons per teacher (out of the

three per teacher) from each phase were focused on guided reading lessons; the other filmed lessons were either vocabulary activities or writing lessons.

At *Time 3* (end of year in *Phase One*) and *Time 5* (mid-year in *Phase Two*), the Tongan bilingual teachers were filmed while delivering class instruction at three different times. Each filmed lesson ranged from approximately 20 minutes to 40 minutes in length of time.

The students' participation within the guided reading lessons were analysed using a coding system similar (see Appendix L) to that of the one used to analyse the teacher instruction (see Appendix K).

Category 1: Defining and Elaborating on Vocabulary

As shown in Table 16, Teacher A had a total of 154 instances of instruction at *Time 5* that focused on *Defining and Elaborating on Vocabulary* during guided reading lessons which was a major increase from the total of 40 instances at *Time 3*. Also, there was an increase in the number of instances that Teacher B focused on *Defining and Elaborating on Vocabulary* at *Time 5* to a total of 61. Although the application of the two new vocabulary boards were not captured in the filming of Teacher C's guided reading lessons at *Time 5* the number of instances of instruction where she had focused on *Defining and Elaborating on Vocabulary* at *Time 3* it was a total 46 instances and at *Time 5* it was a total of 43 instances.

Table 15

Frequencies for 'Defining and Elaborating on Vocabulary' teacher instruction

Guided Reading Lessons ($n=2$)	Time 3 Total frequencies	Time 5 Total frequencies	Diff T3-T6
Teacher A	40.00	154.00	+ 114.00
Teacher B	15.00	61.00	+ 46.00
Teacher C	46.00	43.00	-3.00

Note. Diff T3-T6 = the difference in the total instances between Time 3 (end of year in *Phase One*) and Time 5 (end of year in *Phase Two*). n = number of lessons.

The instances of students' participation in *Defining and Elaborating on Vocabulary* are shown in Table 15. There was a major increase in the number of instances in student participation in Class A from *Time 3* with a total of 19 instances to a total of 83 instances at *Time 5* in the *Defining and Elaborating on Vocabulary* (including the new two new boards at *Time 5*). In addition, the students in Class B had increased participation from *Time 3* with a total of 12 instances to *Time 5* with a total of 31 instances.

Table 16

Frequencies of student participation in 'Defining and Elaborating Vocabulary'

Guided Reading Lessons ($n=2$)	Time 3 Total instances	Time 5 Total instances	Diff T3-T6
Students in Class A	19.00	83.00	+70.00
Students in Class B	12.00	31.00	+ 18.00
Students in Class C	13.00	7.00	- 6.00

Note. Diff T3-T6 = the difference in the total instances between Time 3 (end of year in *Phase One*) and Time 5 (end of year in *Phase Two*). n = number of lessons.

Teacher A and Teacher B were captured on film using the two new vocabulary boards within their guided reading lessons which could be associated with the increases in each of their instruction there were focused on *Defining and Elaborating on Vocabulary*. This is also reflected in the increased student participation within each of their classes as shown in Table 16. Teacher C was not captured on film using the two new vocabulary boards in her guided reading lessons and the slight decrease in the instances that she focused on *Defining and Elaborating on Vocabulary* could be associated with that. In addition, the student's participation had also decreased from a total of 13.00 instances at *Time 3* to a total of 7 instances at *Time 5*.

Category 2: Phonics and Phonemic awareness

Table 17 displays the total instances that each teacher had focused on the *Phonics and Phonemic awareness* during their guided reading instruction. As shown in Table 17, it was observed that Teacher A and Teacher B had minimal instances of focus on the *Phonics and Phonemic awareness* at both *Time 3* and *Time 5*. On the other hand, Teacher C had a total of 95 instances of instruction based on the *Phonics and Phonemic awareness* at *Time 3* but it was reduced to a total of 76 instances. It was noted in Teacher C's interview (at *Time 2* and at *Time 5*) that her focus for vocabulary instruction was based on the spelling and the surface features of vocabulary as she believed that it contributed to the reading comprehension of her students which is reflected in the total instances as shown in Table 17 in comparison to Teacher A and Teacher B's total instances of focus on *Phonics and Phonemic awareness*.

Table 17

Frequencies for 'Phonics and Phonemic awareness' in teacher instruction

Guided Reading Lessons ($n=2$)	Time 3 Total instances	Time 5 Total instances	Diff T3-T6
Teacher A	7.00	5.00	+ 2.00
Teacher B	0.00	5.00	+ 5.00
Teacher C	95.00	76.00	- 19.00

Note. Diff T3-T6 = the difference in the total instances between Time 3 (end of year in *Phase One*) and Time 5 (end of year in *Phase Two*). n = number of lessons.

Table 18 shows a similar pattern occurred with students' participation in teacher instruction which focused on *Phonics and Phonemic awareness* at *Time 3* and *Time 5*. For the students in Class C, the total instances whereby they engaged with *Phonics and Phonemic awareness* during the guided reading lessons were a total of 82.00 instances at *Time 3* and a total of 50.00 instances at *Time 5*.

Table 18

Frequencies of student participation in 'Phonics and Phonemic awareness'

Guided Reading Lessons ($n=2$)	Time 3 Total instances	Time 5 Total instances	Diff T3-T6
Students in Class A	8.00	2.00	- 6.00
Students in Class B	0.00	5.00	+ 5.00
Students in Class C	82.00	50.00	- 32.00

Note. Diff T3-T6 = the difference in the total instances between Time 3 (end of year in *Phase One*) and Time 5 (end of year in *Phase Two*). n = number of lessons.

Category 3: Activating Prior Experiences and/or Prior Knowledge

As shown in Table 19, the total instances of focus on *Activating Prior Experience and/or Prior Knowledge* decreased at *Time 5* for Teacher A and B but it had increased slightly for Teacher C. This suggests that the focus at *Time 5* had shifted from activating the prior experiences and/or prior knowledge of students about the context of the stories onto focusing more on *Defining and Elaborating on Vocabulary* (as shown in Table 15) for Teacher A and Teacher B.

Table 19

Frequencies for 'Activating Prior Experiences and Prior Knowledge' in teacher instruction

Guided Reading Lessons ($n=2$)	Time 3 Total instances	Time 5 Total instances	Diff T3-T6
Teacher A	56.00	12.00	- 44.00
Teacher B	54.00	37.00	- 17.00
Teacher C	0.00	7.00	+ 7.00

Note. Diff T3-T6 = the difference in the total instances between Time 3 (end of year in *Phase One*) and Time 5 (end of year in *Phase Two*). n = number of lessons.

Table 20

Frequencies of student participation in 'Activating Prior Experiences and Prior Knowledge'

Guided Reading Lessons ($n=2$)	Time 3 Total instances	Time 5 Total instances	Diff T3-T6
Students in Class A	19.00	3.00	- 16.00
Students in Class B	15.00	29.00	+ 14.00
Students in Class C	0.00	4.00	+4.00

Note. Diff T3-T6 = the difference in the total instances between Time 3 (end of year in *Phase One*) and Time 5 (end of year in *Phase Two*). n = number of lessons.

Table 20 shows that the total instances of student participation in *Activating Prior Experience and/or Prior Knowledge* increased from *Time 3* to *Time 5* for students in Class B and Class C. However there was a decrease in the total instances of student participation in Class A.

Category 4: Reading Comprehension

Table 21 displays the total instances of instruction in *Reading Comprehension* for Tongan for each teacher. As shown in Table 22, the instances of instruction which centred on *Reading Comprehension* decreased for each teacher at *Time 5*. This could be associated in the increased focus on *Defining and Elaborating on Vocabulary* (see Table 15). Similarly, Table 22 displays a decreased student participation in *Reading Comprehension* instruction.

Table 21

Frequencies for 'Reading Comprehension' in teacher instruction

Guided Reading Lessons (<i>n</i> =2)	Time 3	Time 5	Diff T3-T6
Teacher A Total instances	148.00	31.00	- 117.00
Teacher B Total instances	132.00	82.00	- 50.00
Teacher C Total instances	70.00	62.00	- 8.00

Note. T3-T6 Diff = the difference in the total instances between *Time 3* (end of year in *Phase One*) and *Time 5* (end of year in *Phase Two*).

Table 22

Frequencies of student participation in 'Reading Comprehension'

Guided Reading Lessons (<i>n</i> =2)	Time 3 Total instances	Time 5 Total instances	Diff T3-T6
Students in Class A	80.00	9.00	- 70.00
Students in Class B	65.00	24.00	- 41.00
Students in Class C	42.00	20.00	- 24.00

Note. T3-T6 Diff = the difference in the total instances between *Time 3* (end of year in *Phase One*) and *Time 5* (end of year in *Phase Two*).

Summary of the frequencies of teacher instruction and student participation

In the comparisons between *Phase One* and *Phase Two* frequencies of teacher instruction and student participation within guided reading lessons, there were major increases in the total instances of teacher instruction from *Time 3* to *Time 5* in *Category 1: Defining and Elaborating on Vocabulary*. This suggests that the implementation of the two new vocabulary boards as well as modifications that the teachers made to their pedagogical practices in *Phase Two* are associated with the increased focus on vocabulary instruction particularly within guided reading lessons. Furthermore, there were increased instances of student participation that were related to defining and elaborating vocabulary which suggests that the teachers were engaging the students' learning in a inquiry-based style (e.g. enabling students to co-construct their knowledge about words).

As noted earlier, the use of the two new vocabulary boards were not captured on film at *Time 5* for Teacher C. The instances of teacher instruction linked to defining and vocabulary decreased slightly from *Phase One* to *Phase Two* for Teacher C which reflects the absence of the two new vocabulary boards within those guided reading lesson and supports the claim that the implementation of the two new vocabulary boards in Teacher A and Teacher B's were associated with the increased total instances of teacher instruction and student participation that were linked to defining and elaborating on vocabulary in the guided reading lessons.

Teacher C demonstrated high total instances of teacher instruction that were linked to *Category 2: Phonics and Phonemic awareness*; however, the total number of instances decreased from *Phase One* and *Phase Two*. This was the same also for the total number of instances in student participation that were linked to phonics and

phonemic awareness. Due to the absence of the use of the two new vocabulary boards for Teacher C, this finding indicates that Teacher C's strategies for vocabulary instruction within guided reading lessons centred on phonics and phonemic awareness as opposed to defining and elaborating vocabulary.

For *Category 3: Activating Prior Experiences and Prior Knowledge*, Teacher A and Teacher B's instruction that were linked to activating prior experiences and prior knowledge decreased from *Time 3* to *Time 6*; while Teacher C's instruction had increased slightly from *Time 3* to *Time 6*. Furthermore, for *Category 4: Reading Comprehension*, the total number of instances for all three teachers' instruction that were linked to reading comprehension decreased from *Time 3* to *Time 6*. The decrease in number of instances for teacher instruction that were linked to activating prior experiences and prior knowledge as well as reading comprehension were also reflected in the decreased in the number of instances for student participation in those categories.

It is theorised in this study, that Teacher A and Teacher B's increased number of instances of instruction that were linked to defining and elaborating on vocabulary worked as part of a reading comprehension strategy in guided reading thus enabling students to understand the context. It is not assumed in this study that the decrease in the number of instances of teacher instruction or student participation activating prior experiences or prior knowledge, or in reading comprehension are negative occurrences; instead, this finding suggests that elements of defining and elaborating on vocabulary within the context of a guided reading lesson is closely linked to enabling students to comprehend the text which highlights the links that explicit vocabulary instruction has with reading comprehension.

Furthermore, it is theorised in this study, that the decrease in the number of instances of teacher instruction that were linked to activating prior experiences or prior knowledge based on the teachers' pedagogical practices. In *Phase Two*, the teachers carefully selected texts for guided instruction that were linked to the students prior knowledge and experiences thus reducing the need for them to try and connect the students to an unfamiliar context of a text. The story books used in *Phase Two* included stories were of cultural relevance to the students (e.g. texts about Tonga culture or Māori or other Pasifika cultures). This highlights that the teachers in *Phase Two* took a culturally inclusive approach to reading comprehension and placed their students in a better position to learn, particularly within the guided reading lessons, by providing students with opportunities to build on existing knowledge. To reiterate, while the frequencies for teacher instruction and student participation that were linked to reading comprehension decreased from *Time 3* to *Time 5*; it is theorised that elements of defining and elaborating on vocabulary in *Phase Two* enabled students' learning to transfer onto their comprehension and they were more able to connect the context of the text using prior knowledge and experiences.

Overall, the analysis of frequencies highlights that in the case of defining and elaborating on vocabulary within guided reading lessons, the teachers' increased number of instances of instruction and the increased number of students' participation suggest that the discovery and learning of vocabulary when encountered in text (e.g. in a guided reading lesson) enables connections to be made to the comprehension of text.

Furthermore, with the presence of the two new vocabulary boards in the guided reading lessons within *Phase Two* enabled teachers to engage their students' inquiry-based learning. The analysis of frequencies in this section quantifies the modification to

the teachers' pedagogical practices and the presence of the two new vocabulary boards within the guided reading lessons thus suggesting that increased instances of explicit vocabulary instruction that is student-focused can positively impact on students reading comprehension. This is supported by the longitudinal data from the STAR assessment which demonstrated that by the end of *Phase Two*, the two subtests that demonstrated the highest mean gains from *Time 1* (baseline) to *Time 6* were *Subtest 3: Paragraph comprehension* and *Subtest 4: Vocabulary* (see Table 14).

7.6 Chapter summary

The key findings from *Phase Two* (second year of data collection) are summarised at the end of each section of this chapter. The sections include: the development of the two new vocabulary boards, the STAR achievement results, the collaborative discussions, the interviews with teachers and the analysis of frequencies for teacher instruction or student participation.

In a similar manner to the summary at the end of *Chapter 6*, the following 6 elements from the *Ako Conceptual Framework* is used to explain the key findings from *Phase Two*: the *taumu`a `oe ako* (a purpose for teaching and learning), *founga ako* (knowledge systems), *feinga ako* (learning endeavours), the *vā* (the space where connections and relationships can be formed) between the teacher and the student and the *vā* between the teacher and the Principals and the *lalava* (social connections and professional relationships formed in the *vā*).

The first element is *taumu`a `oe ako* (a purpose for teaching and learning) which includes the focus on vocabulary instruction and reading comprehension. As noted in the previous chapter, this element stems from the research aims and hypothesis of this

study together with the existing research literature at the local, national and international levels (see *Chapter 2*).

The second element is *founga ako* (knowledge systems) which includes the key findings from *Phase Two* collaborative discussions, semi-structured interviews and filmed observations of teacher instruction that focused on vocabulary and reading comprehension.

In *Phase Two*, the three Tongan bilingual teachers modified their vocabulary instruction which saw an increased focus on vocabulary for this particular year. The forms of explicit instruction that were implemented by the teachers in this phase were prevalent particularly in the guided reading lessons. It was also found that vocabulary instruction occurred more frequently in the guided reading lessons in comparison to *Phase One*.

The words that the three teachers pre-selected for explicit instruction in *Phase Two* included high frequency words and content words that were related to the existing topic study for their classes or curriculum. In addition, the teachers in *Phase Two*, pre-selected words from the context of the story that they would work with the students in order to provide students with an opportunity to discuss these words within the context of a guided reading lesson. The introduction of the two new vocabulary boards in *Phase Two* enabled teachers to engage students in an inquiry-based style of learning which allowed students to inquire about words that they encounter in text within the context of a guided reading lesson. This yielded an increase in student participation and teacher instruction which focused on elements of defining and elaborating of vocabulary.

The three teachers' knowledge, beliefs and pedagogical practices regarding vocabulary, reading comprehension and teaching within a Tongan bilingual context were empowered by the collaborative discussions and subsequently becoming information providers for their staff and other schools.

The third element is *feinga ako* (learning endeavours) which includes the key findings from the *Phase Two* STAR achievement data at *Time 4* (beginning of *Phase Two*) and *Time 6* (end of year in *Phase Two*).

Figure 16 shows that 3.64% of students attained stanines within the high range (from 7 to 9) at *Time 4* (beginning of the year in *Phase Two*) which increased to 9.09% by *Time 6* (end of the year in *Phase Two*). Moreover, 50.91% of students as shown in *Figure 14* attained stanines within the mid-range (from 4 to 6) at *Time 4* (beginning of the year) which increased to 72.73% by *Time 6*. At *Time 4* (beginning of the year) there were 45.45% of students that attained stanines within the critical range (from 1 to 3) and by *Time 6*, that figure was reduced to 18.19%. Furthermore, a paired samples t-test indicates a statistically significant difference in the means stanines between *Time 4* ($m=3.78$) and *Time 6* ($m=4.75$); $t(44)=-6.37$, $p<0.01$ with an effect size of $d=0.57$, greater than half a standard deviation.

The STAR achievement data highlighted above demonstrates that the majority of the Tongan students in this study achieved *at or above* the national norm by the end of *Phase Two* which suggests that a large percentage of these students mastered the necessary skills that were appropriate to their age in close reading. Additionally, those students can be identified as frequent readers, good at decoding words in context or in isolation, able to comprehend a wide range of texts and have an extensive vocabulary.

However, while there was a shift in improvement for student learning in reading, there was a small percentage of students who achieved below the national norm thus indicating that vocabulary and reading comprehension remained a rich challenge for them.

In relation to the STAR longitudinal cohort, a key finding (see *Table 12*) highlighted that the difference in the stanine means between *Time 4* and *Time 6* (beginning and end of year in *Phase Two*) occurred at a greater rate in comparison to the difference in the stanine means between *Time 1* and *Time 3* (beginning and end of year in *Phase One*) for *Subtest 3: Reading comprehension* and *Subtest 4: Vocabulary*. This is a key finding as the introduction of the two new vocabulary boards coupled with the modifications to vocabulary instruction that the teachers had made occurred in *Phase Two*. This finding suggests that the vocabulary learning and reading comprehension in *Phase Two* were impacted positively on students by the educational intervention. As a reminder, the longitudinal cohort consists of the students who were present in both *Phase One* and *Phase Two* and were tested using the STAR assessments.

The fourth element is *the vā between the teacher and students*. As explained in *Chapter 4*, the concept of *vā* is identified in the *Ako Conceptual Framework* as the space between people where social connections and professional relationships can be formed. The Tongan concept of *vā* differs to Western notions of ‘distance between or distance apart’ as *vā* is seen as one of the Tongan values that helps to foster and govern social connections and professional relationships.

From the key findings in *Phase One*, it was found that the filmed observations of teacher instruction demonstrated that the interaction between the teachers and the

Tongan students, particularly within guided reading lessons, were mainly teacher led with minimal contributions made by the students. Furthermore, students did not query about unknown or unfamiliar words that they might have encountered in their text during guided reading lessons which suggests that there were moments where opportunities for teaching and learning were missed. This changed in *Phase Two*.

In *Phase Two*, a key finding from the analysis of frequencies of teacher instruction and student participation within guided reading lessons was that there was an increase in the number of instances on teacher instruction and student participation in relation to elements of defining and elaborating on vocabulary. This suggests that the introduction of the two new vocabulary boards and the modifications in the pedagogical practices of the teachers had made a positive impact on the learning style that teachers engaged their students in and in this particular case, vocabulary instruction in guided reading lessons shifted from a problem-based style of learning exhibited in *Phase One* to a inquiry-based style of learning in *Phase Two*.

As with *Phase One*, the bilingual medium of instruction provided across all classrooms contributed to the culturally inclusive approach that the teachers exhibited in their pedagogical practices thus strengthening the *vā* between the teacher and their students.

Furthermore, the key findings highlighted here indicate that there were learning connections that were being made in the *vā* between the teacher and their students thus demonstrating a student-focused and hands-on pedagogy reflective of inquiry-based learning with a co-constructivist approach to learning.

The fifth element is *the vā between the teachers and the Principals* which includes the collaborative discussions which took place at *Time 5* (mid-year of *Phase Two*). The social connections and professional relationships are deemed pertinent in the successful navigation of the education of all students. In the case of this study, a key finding in *Phase Two* was observing the *vā* between the Tongan bilingual teachers and their school Principals as they work collaboratively to discuss the reading achievement and vocabulary instruction of Tongan students at their school, and in following, present the two new vocabulary boards at staff meetings at their school as well as other schools. This demonstrates that the *vā* between the Tongan bilingual teachers and their school Principals are valued, are of importance and are maintained in the quest for academic success of their students.

The next element is the *lalava* (the lashing) which includes the collaborative discussions at *Phase One* and *Phase Two*, and the two new vocabulary boards. As a reminder, the *lalava* in the context of the *Ako Conceptual Framework* is the sennit that ties, binds and holds all the components of the *kalia* (double hull canoe). The *kalia* in the context of the *Ako Conceptual Framework* is a metaphorical representation of the education of Tongan students.

In the context of this study, the *lalava* is a metaphorical representation of the social connections and professional relationships that bind, ties and holds together all components of the education of Tongan students. The meetings where the collaborative discussions took place in *Phase One* and *Phase Two* brought together:

- *fakatou katea* (double hulls) = school settings and student's background
- *lā* (sail) and *fanā* (mast) = students' learning needs and learning interests

- *fohe`uli* (steering oar) = the teachers' inquiry into new knowledge and the actions they take towards aligning their *founga ako* (knowledge systems) associated with effective teaching practice
- *`eikivaka* (navigator) = teacher/expert

The binding of knowledge systems, expertise and leadership becomes a matter of priority in the understanding and theorising of education of Tongan students in the quest for academic success.

As a result of these collaborative discussions, the application of the two new vocabulary boards unexpectedly extended beyond the parameters of this study which saw teachers from other classes and other schools climb on board by implementing the two new supplementary resources within their literacy programmes. This finding suggests that social connections and professional relationships can become effective agents of change in the education of not just the Tongan students in this study, but all students across all sectors of the education system.

In addition, the two new vocabulary boards that were designed by the researcher and implemented by the teachers in *Phase Two* can also be seen as the *lalava* in the context of the *Ako Conceptual Framework*. As mentioned earlier, the two new vocabulary boards enabled learning connections to be made in the *vā* between the teachers and their students thus shifting their learning experiences in vocabulary learning within guided reading lessons from a problem-based style of learning to an inquiry-based style of learning. As a result, positive learning outcomes were achieved.

The key findings from *Phase Two* highlight positive outcomes within the STAR achievement data thus indicating statistically significant gains in achievement scores for the Tongan students on this study. The overall findings of this study (across both phases) will be discussed further in the next chapter.

Chapter 8: Discussion

8.0 Chapter overview

The preceding chapters have highlighted the following: existing research literature that have informed this study and the lacuna in existing literature; the development and application of the *Ako Conceptual Framework* as well as the two new vocabulary boards; the observations and data collection methods which took place over *Phase One* (first year of data collection) and *Phase Two* (second year of data collection) and the key findings which derive from the two phases. As a reminder, *Phase One* is the first year of data collection and *Phase Two* is the second year of data collection. In each year, there were three time points at which data was gathered: Time 1 to Time 3 in *Phase One* and Time 4 to Time 6 in *Phase Two*.

This chapter amalgamates the preceding chapters in order to address the research aims, hypothesis and the research questions. As a reminder, the research aims for this study were to theorise and find an approach that may contribute to raising the academic achievement of Tongan students in the areas of vocabulary development and reading comprehension. The hypothesis for this study was that explicit vocabulary instruction, using an educational intervention, can positively impact on Tongan students' reading comprehension and contribute to the improvement of their reading achievement.

Furthermore, the research questions for this study were:

1. What are the Principals' and teachers' knowledge and beliefs about the teaching of English vocabulary in relation to English reading comprehension for Tongan students within Tongan/English bilingual classes?

2. How will an educational intervention contribute to improving English reading comprehension for Tongan students?

3. What concepts might contribute to the development of a Tongan specific conceptual framework that would help to navigate, understand and theorise the teaching and learning of Tongan students in New Zealand?

This chapter presents the following: links to the research questions; conclusion; implications; limitations and future prospects for research.

8.1 Links to the research questions

Addressing research question number one

The first research question for this study was: What are the knowledge and beliefs of Principals and Tongan bilingual teachers regarding English vocabulary instruction and English reading comprehension for Tongan students within Tongan and English bilingual classes?

To explore research question number one, semi-structured interviews were carried out by the researcher with each Tongan bilingual teacher and each school Principal at *Time 2* (mid-year in *Phase One*) and again at *Time 5* (mid-year in *Phase Two*). The semi-structured interviews were to gauge teachers' and schools Principals' knowledge and beliefs regarding English vocabulary instruction, reading comprehension as well as their experiences within the Tongan bilingual units at their school. In addition, filmed observations of teacher instruction took place at *Time 3* (end of year in *Phase One*) and repeated at *Time 5* (end of year in *Phase Two*). Furthermore, meetings were organised

by the researcher whereby collaborative discussions transpired, these meetings were hosted within each phase: *Time 2* (mid-year in *Phase One*), *Time 4* (beginning of the year in *Phase Two*) and *Time 5* (mid-year in *Phase Two*).

Bilingual education strengthens home and school partnerships

In the *Phase One* semi-structured interviews, the school Principals explained that the proposals that led to the establishment of the Tongan bilingual units within each of their schools arose from the Tongan parents and the local community. The primary goal for the parents and the communities was to enable their children to be educated within a classroom that utilised the Tongan language as well as the English language. The parents believed that a dual language medium of instruction within a Tongan bilingual unit would contribute positively to the academic success of their child(ren) and also contribute positively to their child's social and cultural development. The schools' decision to establish the Tongan bilingual units on site is aligned with the notion that bilingual education offers many social, cultural, attitudinal and intellectual advantages as well as obvious linguistic ones (Holmes, 1987).

Vocabulary instruction and reading comprehension are interrelated

The school Principals' knowledge and beliefs about vocabulary instruction and reading comprehension in *Phase One* provided context and insight into their perspectives which were reflected in the Tongan bilingual teachers' knowledge and beliefs. Principal A expressed that effective vocabulary instruction can enable students' achievement to meet or exceed the expected level nationally. This suggests that English vocabulary instruction would need to be thorough, comprehensive, generative and consistent for students. Principal B's assertion was that English vocabulary instruction should be contextualised as he has seen students gain from rich learning environments.

Both Principals indicated that their school offers ESOL classes as well bilingual units to assist with the English literacy development of their students. They also indicated that their schools work collaboratively with other schools to help with professional learning and to find ways to help raise the literacy achievement of students. The literacy programmes within their schools were a priority and teachers were expected to include vocabulary instruction within their pedagogical practices.

The knowledge and beliefs of the three teachers about vocabulary development, vocabulary instruction and reading comprehension were aligned with their school Principals' beliefs. The teachers believe that vocabulary instruction must have a multi-component approach in order for students to be exposed to different encounters with vocabulary across the curriculum. This is consistent with Nation's (2008) assertion that teachers would need to incorporate different methods of teaching in order to enable their students to learn English words that can be generative and productive.

The Tongan students in this study were exposed to vocabulary instruction that went beyond rote learning. Among the multi-component approach that the three teachers had to vocabulary instruction were the following pedagogical practices: building students phonological and phonemic awareness, encouraging students to generate synonyms from their existing oral vocabulary, engaging students in contextually-based instruction that were culturally relevant, linking students prior knowledge or prior experiences and finding definitions of words from a dictionary and if words have multiple meanings encouraging students to decipher which meaning of the word would fit the context of the text or lesson.

Furthermore, the metalinguistic awareness of the Tongan students within this study was enriched within the Tongan bilingual classroom as they began to recognise and understand that statements have a literal meaning and an implied meaning. For example, they were able to identify language features within the guided reading lessons such as the authors' use of personification, metaphors, past tense verbs and so forth. These concepts require the child to understand the subtleties of a social and cultural context.

A culturally inclusive approach to the education of Tongan students is beneficial

The data from this study (see *Chapters 6 and 7*) demonstrates that the PCK of the three teachers were culturally responsive to their students' learning needs in *Phase One*; however, there were areas in each teacher's pedagogical practice that required extension in order to engage students as active participants of their learning.

It was observed in *Phase One* that the learning style by which the three teachers engaged their students in, particularly for vocabulary instruction in guided reading lessons, were largely reflective of a problem-based style of learning (e.g. teacher-centred instruction with minimal contributions made by the students). However, in *Phase Two* there was a shift in the three teachers' PCK when they modified their pedagogical practices to provide an inquiry-based style of vocabulary learning (e.g. student-focused and hands-on within guided reading lessons (as shown in *Chapter 7*).

The modifications that the teachers made to their vocabulary instruction within guided reading lessons and the implementation of the two new vocabulary boards reinforced social interactions within the context of a lesson thus enabling students to

participate in the lessons more frequently as they inquired about vocabulary that they would like to know more about or that they find fascinating.

Thaman (2009b) describes that in informal contexts Tongan people learn largely through observation, listening, and imitating those who already possess the desired skills or knowledge which in a cultural sense, the more reserved Tongan students were more inclined to inquire about words through observing, listening and imitating their peers. The three teachers described that the two vocabulary boards empowered students to feel confident about their learning and to be proud about their inquiries about known or unknown vocabulary.

Providing experiences or activities to help consolidate vocabulary learning

In order for vocabulary instruction to be generative and productive, students must be able to encounter and use vocabulary (that is selected for explicit instruction) in different contexts. The Tongan bilingual teachers' knowledge and beliefs about vocabulary instruction and vocabulary development were reflected in the activities that they organised for students subsequent to guided reading lessons. For example, the words that were posted onto the new vocabulary boards by the students as part of their inquiry within guided reading lessons, were either recorded by the teacher or by the students for further learning or students were encouraged to demonstrate their understanding of the word meanings by including the word(s) that they had inquired about into their writing.

Furthermore, Principals' in the semi-structured interviews as well as in the collaborative discussions (at Time 5, mid-year of *Phase Two*) highlighted that they include school trips to provide students with rich experiences that they can apply to their

learning in class. Additionally, the three teachers described in the collaborative discussions that they also implement class activities that would provide students with rich experiences that may be linked to the curriculum, for example, planting a vegetable and herb patch outside their classroom.

Purposeful and intentional selection of texts to assist with reading comprehension

The Tongan bilingual teachers recognise that, according to Perez (2004), the prior knowledge and prior experience of students are perhaps one of the important elements that influence children's ability to read with high levels of comprehension and to write coherent and cohesive texts. Thereby, the Tongan bilingual teachers in this study identified that the purposeful and intentional selection of texts for guided reading instruction, and/or for other instructional purposes, is a method that they use to bridge the gap between context of the text and students' prior knowledge and prior experiences, in order to enable students' understanding of the text and assist with their fluency of reading. This is aligned with the notion that good readers of English think actively as they read and as they engage in their experiences and knowledge of the world, their knowledge of English vocabulary and their knowledge of reading strategies for English texts.

Principals' and teachers' pedagogical content knowledge (PCK)

Existing research suggests that teachers need both content knowledge and the pedagogical knowledge in order to be effective teachers (Lai & McNaughton, 2010; Parr, 2010). For example, Lai and McNaughton (2010) state that if teachers do not have sufficient pedagogical content knowledge to know what to do next after analysing student achievement data, then opportunities to build on and enhance student learning may be missed. Furthermore, without extensive pedagogical content knowledge,

teachers may select and implement strategies that might not meet the learning needs of their students.

While this study did not engage in an in-depth analysis of Principals' and teachers' PCK, the data gathered suggests that the Principals' PCK were aligned with the schools' priority for literacy development and achievement. This was demonstrated in the professional learning with which each school were a part of. Furthermore, the data suggests that the Tongan bilingual teachers' PCK enabled them to be responsive to the students' learning needs particularly in vocabulary learning and reading comprehension thus yielding positive learning outcomes.

Addressing research question number two

The second research question for this study was: How will an educational intervention contribute to improving English reading comprehension for Tongan students?

Question Two was devised to test the hypothesis for this study. To reiterate, the hypothesis for this study was: that explicit vocabulary instruction, using an educational intervention, can positively impact on Tongan students' reading comprehension and contribute to the improvement of their reading achievement.

The educational intervention included collaborative discussions with participants, the development and provision of supplementary teaching resources and in general the data collection process.

To explore this question, this study profiled the English reading achievement of a group of 101 Tongan students within the middle and upper levels of primary schools in New Zealand using the STAR assessments which provided a baseline forecast of the expected trajectory of development that might exist if the planned intervention had not taken place. In addition, using the key findings from *Phase One*, the researcher designed and developed the two new vocabulary boards as supplementary teaching resources for teachers to include in their vocabulary instruction particularly in guided reading. Furthermore, the *Ako Conceptual Framework* was developed by the researcher within the parameters of this study and used to explain the vā between the teacher and the students and the learning connections that can be made with the use of the two new vocabulary boards within guided reading lessons.

To answer research question number two in brief, this study demonstrates that by using an educational intervention, the explicit instruction of vocabulary contributed positively to the reading comprehension of Tongan students in this study and their reading achievement, thus accepting the hypothesis to be true. The following subsections explain how.

Social connections and professional relationships can become effective agents of change

The meetings which took place at *Time 2* (mid-year in *Phase Two*) saw collaborative discussions take place which enabled participants to speak freely about topics at hand. Within these collaborative discussions, social connections and professional relationships were formed, nurtured or maintained with a common goal, to engage students in vocabulary learning that will contribute positively to their reading comprehension.

In the final meeting, which took place at *Time 5* (mid-year in *Phase Two*), an unexpected outcome arose. The Principals invited the Tongan bilingual teachers to present the two new vocabulary boards to their staff and other schools. This demonstrated the level of support that the Principals' had for their teachers by providing them with an opportunity to become information providers. As a result, other teachers began to focus on explicit vocabulary instruction that was reflective of an inquiry-based learning.

Tongan students are active participants of their learning

As noted earlier the key findings from *Phase One* contributed to the key elements of the rationale for the development of the two new vocabulary boards (see the *chapter summary* at the end of *Chapter 6*). In so doing, the implementation of the two new vocabulary boards, by the teachers in *Phase Two*, were included in their guided reading lessons. The vocabulary that students inquired about, using the two new vocabulary boards within the context of a guided reading, were then discussed, defined or elaborated by the teachers. Thus, students were engaged in interactive lessons which saw their participation in dialogue and inquiry increase in *Phase Two* in comparison to *Phase One*.

Essentially, the two new vocabulary boards helped to build and reinforce students' identities given that silence is an active and a living component of Pasifika culture as explained by Tuafuti (2013). She asserts that Pasifika children at times are non-responsive during classroom lessons (even with a teacher who shares the same cultural and linguistic background). Tuafuti (2013) states:

“Traditionally, children are to be seen but not heard. To listen and obey without question is the traditional dictum and to question an authority is a sign of disrespect and impoliteness.” (p. 88)

In light of the culture of silence, the use of the two new vocabulary boards enables students to challenge that silence in their *feinga ako* (learning endeavours) in the quest for academic success. The Tongan students in this study were observed to become active participants in their learning when it came to guided reading lessons with the use of the two new vocabulary boards. The Tongan students in this study recognised that their contributions and/or participation during vocabulary instruction and/or in guided reading lessons were valued and expected by their teachers, which contributed to students’ self-esteem, their confidence and their intrinsic motivation for learning vocabulary development and reading comprehension.

Stahl and Nagy (2006) explained that to have a desired impact, English vocabulary instruction must not only teach words but also help students develop an interest in words. The two new vocabulary boards created a safe space or safe platform for student-focused interactions to transpire thus promoting the learning of vocabulary and developing their interest in words and the contexts which they are used in. These student-focused interactions provided students with opportunities for identity formation and critical inquiry. Students in this sense became co-experts, by identifying and selecting words during their guided reading lessons and by initiating discussion.

Without the use of the two new vocabulary boards in this study, vocabulary learning and/or reading comprehension instruction might have remained abstract for the students. Therefore, opportunities for teaching and learning might have been missed.

The implementation of the two new vocabulary boards granted the students with the permission, the responsibility and opportunities to co-construct their learning of vocabulary with their teacher. In turn, the increased instances of teacher instruction linked to elements of defining and elaborating on vocabulary (explicit teaching of English vocabulary), yielded increased instances of student participation. It is theorised in this study, that the two new vocabulary boards fostered word consciousness within the classroom particularly in guided reading which contributed positively to their vocabulary learning and reading comprehension.

Statistical evidence that support the acceptance of the hypothesis to be true

The analysis of frequencies in teacher instruction and student participation within guided reading lessons quantifies the modification to the teachers' pedagogical practices and the presence of the two new vocabulary boards suggests that increased instances of explicit vocabulary instruction that is student-focused can positively impact on students reading comprehension (see Tables 15 and 16).

The longitudinal data from the STAR assessment demonstrates that by the end of *Phase Two*, the two subtests that demonstrated the highest mean gains from *Time 1* (baseline) to *Time 6* were in *Subtest 3: Paragraph comprehension* and *Subtest 4: Vocabulary* (see Table 14) which were both statistically significant with large effect sizes. This key finding demonstrates that across two years, the Tongan students within the longitudinal cohort made statistically significant shifts in their reading achievement which could be associated with the focus on vocabulary development and vocabulary instruction in relation to reading comprehension. Furthermore, these findings suggest that the implementation of the two new vocabulary boards in *Phase Two* might also be

associated with the statistically significant gains in mean scores and the large effect sizes.

Furthermore, the subtest analysis for across classrooms (see Table 13) demonstrates that Class A made statistically significant mean stanine gains at each phase, Class B showed a positive shift in mean stanines in *Phase Two* in comparison to *Phase One*, and Class C made positive shifts in mean stanines in both *Phase One* and *Phase Two* with a statistically significant difference in the mean stanines between *Time 1* and *Time 6* (with a large effect size).

The overall comparisons that were made between the stanine distributions in *Phase One* and *Phase Two* (see Table 10) showed that the percentages of students that attained stanines *below* the national norm (1 to 3) was reduced by the end of each phase with a greater reduction (-27.27%) in *Phase Two*. This indicates that in *Phase Two* there was a larger percentage of students that shifted from attaining critical stanines from 1 to 3 (*below* the national norm) to attaining stanines within the typical range nationwide from 4 to 6 (*at* the national norm) in comparison to *Phase One* (-12.86%). What this demonstrates is that the focus of this study (on English vocabulary development, English vocabulary instruction in relation to English reading comprehension) led teachers to modify their classroom instruction which could be associated with the larger percentage shifts in *Phase Two* thus providing evidence which support the hypothesis. Importantly, the larger percentage of students that shifted from achieving *below* the national norm in *Phase Two* also signifies that by the end of this study, the gap in underachievement for these Tongan students was narrowed.

The statistical evidence presented in this section support the acceptance of the hypothesis for this study that explicit vocabulary instruction, using an educational intervention, can positively impact on Tongan students' reading comprehension and contribute to the improvement of their reading achievement.

Addressing research question number three

The third research question for this study is: What concepts might contribute to the development of a Tongan specific conceptual framework that would help to navigate, understand and theorise the teaching and learning of Tongan students in New Zealand?

To explore this question, the researcher considered the concept of Tongan families leaving familiar shores (e.g. Tonga) to embark on a journey into new shores (e.g. New Zealand) and therefore used the ancient art of Tongan navigation in *moana* (ocean) voyages as a metaphor to help contextualise and theorise the education of Tongan students within this study. Descriptions of the navigational tools used by the ancient Tongan navigators were applied as metaphorical representations at the macro level to contextualise the education of Tongan students. Furthermore, descriptions of the construction of the *kalia* (a traditional Tongan double hull canoe), were also applied as metaphorical representations at the micro level to contextualise the education of Tongan students.

The rationale for the *Ako Conceptual Framework* is to offer a new approach on which to base sound and pragmatic decision making about the education of Tongan students living in New Zealand. The implication of this Tongan specific conceptual framework is that it can contribute culturally relevant notions and fundamental concepts

to the considerations for developing culturally inclusive approaches or culturally responsive pedagogies. The *Ako Conceptual Framework* adds to the existing Tongan, Pasifika and traditional Western frameworks, models and approaches within the educational field.

The fundamental concepts which will be highlighted here are as follows:

Taumu`a `oe ako (purpose for teaching and learning)

- *fonua* (land, people of the land)

Founga ako (knowledge systems)

- *knowledge by observation: vakai* (to look at, give attention, to consider)
- *knowledge by instruction: ako`i* (to teach)
- *knowledge by application: ngāue`aki* (to work with)
- *knowledge by discussion: talanoa or fealea`aki* (to talk, to discuss)

Feinga ako (learning endeavours)

- *`aonga* (useful, helpful, effective, worthwhile, necessary)
- *mahu`inga* (essential, important, valuable, vital, worth)

Vā

- *the space where social connections and professional relationships can be formed*

There were many Tongan concepts that are embedded within the *Ako Conceptual Framework* which reflect the complex profession of teaching and the challenges that co-exist with the promotion of student learning. Using the *Ako Conceptual Framework*, it is theorised that education for Tongan students in New Zealand and abroad needs to be cohesive to ensure that the *founga ako* is effective, the *feinga ako* resonates with students and teachers and that the *taumu`a `oe ako* is to be fulfilled and achieved well.

In so doing, the Tongan concept of *vā* and its derivative *tauhi vā* are integral to the educational quest for academic success for Tongan students.

It is pertinent to form social connections and professional relationships in the *vā*; however, it is theorised that in order to strengthen the education of Tongan students, *tauhi vā* (a Tongan strengths-based value explained in *Chapter 2*) needs to be followed through, which is to nurture and maintain the social connections and professional relationships that have been established. By this means, working towards enhancing the reading achievement of Tongan students, and in general English language learners, will be managed positively in a collaborative and culturally inclusive approach.

The *Ako Conceptual Framework* does not seek to homogenise the identity of Tongan students; but rather, to reclaim and set apart the strengths-based principles, values and educational concepts of a Tongan learner from that of the Pasifika group, an ELL, an ESOL learner and a bilingual learner. It is recognised that Tongan students are reared in homes with distinct socialisation processes and they arrive at formal education with family literacy practices that are inextricably bound to the Tongan culture. It is theorised that the culturally relevant notions and the fundamental concepts (as identified above) which underpin the *Ako Conceptual Framework* should be aligned in order to help contribute to the considerations in the development of culturally responsive pedagogies for Tongan students in New Zealand and abroad.

Furthermore, the education of Tongan students, as represented in the *Ako Conceptual Framework*, exist within pluralistic global societies whereby local, national and international influences can be used to help guide Tongan students in achieving successful outcomes. These influences are identified in the *Ako Conceptual Framework*

at the macro and micro levels. Hence, navigation is the art of taking a vessel from one location to another; similarly, the education of Tongan students is to ideally move students from one level of achievement to the next.

8.2 Conclusion

The findings from this study have provided evidence that accepts the hypothesis that explicit instruction of vocabulary using an educational intervention can contribute to higher achievement levels in English reading comprehension for Tongan students. This study focused on a group of 101 Tongan students within the middle and upper levels of primary schools in New Zealand by profiling their reading achievement before and after the use of an educational intervention. Thus, this study supports the argument for ethnic specific studies to develop more useful and meaningful data in the quest to address the learning needs of different groups of Pasifika students not only in New Zealand but also in Pacific Island countries generally.

The findings from this study are similar to Amituanai-Tolosa's (2005) study in that it found that developing students' vocabulary knowledge can have a positive impact on students' reading comprehension. However, the difference with this study was that explicit vocabulary instruction was central to the research design including the development of the two new vocabulary boards and the development of the *Ako Conceptual Framework*.

This study offers the two new vocabulary boards as a culturally inclusive approach to vocabulary instruction thus addressing the learning needs and learning interests of Tongan students. The two new vocabulary boards can be generalised into mainstream classrooms with students of other ethnic groups as well as age-groups. Reflective of an inquiry-based learning; socio-cultural theory (e.g. Vygotsky's Zone of

Proximal Development); and a co-constructivists view of learning; the two new boards highlight that learning and development are interrelated and occurs in a dynamic process by which children become active participants in their learning through the use of language and interaction with others. The motivation for learning and using words increased because the students were provided with a safe space or safe platform to base their inquiry upon. Furthermore, the findings support Henry, et al. (1999) study by demonstrating that teachers were able to influence word consciousness within their classrooms and in turn, it encouraged positive student perceptions about vocabulary thus enabling students to feel confident about their learning and how they express their learning needs.

The findings in this study demonstrate that the teaching and learning links made between the teachers and students were culturally inclusive. For example, teachers connected to the students' prior experiences and prior knowledge by delving into aspects about Tonga, traditional Tongan practices and cultural values. By this means, this study offers the *Ako Conceptual Framework* with conceptual propositions to contribute to the considerations in the development of culturally inclusive approaches and culturally responsive pedagogies. The *Ako Conceptual Framework* offers fundamental concepts, *taumu`a `oe ako* (purpose for teaching and learning), *founga ako* (knowledge systems) and *feinga ako* (learning endeavours) and the *vā* (the space where social connections and professional relationships can be formed, nurtured and maintained), for considerations in order to find new ways to help raise the achievement of Tongan students and in general English language learners in New Zealand and abroad. Therefore, this study contributes culturally relevant knowledge systems and new information to the field of education in New Zealand.

8.3 Implications

There are a number of implications that this study offers for teachers, schools, researchers and policy developers. The following sub-sections highlight the implications.

Implications for the use of the two new vocabulary boards

While the two new vocabulary boards were used in this study during guided reading lessons, an implication for teachers may be to implement the boards where it is deemed beneficial for the student learning to occur. These boards can be generalised onto other curriculum areas as well as to all students across the education sector.

Another implication for teachers is to prepare follow-up activities for students after a lesson which has included the use of the two new vocabulary boards to ensure that students receive ample opportunities in using the vocabulary that they have inquired about. Furthermore, in defining the vocabulary that students inquire about, an additional implication is to explore the different concepts of words and the utility and meanings in different contexts in order to expand the students' knowledge and understanding about English words. In so doing, students could construct meanings about words and the context in which they are used in the text. This is consistent with Hart & Risely's (1995) assertion that more extended talk is associated with higher rates of vocabulary development and that teacher elaborations and feedback play an important role in increased word knowledge.

Implications for teachers of Tongan students

Tongan students are among Pasifika students who are raised and taught that silence is an active and a living component of culture (Tuafuti, 2013). The two new

vocabulary boards thereby granted permission for students to take responsibility for their learning thus allowing the students to be active participants of their learning. Thereby, it is theorised that English language development for Tongan students within the context of a classroom may require a culturally inclusive approach that will provide a safe space or safe platform for students to inquire about their learning.

Furthermore, the culturally relevant notions embedded within the *Ako Conceptual Framework* can be applied to other curriculum areas (other than vocabulary and reading comprehension) by exploring the fundamental concepts:

Taumu`a`oe ako (purpose for teaching and learning)

- *fonua* (land, people of the land)

Founga ako (knowledge systems)

- *knowledge by observation: vakai* (to look at, give attention, to consider)
- *knowledge by instruction: ako`i* (to teach)
- *knowledge by application: ngāue`aki* (to work with)
- *knowledge by discussion: talanoa or fealea`aki* (to talk, to discuss)

Feinga ako (learning endeavours)

- *`aonga* (useful, helpful, effective, worthwhile, necessary)
- *mahu`inga* (essential, important, valuable, vital, worth)

Vā (the space between)

- *the space where social connections and professional relationships can be formed*

Generally, the rationale for the *Ako Conceptual Framework* is to offer a new approach on which to base sound and pragmatic decision making about the education of Tongan students living in New Zealand. The implication of this Tongan specific

conceptual framework is that it can be seen as a contribution to considerations for developing a culturally responsive pedagogy thus adding to the existing Tongan, Pasifika and traditional Western frameworks, models and approaches within the educational field.

Implications for teachers and schools in New Zealand and abroad

The data gathered in this study demonstrate that explicit vocabulary instruction within guided reading lessons, using the two new vocabulary boards, can contribute positively to reading comprehension. The Tongan bilingual teachers in this study were observed to shift their vocabulary instruction from problem-based learning to engaging their students in inquiry-based learning which yielded positive learning outcomes. An implication for teachers and schools in New Zealand and abroad may be that a transformative pedagogy is required in order to help raise student achievement.

In addition, a cultural implication for teachers and schools in New Zealand and abroad is to consider the Tongan concept of *vā*, which in the context of study is referred to as the space where social connections and professional relationships can be formed, nurtured and maintained. Thus, undertaking professional development or professional learning that informs culturally inclusive pedagogical practices may help to bridge the learning gap and/or cultural gap.

Implications for local, national and international research, governance and leadership

This study addresses issues in existing research on the literacy instruction and student achievement of Pasifika students in New Zealand and the implications provide a positive approach forward. Firstly, the differences in the patterns and conventions of

teaching, learning, communication and participation that Pasifika students (including Tongan students) have to those of Western-style schools might not be recognised and may contribute to the issues in Pasifika low achievement or underachievement (Taufe`ulungaki, 2009a). Secondly, there is paucity in written research on the professional learning for teachers of Pasifika learners in New Zealand which is a concern in addressing Pasifika achievement and finding solutions to the problem of underachievement. An implication of this study for local, national and international research, governance and leadership is to continue to provide research-based evidence that informs culturally responsive pedagogies, culturally inclusive approaches to learning and professional learning for teachers of Pasifika students (including Tongan students) and in general English language learners in New Zealand.

Furthermore, the Tongan bilingual teachers raised concerns about the instructional texts and the standardised tests that have predominantly Euro-centric contexts, which they have observed to be quite often unrelated to the prior knowledge and the prior experiences that some Tongan students arrive at formal education with. Thereby, local, national and international research, governance and leadership might need to examine if indeed this is a short-fall within the New Zealand education system.

8.4 Limitations

There are limited numbers of Tongan bilingual units established in primary and intermediate schools in New Zealand which meant that for this study, measuring the English reading achievement and the impact of the intervention remains a rich challenge. The limited numbers of bilingual units meant also that the sample in this study was small.

In addition, Tongan students within mainstream classes were not a part of this study. Their participation could have perhaps enriched this study. Furthermore, while the schools used other standardised tests, the STAR reading test was the only common standardised test in the schools that was used as a measure within this study.

8.5 Future prospects for research

The future prospects for research include a replication study on a larger scale; the examination of the form of questioning that teachers use within guided reading lessons and the impact that it can have on vocabulary development; the examination of PCK in relation to the development of culturally responsive pedagogies aimed at enhancing academic achievement of Tongan students; and the examination of student voices within literacy lessons and how it can inform pedagogical practices.

This study highlights how a culturally inclusive approach to vocabulary instruction can positively impact the reading comprehension of Tongan students thus improving their reading achievement. This study contributes to the quest for academic success in literacy for Tongan students in New Zealand with reminders of the art of ancient Tongan navigation and the Tongan proverb *`Osi kia Velenga*, thus encouraging young learners to persevere and to do the best that they can in their learning.

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APPENDICES

APPENDIX A

PRINCIPAL/BOARD OF TRUSTEES PARTICIPANT INFORMATION SHEET

Title of the study: Investigating the relationship between vocabulary instruction and reading comprehension for students in Tongan bilingual classes.

Researcher: Maryanne Pale

My name is Maryanne Pale and I am currently studying at the University of Auckland undertaking a Doctor of Philosophy degree in Education (PhD).

This study aims to examine the validity of the general claim that vocabulary acquisition is related to reading comprehension. Specifically, it will test the hypothesis that explicit vocabulary instruction can increase English vocabulary and enable children to encounter incidental vocabulary acquisition, thus positively impacting on English reading comprehension and raising reading achievement. Explicit vocabulary instruction is known to include definitional and contextual information about each word's meaning and involves children's active processing of new word meanings and concepts surrounding a new word. On the other hand, incidental vocabulary acquisition occurs when a child is able to determine a new word when used in text or oral language by accessing their prior knowledge and/or the understanding of the context, concept or morphological structure that is represented by a particular word.

Data collection will be carried out from May 1st 2008 to November 30th 2009 at your school. There will be two phases in this study, *Phase One* will be in 2008 and *Phase Two* will be in 2009. I request access to your school and the records of the students in the Tongan Bilingual Class in which this study will take place. The study will look at the Supplementary Tests of Achievement in Reading (STAR) and/or the PPVT tests and/or BURT word reading test. If these assessments are already collected by your school, I request permission to access this information prior to the study commencing and during the study in order to examine vocabulary acquisition and reading comprehension.

In addition, at each phase, class vocabulary instruction will be filmed to assist me in my understanding of English vocabulary development and the English reading achievement that occurs within a Tongan bilingual class. It will also help me develop ideas to enhance effective teaching of English vocabulary and English reading comprehension in Tongan bilingual classes. For the students who do not wish to participate in this study, they will not be captured on any filmed recordings nor anything that they would say be transcribed. They will go about their normal class routines.

Furthermore, interviews of 20 minute duration at each phase will be conducted with the Principal or the Deputy Principal and the teacher in the Tongan bilingual class to gauge their belief, ideas and pedagogical content knowledge of how English vocabulary is being taught and should be taught. These interviews will assist me with understanding their perspectives which will also help develop ways to enhance effective vocabulary teaching in literacy development. Upon permission, the interviews will either be audio-recorded or filmed for transcriptional purposes. Each participant will have an opportunity to view and edit their interview transcript and the final copy of the transcript can be made available to them upon their request.

I would like your assurance that student and teacher participation are voluntary and that their participation or non participation will not influence their relationship with the school or their access to school services.

If you decide to withdraw your school and/or any information that you have provided, at any time up until 31st July 2008 which is one month after the first lot of interviews have taken place, you should feel free to do so without having to give any reason and this will be completely respected. Any data already collected from you will not be used in any way.

The name of the school and the names of participants will not be used in any published reports. Codes will be used to protect confidentiality.

Data (such as interview transcripts/tapes, class observation transcripts/tapes, data sets from achievement scores) for this study will be stored in a locked cabinet in the Woolf Fisher Research Centre on the University of Auckland premises. It will be stored separately from participant information sheets and consent forms and they will be kept for a period of 6 years after which all copies will be deleted and/or destroyed by way of confidential document disposal methods.

Participant information sheets and consent forms will be stored separately from the data for this study. These will also be stored in a locked cabinet in the Woolf Fisher Research Centre on the University of Auckland premises. It will also be kept for a period of 6 years after which all copies will be destroyed and/or deleted.

Thank you very much for your time and help in making this study possible. If you have any questions or wish to know more, please contact me:

m.pale@auckland.ac.nz or (09) 273 2849

The Supervisor of this study: Dr Meaola Amituanai-Toloa
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The Head of School is: Dr Libby Limbrick
Faculty of Education
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Private Bag 92601
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For any queries regarding ethical concerns please contact:
The Chair, The University of Auckland Human Participants Ethics Committee, The University of Auckland, Private Bag 92019, Auckland. Telephone: 373 7599 extn 87830

Kind Regards,

Maryanne Pale

APPROVED BY The University of Auckland Human Participants Ethics Committee on June 12 2008 for a period of 18 months from June 12 2008 to November 30 2009. Reference 2008 / 178

APPENDIX B

PRINCIPAL/BOARD OF TRUSTEES CONSENT FORM

THIS CONSENT FORM WILL BE HELD FOR A PERIOD OF SIX YEARS.

Title of the study: Investigating the relationship between vocabulary instruction and reading comprehension for students in Tongan bilingual classes.

Researcher: Maryanne Pale

I/we have been given and have understood an explanation of this study.

I/we understand that the data collection to be conducted on our school premises for this study will commence from May 1st 2008 and end in November 30th 2009.

I/we have had an opportunity to ask questions and have had them answered.

I/we understand that students' names, teacher names or that of the school will not be identified throughout the production of the research.

I/we understand that I/we may withdraw my/our school and/or any information that I/we have provided for this study at any time up until 31st July 2008 which is one month after the first lot of interviews have taken place, without having to give any reasons.

I/we understand that the information obtained from my/our school may be confidentially collated and entered into a database by Maryanne Pale.

I/we understand that the data will be stored separately from the participant information sheet and consent forms at the Woolf Fisher Centre on the University of Auckland premises and they will be destroyed after a period of 6 years after which all copies will be deleted and/or destroyed by way of confidential document disposal methods.

I/we agree to provide assurance that the students' and teacher(s') participation or non-participation will not influence their relationship with the school or their access to school services.

I/we agree that student participation is voluntary and that their participation or non participation will not influence their relationship with the school or their access to school services.

I/we agree to allow Maryanne Pale to access student assessment data on reading and writing (e.g. STAR, PPVT and BURT tests) and records of students from the Tongan Bilingual class.

I/we agree that..... school may take part in this research.

Signed.....

Name.....

Date.....

APPROVED BY The University of Auckland Human Participants Ethics Committee on June 12 2008 for a period of 18 months from June 12 2008 to November 30 2009. Reference 2008 / 178

APPENDIX C

TEACHER PARTICIPANT INFORMATION SHEET

Title of the study: Investigating the relationship between vocabulary instruction and reading comprehension for students in Tongan bilingual classes.

Researcher: Maryanne Pale

My name is Maryanne Pale and I am currently studying at the University of Auckland undertaking a Doctor of Philosophy degree in Education (PhD).

This study aims to examine the validity of the general claim that vocabulary acquisition is related to reading comprehension. Specifically, it will test the hypothesis that explicit vocabulary instruction can increase English vocabulary and enable children to encounter incidental vocabulary acquisition, thus positively impacting on English reading comprehension and raising reading achievement. Explicit vocabulary instruction is known to include definitional and contextual information about each word's meaning and involves children's active processing of new word meanings and concepts surrounding a new word. On the other hand, incidental vocabulary acquisition occurs when a child is able to determine a new word when used in text or oral language by accessing their prior knowledge and/or the understanding of the context, concept or morphological structure that is represented by a particular word.

You are invited to participate in my study.

Data collection will be carried out from May 1st 2008 to November 30th 2009 at your school. There will be two phases, *Phase One* will be in 2008 and *Phase Two* will be in 2009. The study will look at the achievement data from assessments such as STAR (in particular the subtest 4), the PPVT tests and BURT word reading test.

In addition, at each phase class vocabulary instruction will be filmed to assist me in my understanding of vocabulary development and reading achievement that occurs within a Tongan bilingual class. It will also help me develop ideas to enhance effective teaching of English vocabulary and English reading comprehension in Tongan bilingual classes. At each phase, class observations, interviews and formative feedback/teaching intervention will occur. They are as follows:

Observations of class vocabulary instruction will be conducted during guided reading and/or oral language and/or written language. I seek your permission to audio-record/film these class observations. They will take approximately 40 minutes per session over a period of two weeks at each phase. These observations will assist me in my understanding of vocabulary development and reading achievement. It will also help me develop ways to enhance effective teaching of vocabulary and reading comprehension in Tongan bilingual classes. You will have an opportunity to view and edit the class observation transcripts. The final copies of the class observation transcripts and copies of the audio-recording and/or filmed observations can be made available to you upon your request. For the students who do not wish to participate in this study, they will not be captured on any filmed recordings nor anything that they would say be transcribed. They will go about their normal class routines.

Moreover, I seek your permission to conduct an interview of 20 minute duration with you in regards to your beliefs, ideas and pedagogical content knowledge of how vocabulary should be taught. This interview will assist me with the understanding of your perspectives on English vocabulary instruction and it will help me develop ways to enhance effective vocabulary teaching in literacy development. The interview will be audio-recorded and/or filmed for transcriptional purposes. You will have an opportunity to view and edit your interview transcripts and the final copy of the transcripts and copies of the audio-recordings or filmed footage can be made available to you upon your request.

At the intervention stage in *Phase Two*, I will work in consultation with you to create a supplementary teaching resource for English vocabulary instruction. Discussions surrounding the development of the intervention will be arranged in consultation with you so that it is suitable with your time.

If you decide to withdraw any information that you have provided, at any time up until 31st July 2008 which is one month after the first lot of interviews have taken place, you should feel free to do so without

having to give any reason and this will be completely respected. Any data already collected from you will not be used in any way.

Your name will not be used in any published reports. Codes will be used to protect confidentiality.

Data (such as interview transcripts/tapes, class observation transcripts/tapes, data sets from achievement scores) for this study will be stored in a locked cabinet in the Woolf Fisher Research Centre on the University of Auckland premises. It will be kept for a period of 6 years after which all copies will be destroyed and/or deleted.

Your participation is voluntary. Your participation or non participation will not influence your relationship with the school or your access to school services.

Participant information sheets and consent forms will be stored separately from the data for this study. These will also be stored in a locked cabinet in the Woolf Fisher Research Centre on the University of Auckland premises. It will also be kept for a period of 6 years after which all copies will be deleted and/or destroyed by way of confidential document disposal methods.

If you decide to participate, please sign the consent form attached.

Thank you very much for your time and help in making this study possible. If you have any questions or wish to know more, please contact me:

m.pale@auckland.ac.nz or (09) 273 2849

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For any queries regarding ethical concerns please contact:
The Chair, The University of Auckland Human Participants Ethics Committee, The University of
Auckland, Private Bag 92019, Auckland. Telephone: 373 7599 extn 87830

Kind Regards,

Maryanne Pale

**APPROVED BY The University of Auckland Human Participants Ethics Committee on June 12
2008 for a period of 18 months from June 12 2008 to November 30 2009. Reference 2008 / 178**

APPENDIX D

TEACHER CONSENT FORM

THIS FORM WILL BE HELD FOR A PERIOD OF SIX YEARS.

Title of the study: Investigating the relationship between vocabulary instruction and reading comprehension for students in Tongan bilingual classes.

Researcher: Maryanne Pale

I have been given and have understood an explanation of this study. I have had an opportunity to ask questions and have had them answered.

I understand that the data collection to be conducted on our school premises for this study will commence from May 1st 2008 and end in November 30th 2009.

I understand that my name and my students' names will not be identified throughout the production of the research.

I understand that I may withdraw myself and/or any information that I have provided for this study at any time up until 31st July 2008 which is one month after the first lot of interviews have taken place, without having to give any reasons.

I understand that information obtained from my class may be confidentially collated and entered into a database by Maryanne Pale.

I understand that the data will be stored separately from the participant information sheet and consent forms at the Woolf Fisher Centre on the University of Auckland premises for a period of 6 years after which all copies will be deleted and/or destroyed by way of confidential document disposal methods.

I understand my participation is voluntary and that my participation or non participation will not influence my relationship with the school or my access to school services.

I agree to be audio taped during my interview with Maryanne Pale.

I agree that teacher/child interactions may be audio-recorded or filmed.

I agree that I will work in consultation with Maryanne Pale on formative feedback/teaching of vocabulary in the intervention phase.

Signed..... School.....

Name..... Room and Year Level.....>.....

Date.....

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APPENDIX E

PARENT/CAREGIVERS PARTICIPANT INFORMATION SHEET

Title of the study: Investigating the relationship between vocabulary instruction and reading comprehension for students in Tongan bilingual classes.

Researcher: Maryanne Pale

My name is Maryanne Pale and I am currently studying at the University of Auckland undertaking a Doctor of Philosophy degree in Education (PhD).

My study aims to look at how vocabulary (words) is being taught in the class and how your child and his/her class learns to understand the words in the books that he/she reads. This study will be carried out by taking interviews, class observations, discussions and also an analysis of student achievement data scores. All information gathered using this process will help me to understand ways to increase vocabulary knowledge (word knowledge) for your child and it will help me develop ideas to improve the teaching of English vocabulary and English reading comprehension in the class.

The collection of data (information) will be carried out from May 1st 2008 to November 30th 2009 at your school. There will be two phases, *Phase One* will be in 2008 and *Phase Two* will be in 2009. At each phase, I will observe how English vocabulary is taught during guided reading lessons and/or oral language lessons and/or written language lessons. Therefore, I seek your permission to audio-record or film your child participating in these class observations. Filming will take approximately 40 minutes per session over a period of two weeks at each phase. These filmed observations will assist me in my understanding of English vocabulary development and English reading achievement. It will also help me develop ideas to enhance effective teaching of English vocabulary and English reading comprehension in Tongan bilingual classes. You will have an opportunity to view and change the transcripts from these audio-recordings or filmed footage of your child.

Your child's participation is completely voluntary. Your child's participation or non participation will not influence your relationship with the school or your access to school services.

Your child's will not be used with any information that I gather. You and/or your child will only be identified by a using a code and the information that you will provide will remain completely confidential.

If you decide to withdraw your child or any information that you and/or your child have given me, you can do so at any time up until 31st July 2008 which is one month after the first lot of interviews have taken place, you can do so without having to give any reason and this will be completely respected. From there, any data already collected from you and/or your child will not be used in any way.

The information and the participant information sheet and consent forms from this study will be stored separately at the Woolf Fisher Research Centre on the University of Auckland premises and will be kept for a period of 6 years after which all copies will be deleted and/or destroyed by way of confidential document disposal methods.

If you are happy to have your child be a part of this study, please fill out the Parent/Caregivers Consent Form for CHILD PARTICIPATION.

Thank you very much for your time and help in making this study possible. If you have any questions or wish to know more, please talk to your child's school otherwise contact me on:

Email: m.pale@auckland.ac.nz or Work: (09) 273 2849

The Supervisor of this study: Dr Meaola Amituanai-Toloa

Faculty of Education
The University of Auckland
Private Bag 92601
AUCKLAND

Telephone: 623 8899 extn 82506

The Head of School is: Dr Libby Limbrick
Faculty of Education
The University of Auckland
Private Bag 92601
AUCKLAND Telephone: 6238899 extn 48445

For any queries regarding ethical concerns please contact:

The Chair, The University of Auckland Human Participants Ethics Committee, The University of
Auckland, Private Bag 92019, Auckland. Telephone: 373 7599 extn 87830

Kind Regards,

Maryanne Pale

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Reference 2008 / 178**

APPENDIX F

PARENT/CAREGIVERS CONSENT FORM FOR CHILD PARTICIPATION

THIS FORM WILL BE HELD FOR A PERIOD OF SIX YEARS

Title of the study: Investigating the relationship between vocabulary instruction and reading comprehension for students in Tongan bilingual classes.

Researcher: Maryanne Pale

I have been given and have understood an explanation of this study.

I have had an opportunity to ask questions and have had them answered.

I understand that the data collection to be conducted in my child's class for this study will commence from May 1st 2008 and end in November 30th 2009.

I know that it is optional for my child to take part in this study with Maryanne Pale.

I know that the information obtained from this study will remain confidential.

I know that the class observations and interview sessions will include my son/daughter and that they will either be audio-recorded or filmed.

I know that I will have an opportunity to view and edit my child's transcripts from the class observations and interviews.

I know that the final copy of the transcripts of my child's participation can be made available for me upon my request.

I know that my child's participation or non participation will not influence my relationship with the school or my access to school services.

I know I can withdraw my child/or any information that he/she has provided for this study at any time up until 31st July 2008 which is one month after the first lot of interviews have taken place, without having to give any reasons.

I know that the data will be stored separately from the participant information sheet and consent forms at the Woolf Fisher Centre on the University of Auckland premises and they will be destroyed for a period of 6 years after which all copies will be deleted and/or destroyed by way of confidential document disposal methods.

I agree for my child to be a part of this study with Maryanne Pale.

I agree for my child to either be audio-recorded or filmed by Maryanne Pale.

Signed: School:.....

Name: Room and Year Level:

Date.....

**APPROVED BY The University of Auckland Human Participants Ethics Committee on June 12 2008 for a period of 18 months from June 12 2008 to November 30 2009.
Reference 2008 / 178**

APPENDIX G

STUDENT PARTICIPANT INFORMATION SHEET

For students under the age of 16

Title of the study: Investigating the relationship between vocabulary instruction and reading comprehension for students in Tongan bilingual classes.

Researcher: **Maryanne Pale**

My name is Maryanne Pale and I am currently studying at the University of Auckland undertaking a Doctor of Philosophy degree in Education (PhD).

Your school has decided to take part in this study. I would like to invite you to be a student in this study. I will collect information for this study at your school and within your class from May 1st 2008 to November 30th 2009.

In this study I want to find out how words are taught in your class during reading lessons and/or writing lessons.

As part of this study, I would like to watch and either audio-record or film you and your teacher taking part in reading and writing lessons in your class. Students not taking part will continue with normal class activities.

All the information that you give me is private, your name, your teacher's name and your school's name will not be used in any way.

It is up to you if you would like to be a part of this study. If you choose not to take part in this study, it will not affect your schooling in any way. You have the right to withdraw from this study at any time up until 31st July 2008 and if so, any information that you have given us will not be used.

Data for this study, including any tape recordings made, will be stored at the Woolf Fisher Research Centre and will be kept for 6 years. After 6 years, all copies will be deleted and/or destroyed.

If you would like to take part in this study, would you please read and sign your name on the assent form.

Thank you very much for your help in this study.

Yours sincerely,
Maryanne Pale

**APPROVED BY The University of Auckland Human Participants Ethics Committee on June 12 2008 for a period of 18 months from June 12 2008 to November 30 2009.
Reference 2008 / 178**

APPENDIX H

STUDENT ASSENT FORM For students under the age of 16

THIS ASSENT FORM WILL BE HELD FOR A PERIOD OF SIX YEARS

Title of the study: Investigating the relationship between vocabulary instruction and reading comprehension for students in Tongan bilingual classes.

Researcher: Maryanne Pale

I have been given and have understood an explanation of this study.

I have had an opportunity to ask questions and have them answered.

I know that my name, my teacher's name and my school's name will not be used in this study.

I know that I have the right to withdraw from this study at any time up until 31st July 2008 and any information that I have given Maryanne Pale will not be used.

I know that I do not have to take part in this study. If I choose not to take part in this study, it will not affect my schooling in any way.

I know that the data for this study, including any tape recordings made, will be stored at the Woolf Fisher Research Centre and will be kept for 6 years. After 6 years, all copies will be deleted and/or destroyed.

I know that information for this study will be collected from my class starting from May 1st 2008 to November 30th 2009.

I agree to be a part of this study.

Name: _____

Date: _____

Class: _____

**APPROVED BY The University of Auckland Human Participants Ethics Committee on June 12 2008 for a period of 18 months from June 12 2008 to November 30 2009.
Reference 2008 / 178**

APPENDIX I

GUIDING INTERVIEW QUESTIONS FOR PRINCIPALS

- How important do you feel vocabulary teaching is for students in Tongan bilingual contexts?
- Within the school's literacy programme, what emphasis if any, have you placed on vocabulary instruction?
- As part of your school's literacy programme, are your teachers required to teach vocabulary on a daily basis?
- What sort of relationship do you think exists between vocabulary instruction and reading comprehension?
- In your teaching experience, what methods have enabled your children to make gains in reading comprehension achievement through vocabulary instruction?
- What might be your experience in identifying barriers to reading comprehension?
- What are some of the strategies that have been put in place to increase the reading achievement of students in your school? Why?
- What is the rationale behind the establishment of the Tongan Bilingual unit in your school?
- How do you think bilingual education will contribute to the vocabulary learning and teaching of your students?
- What are some of the patterns of reading achievement that you have noticed in reading comprehension with Tongan students?
- What might be some of the benefits of bilingual (dual medium) you have noticed in these classes?

APPENDIX J

GUIDING INTERVIEW QUESTIONS FOR TONGAN BILINGUAL TEACHERS

- How important do you feel vocabulary teaching is for your students?
- What forms of vocabulary instruction do you use in your classroom?
- How do you select the words that you teach?
- Why do you select the words that you teach?
- What types of things do you think students need to know about a word?
- How do you think children will benefit from daily explicit vocabulary instruction?
- What do you believe or know to be the best method of vocabulary instruction for your class? Please explain why?
- In which curriculum areas do you teach vocabulary explicitly? Why?
- What are some of the methods of vocabulary instruction that your children learn best in?
- As part of your school's literacy programme, what is the role of vocabulary instruction?
- In your teaching experience, what methods have enabled your children to make gains in reading comprehension achievement?
- In your teaching experience, what has been a barrier reading comprehension achievement?
- What are the advantages of teaching vocabulary in a Tongan Bilingual class?
- What are the barriers of teaching vocabulary in a Tongan Bilingual class?
- In your years of teaching in a Tongan Bilingual class, what role do you think bilingualism has on the learning and teaching of vocabulary?
- What are some of the patterns that you have noticed in reading comprehension with Tongan students?

APPENDIX K

LIST OF CODES FOR TEACHER INSTRUCTION

Category 1: Defining and Elaborating on Vocabulary

- Asks student to define a word or to provide a synonym or a root word
- Asks students if they understand a word
- Defines a word or provides a synonym
- Looks with and/or asks students to find definition of words using a dictionary
- Translates an English word in Tongan and/or asks what an English word is in Tongan (or vice versa in language use)
- Identifies words to talk about or define
- Asks students to look for words in text to post onto vocabulary boards
- Reminds students to use boards and/or links to boards to the context
- Asks students to identify and/or explain language features or parts of speech (e.g. metaphor, simile etc)
- Asks students to identify and/or explain parts of speech (e.g. noun, verb, suffix etc)
- Provides examples of words
- Identifies and/or explains concepts about words/phrases
- Translates concepts about English words in Tongan and/or asks students to elaborate on a word using the Tongan language

Category 2: Print and Speech

- Asks students to look for specific words in text
- Asks and/or prompts students to re-read a word to self-check/self-correct
- Asks students to repeat the pronunciation of a word
- Asks students to spell out a word and/or sound out a word
- Asks students to see what letter or parts of a word they know or can see in text
- Asks students to look for keywords
- Teacher sounds out words
- Asks students about the title of the book, author, illustrator, characters

Category 3: Activating Prior Knowledge

- Links the context of the story, paragraph, sentence or words to students' personal experience
- Links the context of the story, paragraph, sentence or words to students' prior knowledge
- Links to or relates the context of the story, paragraph, sentence or words to something in Tongan or in the Tongan language
- Asks students to provide examples that relate to the context of the story or paragraph, sentence or words.
- Translates the context of the story in Tongan for the students

Category 4: Reading comprehension

- Asks questions about or talks about the context
- Asks students about a sentence and/or what a sentence means
- Asks students about a paragraph and/or what a paragraph means
- Asks students what they understood from the text
- Asks students about the context using the Tongan language
- Asks students to make prediction and/or draw meaning using pictures in the book
- States and/or talks about the learning intention

APPENDIX L

LIST OF CODES FOR STUDENT PARTICIPATION

Category 1: Defining and Elaborating on Vocabulary:

- Indicates to the Teacher that they do not understand a word
- Provides the correct definition of a word or to provide a synonym or root word
- Provides an incorrect definition of a word
- No response when Teacher asked to define a word
- Uses dictionary to define word
- Uses Tongan language to define a word and/or to provide a synonym
- Asks Teachers to define or translate a word
- Asks about boards and/or links words or context to the two new vocabulary
- Writes and posts a word onto the *Words that I would like to know about* board
- Writes and posts a word onto the *Fascinating words* board
- Identifies correct language features
- Identifies correct parts of speech
- Unable to provide answer or incorrectly answers
- Uses Tongan to respond to elaborating a word
- Asks Teachers to elaborate on word

Category 2: Phonics and Phonemic awareness:

- Correctly locates and/or pronounces a word in text
- Unable to locate word or incorrectly locates a word or mispronounces a word
- Identifies parts of a word that they know
- No response when asked to sound out a word and/or to read a word
- Incorrectly reads a word in text
- Spells out a word from text
- Is able to identify a keyword in text

Category 3: Student Prior Experiences & Prior Knowledge :

- Is able to connect a personal experience to context
- Is able to connect prior knowledge to context
- Is able to relate the context to Tonga
- Provides examples that relate to context in the Tongan language
- Unable to connect to text using prior experience and/or prior knowledge

Category 4: Student Reading Comprehension:

- Identifies the meaning of a sentence
- Identifies the meaning of a paragraph
- Unable to provide or incorrectly provides the meaning of context
- Makes a correct inference
- Uses the Tongan language to translate context
- Asks Teachers to explain context
- Asks Teachers to translate explanation into Tongan
- Uses picture to infer and draw meaning

APPENDIX M
PAIRED SAMPLES T-TEST PHASE ONE

Subtest 1

t-Test: Paired Two Sample for Means

	<i>Variable</i> <i>1</i>	<i>Variable</i> <i>2</i>
Mean	7.457143	9.014286
Variance	4.83147	1.782402
Observations	70	70
Pearson Correlation	0.476792	
Hypothesized Mean Difference	0	
Df	69	
t Stat	-6.66961	
P(T<=t) one-tail	2.63E-09	
t Critical one-tail	1.667239	
P(T<=t) two-tail	5.25E-09	
t Critical two-tail	1.994945	

Subtest 3

t-Test: Paired Two Sample for Means

	<i>Variable</i> <i>1</i>	<i>Variable</i> <i>2</i>
Mean	6.785714	7.7
Variance	22.08385	18.06812
Observations	70	70
Pearson Correlation	0.710659	
Hypothesized Mean Difference	0	
Df	69	
t Stat	-2.23057	
P(T<=t) one-tail	0.014482	
t Critical one-tail	1.667239	
P(T<=t) two-tail	0.028964	
t Critical two-tail	1.994945	

Subtest 2

t-Test: Paired Two Sample for Means

	<i>Variable</i> <i>1</i>	<i>Variable</i> <i>2</i>
Mean	5.1	6.585714
Variance	4.873913	3.782402
Observations	70	70
Pearson Correlation	0.489099	
Hypothesized Mean Difference	0	
df	69	
t Stat	-5.88839	
P(T<=t) one-tail	6.4E-08	
t Critical one-tail	1.667239	
P(T<=t) two-tail	1.28E-07	
t Critical two-tail	1.994945	

Subtest 4

t-Test: Paired Two Sample for Means

	<i>Variable</i> <i>1</i>	<i>Variable</i> <i>2</i>
Mean	3.785714	5.4
Variance	5.272257	6.214493
Observations	70	70
Pearson Correlation	0.351937	
Hypothesized Mean Difference	0	
df	69	
t Stat	-4.94567	
P(T<=t) one-tail	2.56E-06	
t Critical one-tail	1.667239	
P(T<=t) two-tail	5.13E-06	
t Critical two-tail	1.994945	

APPENDIX N
PAIRED SAMPLES T-TEST PHASE TWO

t-Test: Paired Two Sample for Means

	<i>Variable</i> <i>1</i>	<i>Variable</i> <i>2</i>
Mean	7.654545	8.327273
Variance	6.119192	2.742761
Observations	55	55
Pearson Correlation	0.570541	
Hypothesized Mean Difference	0	
df	54	
t Stat	-2.43814	
P(T<=t) one-tail	0.009042	
t Critical one-tail	1.673565	
P(T<=t) two-tail	0.018084	
t Critical two-tail	2.004879	

t-Test: Paired Two Sample for Means

	<i>Variable</i> <i>1</i>	<i>Variable</i> <i>2</i>
Mean	5.345455	6.218182
Variance	4.563636	4.803367
Observations	55	55
Pearson Correlation	0.48988	
Hypothesized Mean Difference	0	
df	54	
t Stat	-2.96043	
P(T<=t) one-tail	0.002278	
t Critical one-tail	1.673565	
P(T<=t) two-tail	0.004556	
t Critical two-tail	2.004879	

t-Test: Paired Two Sample for Means

	<i>Variable</i> <i>1</i>	<i>Variable</i> <i>2</i>
Mean	5.345455	7.927273
Variance	16.26734	16.69832
Observations	55	55
Pearson Correlation	0.791443	
Hypothesized Mean Difference	0	
df	54	
t Stat	-7.30119	
P(T<=t) one-tail	6.68E-10	
t Critical one-tail	1.673565	
P(T<=t) two-tail	1.34E-09	
t Critical two-tail	2.004879	

t-Test: Paired Two Sample for Means

	<i>Variable</i> <i>1</i>	<i>Variable</i> <i>2</i>
Mean	3.581818	5.018182
Variance	4.840404	6.573737
Observations	55	55
Pearson Correlation	0.401888	
Hypothesized Mean Difference	0	
df	54	
t Stat	-4.06113	
P(T<=t) one-tail	7.95E-05	
t Critical one-tail	1.673565	
P(T<=t) two-tail	0.000159	
t Critical two-tail	2.004879	