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What We Talk About When We Talk About the Weather

The impact of Indigenous Fijian- and English-language terms for nature and natural events within the Fijian- and English-speaking community in Aotearoa New Zealand

A thesis presented in partial fulfillment of the
requirement for the degree of
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Abstract

This research project investigates the effect and meaning of Indigenous Fijian-language and English-language terms for nature and natural events (NNE) within the Fijian- and English-speaking community in Aotearoa New Zealand. There is minimal targeted messaging about NNE for this community, which increases vulnerability during disaster events and reduces opportunities for NNE education and preparedness. The goal and intent of this work is to identify avenues to improve the efficacy and quality of NNE-related risk awareness messaging for the studied population.

The Fijian diaspora represents a fairly close-knit community with many shared cultural and social values. This population encompasses a breadth of ages, backgrounds, and education levels, with significant variation in Fijian- and English-language skills. The hypothesis of this study was that due to differences in languages and cultural perspectives, current assumed linguistic parallels in NNE-related risk awareness messaging are not in fact interpreted or experienced as equivalent or identical to the identified audience.

This project utilized Indigenous research methodologies for study design, data collection, and data analysis, combined with Western scientific methodologies for data collection and analysis. A modified approach to the Fijian Vanua Research Framework methodology was applied to study design, and data collection was undertaken via a combination of talanoa and semi-structured interviews with a total of 14 individuals from across the Lower North Island. Data were analyzed utilizing talanoa data analysis methodology combined with reflexive thematic analysis.

The analysis noted key themes in six areas: Fijian identity and its relationship to language; Fijian-language terms' connections to ways of learning about NNE; English-

language terms' connections to the same; relative familiarity of NNE in Fiji and Aotearoa New Zealand; desires and intentions for messaging; and participant-led linguistic discussion and analysis. Results revealed widespread desire for Fijian-language messaging, and significant differences in the implications and associations of Fijian- and English-language terms for NNE. The research process also highlighted a strong degree of engagement and interest in language preservation and revitalization amongst the community.

Potential avenues for improvement of NNE-related messaging include collaborative, community-led development of mixed Fijian- and English-language messaging; utilization of existing methods of learning about NNE, specifically storytelling or narrative education, in both Fijian and English; utilization of existing knowledge resources in the community especially regarding NNE common in Fiji; and familiarization of the community with Aotearoa New Zealand's common NNE.

The hope is that these learnings can be used to develop messaging which centers the community and their identified needs. This project highlights the importance and applicability of Indigenous frameworks and methodologies, and these results illustrate the willingness of the community to engage as well as the resources they offer. There is the opportunity for a connection of the important threads of preserving and passing down the language, of giving context to important information via narrative and storytelling, and of utilizing existing community knowledge. Together there is the potential for collaborative development of more effective, targeted messaging to improve emergency management risk awareness, preparedness, response, and recovery within the community.

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Table of Contents

Abstract	i
Acknowledgements	iii
Table of Contents	iv
List of Tables	vii
Map of Fiji Islands	viii
Glossary and Pronunciation Guide	ix
Chapter 1. Introduction	1
Chapter 2: Literature Review	7
2.1 <i>Introduction</i>	7
2.2 <i>Links between language and culture</i>	9
2.2.1 Language and culture in Pacific Islands communities	10
2.2.2 Language and culture influence perception and communication	13
2.2.3 Multicultural disaster communications	18
2.2.4 Topic Summary: Links between language and culture	20
2.3 <i>Indigenous cultures, language, and emergency management</i>	21
2.3.1 Indigenous knowledge in the field of natural history and ecology	22
2.3.2 Indigenous knowledge in the field of emergency management	24
2.3.3 Small island and Pacific islands Indigenous knowledge in the field of emergency management	28
2.3.4 Topic Summary: Indigenous cultures, language, and emergency management	31
2.4 <i>Research methodologies</i>	32
2.4.1 Decolonizing paradigms and methodologies in Indigenous research	33
2.4.2 Indigenous Pacific frameworks for research	35
2.4.2.1 Talanoa data collection methodology	36
2.4.2.2 Fijian Vanua Research Framework	38
2.4.2.3 Veivosaki-yaga	39
2.4.3 Indigenous methods for qualitative data analysis	40
2.4.3.1 Thematic analysis and Indigenous data	40
2.4.3.2 Indigenous data analysis methodologies	41
2.4.4 Research frameworks in the Western scientific tradition	43
2.4.4.1 Semi-structured interview	43

2.4.4.2 Content analysis methodologies	45
2.4.4.3 Thematic analysis methodologies	46
2.4.5 Topic Summary: Research methodologies	48
2.5 Summary of review	49
Chapter 3: Methods	51
3.1 Introduction	51
3.1.1 Methodology framework	52
3.1.2 Data collection	53
3.1.3 Data analysis	54
3.2 Na navunavuci (conception)	54
3.3 Na vakavakarau (preparation and planning)	57
3.4 Na i curucuru/na i sevusevu (entry)	59
3.5 Na talanoa/veitalanoa (multilogue/dialogue/monologue/story collection)	61
3.6 Na i tukutuku (reporting/analysis/writing)	62
3.6.1 Transcription and data organization	62
3.6.2 Data analysis methodology considerations	63
3.6.3 Data analysis process	65
3.6.4 Results review process	66
3.6.5 Results presentation	68
3.7 Na vakavinavinaka (gifting/thank yous)	68
3.8 I tatau (departure)	68
3.9 Vakarogotaki lesu tale/taleva lesu (reporting back, revisiting site for the purposes of presentation/informing chiefs and people researched of completion)	69
3.10 Me vakilai/me na i vurevure ni veisau se na vei ka e vou ka na kauta mai na bula e sautu (transformative processes/change as a result of research reports)	70
3.11 Limitations	70
3.12 Summary of methodology	72
Chapter 4: Results	74
4.1 Introduction	74
4.2 Fijian identity and its relationship to language	76
4.2.1 Theme Summary	85
4.3 Fijian-language terms' connection to ways of learning about nature and natural events	86
4.3.1 Theme Summary	98
4.4 English-language terms' connection to ways of learning about nature and natural events	98
4.4.1 Theme Summary	105

4.5 <i>Relative familiarity of nature and natural events in Fiji and Aotearoa New Zealand</i>	106
4.5.1 Theme Summary	118
4.6 <i>Desires and intentions for messaging about nature and natural events</i>	119
4.6.1 Theme Summary	132
4.7 <i>Participant-led linguistic discussion and analysis</i>	133
4.7.1 Theme Summary	141
<i>Summary of results</i>	142
Chapter 5: Discussion	144
5.1 <i>Introduction</i>	144
5.2 <i>Results discussion</i>	145
5.2.1 The relationship between language, identity, and culture	145
5.2.2 Vanua and the maintenance and transmission of knowledge	147
5.2.3 Knowledge about nature and natural events	149
5.2.4 Knowledge about emergency management and development of participatory systems	153
5.3 <i>Methods discussion</i>	156
5.3.1 Application of Indigenous methodologies within a Western institutional research structure	156
5.3.2 Application of Indigenous Fijian research methodologies as a non-Indigenous researcher	158
<i>Summary of discussion</i>	160
Chapter 6: Conclusion	161
6.1 <i>Introduction</i>	161
6.2 <i>Key themes</i>	161
6.3 <i>Pathways for further study</i>	162
6.4 <i>Pathways for further action</i>	162
6.5 <i>Recommendations</i>	164
Bibliography	166
Appendices	181
Appendix A - <i>Semi-structured Interview Guide</i>	181
Appendix B - <i>Talanoa Guide</i>	183
Appendix C - <i>Advertisement Flyer</i>	185
Appendix D - <i>Interview and Talanoa Information Sheets and Consents</i>	186
Appendix E - <i>Ethics Application</i>	191
Appendix F - <i>Participant-provided Vosa vaka-Viti/English Translations</i>	196
Appendix G - <i>Summary of Results (English)</i>	197
Appendix H - <i>I Soqoni ni Macala ni Vakadidike (Vosa vaka-Viti)</i>	200

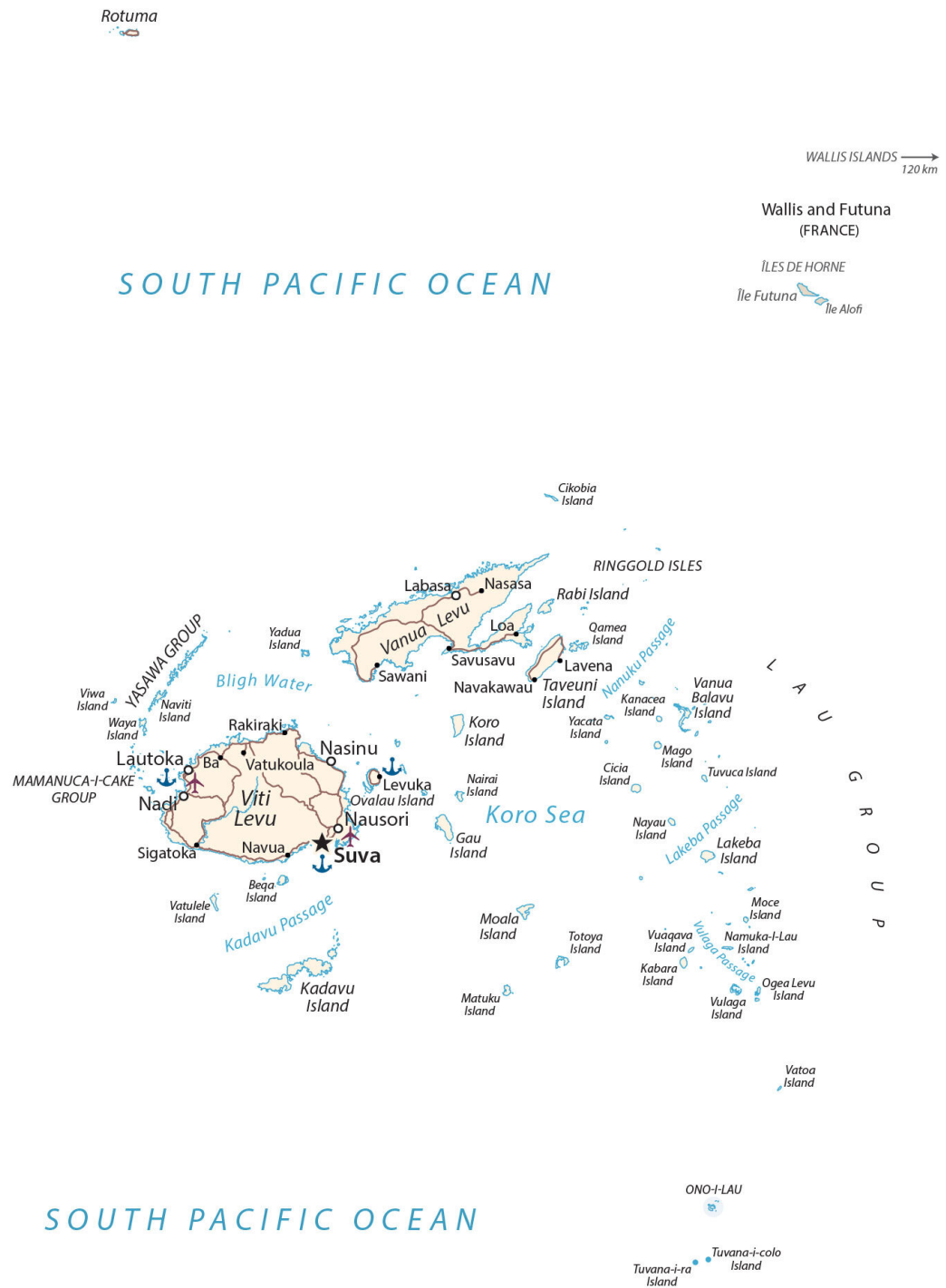
List of Tables

Table 1: Vowel and consonant pronunciations in Fijian (vosa vaka-Viti) — page x

Table 2: Fijian- and English-language correlates for words and phrases used within this thesis — page xi

Table 3: Engagement type, group makeup, location, and date of data collection and results analysis sessions — page 62

Map of Fiji Islands



From "Map of Fiji Islands", GISGeography (GISGeography, 2026)

Glossary and Pronunciation Guide

Sources:

- *Fijian-English Dictionary: with notes on Fijian culture and natural history*, by Ronald Gatty (Gatty, 2009)
- *A new Fijian dictionary / Compiled by A. Capell for the government of Fiji*, by Arthur Capell (3rd ed) (Capell, 1968)
- iVolavosa Dictionary App, published by the iTaukei Trust Fund (iTaukei Trust Fund, 2026)
- *A Fijian and English and an English and Fijian dictionary : with examples of common and peculiar modes of expression and uses of words, also, containing brief hints on native customs, proverbs, the native names of natural productions, and notices of the islands of Fiji, and a grammar of the language, with examples of native idioms*, by David Hazlewood (Hazlewood, 1979)
- *Ai vola lailai ni vosa vakaperitania: me yaga vei ira na kai viti* ("Elementary introduction to the English language for the use of Fijians"), by W. E. Atkinson, E. F. Atkinson (Atkinson & Atkinson, 1937)
- *Handbook of Fijian language; a simple introduction to the grammar and construction of Fijian, with lists of useful sentences and phrases, sets of exercises, and a comprehensive vocabulary*, by Reverend Harold Chambers (Chambers, 1936)
- *The Fijian language*, by Albert J. Schütz (Schütz, 1985)
- "Identity term sparks debate", Sosiveta Korobiau for the Fiji Sun (Korobiau, 2026)

Table 1: Vowel and consonant pronunciations in Fijian; IPA: International Phonetic Alphabet representation.

Letter	IPA	Pronunciation ("Chambers", "Centre for Pacific Languages")
A	/ a /	"A as in father", "after, bar"
E	/ ɛ /	"As in Let", "egg, better, regret"
I	/ i /	"Sometimes long, as in Machine 'Tini', but sometimes shorter as in Pit 'Tibitibi'", "even, iwi"
O	/ ɔ /	"As in Nor 'Vosota'", "orchestra, awful"
U	/ u /	"As in truth, but never as in But", "move, voodoo"
B	/ mb /	"Pronounced as MB", "remember"
C	/ ð /	"Pronounced as TH in That, not in Thick", "the, neither"
D	/ nd /	"Pronounced as ND", "Sunday, indent"
F	/ f /	"Pronounced as in English", "far, offer"
G	/ ŋ /	"Pronounced as NG in Long", "singing"
J	/ tʃ /	"Pronounced as in English" <i>note: in modern sources it is not,</i> "child, achieve"
K	/ k /	"Pronounced as in English", "kid, car"
L	/ l /	"Pronounced as in English", "loose, allow"
M	/ m /	"Pronounced as in English", "mother, amount"
N	/ n /	"Pronounced as in English", "nose, annoy"
P	/ p /	"Pronounced as in English", "poster, apple"
Q	/ ŋg /	"Pronounced as NG in Younger", "finger, hungry"
R	/ r /	"Pronounced as the Scottish R"
S	/ s /	"Pronounced as in English", "sad, hiss"
T	/ t /	"Pronounced as in English", "time, tell"
V	/ β /	"Pronounced almost as in English but with the lips together"
W	/ w /	"Pronounced as in English", "whale, away"
Y	/ j /	"Pronounced as in English when Y is a consonant", "yacht, yes"

Table 2: Fijian- and English-language correlates for words and phrases used within this thesis. **Bold text:** phrases or terms used in the thesis; regular font text: etymology or component words present within phrases or terms.

Vosa vaka-Viti	English
Bibi	heavy, severe
Bobo, Veibobo	traditional Fijian body massage
Bu	green coconut (differentiated from niu, mature coconut)
Bubu	grandmother
Cagilaba	cyclone, hurricane
cagi	the wind
laba	to strike, to kill
Cici	to run
Covulaca	waterspout, whirlwind, tornado
covu	to bite off, to rip off, to break off
laca	sail (of a boat)
Draki ca	bad weather
draki	weather
ca	bad
Dua	one, a (indefinite article)
Gauna	time
Io	yes
Itovo	custom or manners
Kurukuru	thunder
Lako mai	to come (here), to be coming (here)
lako	to proceed, to go, to walk
mai	particle (multiple meanings), here 'toward the speaker'
Levu	high, large
Lidi ni yaseyase	lightning strike
lidi	to burst, to explode

Vosa vaka-Viti	English
ni	particle (multiple meanings), here 'of' or 'for'
yaseyase	lightning
Liva	lightning, electricity
Masumasu	(regional; not in dictionary) landslide
Mirimiri	to drizzle, to sprinkle (typically rain)
Nanuma	to think, to remember; thought(s)
Ni sa bula	(polite) greetings
sa	particle indicating surety to happen or have happened
bula	health
Savu	waterfall
Sevusevu	introductory gift (ceremonial) of yaqona; greeting ceremony
Sisi ni qele	landslide
sisi	to move
qele	earth, soil
Talanoa	conversational discussion
Tanoa	traditional wooden bowl for making yaqona
iTaukei	from ai Taukei, possessor, owner, original land-proprietor; modernized usage as a term for Indigenous Fijian by government decree in 2010, subject of considerable debate regarding its replacement of the term 'Fijian'
Tau-vu	close friend
Toso na qele	the earth moving
toso	to shift, to move about, to be unsteady
na	particle (multiple meanings), here 'the'
Tuakaqu	the speaker's older sibling of the same gender
tuakana	older sibling of the same gender
-qu	possessive suffix indicating belonging to the speaker.
Turaga	gentleman or chief

Vosa vaka-Viti	English
Ualoka	tsunami, tidal wave
Uca	rain
Uneune	earthquake
Vanua	ancestors, society, culture, place
Vakarau	to prepare, to get ready
vaka	particle (multiple meanings), here forming a verb or adjective
rau	to fit, to suffice, to be adequate
Vakarokoroko	(formal, emphatic) to show respect
roko	a bowing form or posture, bent (as in a bow)
rokovi	to show respect
Veikau	the bush, the forest
Veiwekani	a relative, relationship; (casual) sibling, friend
Vinaka	good, excellent, to thank (someone)
Volukano	volcano (English loan word)
Vosa vaka-Viti	the Fijian language
vosa	language
Viti	Fiji
Wainimate	medicine
wai	water
mate	death, sickness
Waivatu	(slang; not in dictionary) waterfall
vatu	a rock, a stone
Waluvu, Ualuvu	a flood
Wasawasa	ocean
Yaqona	kava, an important ceremonial drink

Chapter 1. Introduction

003: So I learnt that in Fijian, I also learnt it in Samoan, and now I'm coming to New Zealand I also have to learn how to approach it in English.

Effective emergency management is highly dependent on communication, and may warrant different communications approaches for different communities (Gabrielsen et al., 2018). As illustrated in the above quote, Pacific peoples and more specifically Fijian peoples within Aotearoa New Zealand are highly likely to be both multilingual and multicultural, and many have had experience navigating the transition between different cultures and languages. Tailored, effective messaging about nature and natural events therefore requires attention to the Fijian community's linguistic and cultural background as well as to that of Aotearoa New Zealand's emergency management systems and agencies.

In Aotearoa New Zealand, 442,632 people (8.9% of the population) identifies as Pacific peoples, and over 25,000 respondents to the 2023 Census identified as Fijian ethnicity, increased from 19,000 in 2018 and 14,000 in 2013 (Tatauranga Aotearoa Stats NZ, 2023a). While over 80% of the total population of Aotearoa New Zealand speaks only one language, in 2013 44% of Pacific peoples responded that they spoke two or more languages (Te Tari Mātāwaka Ministry for Ethnic Communities, 2018). This linguistic diversity offers both opportunities and challenges for developing focused, community-specific messaging. Multilingual emergency management information can be highly engaging for multilingual communities, but it is also difficult to effectively produce within monolingual emergency management systems (Federici, 2022).

The linguistic diversity of Pacific peoples in Aotearoa New Zealand is unsurprising in a country with one of the highest proportions of migrant workers compared to overall population in the OECD (Organization for Economic Co-operation and Development)

(Gaviola et al., 2024). Many Pacific peoples in Aotearoa New Zealand, however, are not migrant workers nor born overseas: 42% of respondents in the 2023 Census who identified as ethnically Indigenous Fijian (distinct from Fijian Indian) were born in Aotearoa New Zealand, including over 80% of those 15 and under.

Like many overseas diasporae, the Fijian community in Aotearoa New Zealand represents a fairly close-knit community with many shared cultural and social values. However, this population encompasses a breadth of ages, backgrounds, and education levels and ranges from recent immigrants to those who have spent their entire life in Aotearoa New Zealand, with significant variation in Fijian- and English-language skills across the community. Of those who have immigrated to Aotearoa New Zealand, 13% of Fijians have done so less than one year ago, while conversely nearly 25% have been in the country for over two decades, long enough to see considerable changes in both society and in the global and local natural environment and climate (Birkmann et al., 2010; Tatauranga Aotearoa Stats NZ, 2023a; Tripathy, 2020).

Though it is now enmeshed in the vernacular, this work endeavors to avoid the increasingly contested term *natural disasters*, for two reasons: first and most simply, this term is heavily questioned in the emergency management field for its positioning of disaster events as a 'natural' occurrence, as opposed to the consequences of human behavior and decision-making which lead to risk in times of significant natural events (Chmutina & von Meding, 2019; Kelman, 2020). Secondly, the language of *natural disaster* and *natural hazard* frames nature and natural events as negative or oppositional forces in dichotomy with human society, which is antithetical to many Indigenous communities' relationship with nature (Latai-Niusulu et al., 2024). Aotearoa New Zealand has a wide range of common natural events, and considerable tendency toward associated disasters. Within Aotearoa New Zealand, the frequency and severity of natural events and related disasters over recent years is in line with international data which

suggests that ongoing climate change is resulting in escalating disaster impacts (Gaviola et al., 2024; Natural Hazards Portal, 2026; Parsons, 2026; Parsons et al., 2026).

In a recent assessment of urban community perspectives on climate-related risks in Aotearoa New Zealand, survey data revealed that Māori and Pacific Islander respondents showed higher than average levels of cognitive awareness, emotional sensitivity, and coping intentions regarding climate-related risk awareness and management, but reported that they had lower levels of trust in formal institutions (Jayawardena et al., 2026). Trust, both institutional and community-level, is core to effective emergency management and disaster risk reduction, and there is increasing academic interest in methods for development of trust in these settings (Bonfanti et al., 2024).

Messaging about emergency management and, more broadly, nature and natural events in Aotearoa New Zealand is not produced by nor regulated by any one body. Emergency management systems in Aotearoa New Zealand are not entirely centralized nor are they uniformly structured, and instead function via a mixed model of governmental or statutory agencies working alongside or relying on non-governmental organizations to provide a range of operational capabilities (Curd et al., 2025). Emergency management communications are predominantly in English, though multilingual resources exist from certain centralized sources and via community-led initiatives. The Civil Defence's 'Get Ready' website provides a wide range of languages for emergency preparedness information, though not Fijian. Community initiatives include Facebook pages, church and other community groups, and radio, including Radio Viti, a national Fijian-language radio program which releases location-specific broadcasts weekly or biweekly (Manawatū People's Radio, 2026; National Emergency Management Agency Te Rākau Whakamarumarū, 2026).

Linguistic minorities, including both Indigenous peoples and migrants, are vulnerable in disaster events, and governments and non-governmental organizations face challenges

when designing communications strategies to develop relationships and foster trust in a multilingual society (Bohle et al., 1994; Uekusa, 2019). Mono-linguistic disaster risk reduction, and emergency management communications solely in the dominant language, are at risk of severely disadvantaging Indigenous peoples and migrants (Jia Li, 2023). Durable and robust emergency management systems must reach throughout societies and across communities to ensure good penetration of information via culturally-appropriate communications (Jia Li, 2023; Uekusa & Matthewman, 2023). It is important for collaborative, community-centered approaches to emergency management to consider language as well as culture in the production of meaningful messaging designed for and by the community (Kaiser et al., 2025; Uekusa, 2019).

While language is the focus of this study, it is well acknowledged that language and culture are deeply intertwined and cannot, and should not, be considered as separable (Chiblow & Meighan, 2022; Hicks et al., 2015; Völkel & Nassenstein, 2025). Fijian is an Indigenous language, though not that of Aotearoa New Zealand, and there is strong Indigenous Fijian interest in language and cultural preservation (Alam, 2025). The language is sustained within the overseas diaspora as well: the percentage of the Fijian population within Aotearoa New Zealand who report speaking a language classed as “Other”¹ remains steady, but far from universal, at 30.6% in 2023, from 29.7% in 2018 and 31.1% in 2013 (Tatauranga Aotearoa Stats NZ, 2023b).

In light of these needs, this research project investigates the effect and meaning of Indigenous Fijian-language (referred to in this thesis as Fijian; also referred to in published literature as *vosa vaka-Viti*² or *iTaukei*³) and English-language terms for

¹ not English, Māori, Samoan, Tongan, Tagalog, Afrikaans, New Zealand Sign Language, or a wide range of European and Asian languages

² the Fijian language

³ from *ai Taukei*, possessor, owner, original land-proprietor; modernized usage as a term for Indigenous Fijian by government decree in 2010, subject of considerable debate regarding its replacement of the term ‘Fijian’

nature and natural events within the Fijian- and English-speaking diaspora in Aotearoa New Zealand. The goal and intent of this work is to develop avenues to improve the efficacy and quality of nature and natural events-related risk awareness messaging for the studied population. The hypothesis of this study was that due to differences in languages and cultural perspectives, current assumed linguistic parallels in nature- and natural events-related emergency management messaging are not in fact equivalent to the identified audience.

Internationally and in Aotearoa New Zealand there is increasing acknowledgment that not only are the current emergency management systems at high risk of disadvantaging Indigenous communities, but in fact many Indigenous-led emergency management responses are valuable and effective in their own right (Kaiser et al., 2025). Tailored messaging about nature and natural events, which considers Indigenous values, perspectives, and knowledge, is limited or nonexistent within emergency management communications in Aotearoa New Zealand. Despite the value that Indigenous culture, practices, and knowledge can bring to risk reduction activities and emergency management strategies, Indigenous communities continue to have limited agency in both existing emergency management systems and in research to further develop them (Kaiser et al., 2025). Integration of Indigenous perspectives and community response and preparedness into emergency management systems can benefit both communities and the systems themselves (Ali et al., 2021; Dorji et al., 2024).

Aotearoa New Zealand's cultural and linguistic diversity is an important facet in the development of effective emergency management communications, including messaging about nature and natural events. There is a wide range of linguistic ability within the Indigenous Fijian community in Aotearoa New Zealand, and effective messaging must be built on a foundation of trust and tailored to reach throughout the community. There is

recognition of the importance of multilingual communications within the discipline of emergency management, but development and deployment remain challenging. In the context of Aotearoa New Zealand, the Fijian diaspora is a growing community with a commitment to language preservation and a large percentage of multilingual members. While community efforts exist, there remains no significant or widespread government-provided Fijian-language messaging about nature and natural events.

The following Literature Review chapter explores the current literature regarding the relationships between language and culture, the relationships between Indigenous cultures and emergency management, and finally the relevance of Indigenous and specifically Pacific research methodologies. The Methodology chapter then discusses the selected methods, specifically reviewing the application of Indigenous methodologies and frameworks to study design, data collection, and data analysis and maintained a community-centered and collaborative approach to consideration and interpretation of the results. The following Results, Discussion, and Conclusion chapters then provide detailed analysis of the collected data, consideration of their relevance to the field, and proposals for next steps to build on this work.

Chapter 2: Literature Review

2.1 Introduction

A literature review was undertaken prior to and during development of the interview and talanoa methodology and structure discussed Chapter 3, with refinements ongoing throughout data collection and analysis. It has served to generate a baseline understanding of the study subject, as well as to synthesize ongoing developments in the multiple, often non-overlapping fields which have contributed to the development and consideration of this research project. It focuses specifically on the fields of general linguistics, Fijian linguistics, Indigenous cultures, environmental sciences, emergency management, communications, and natural hazards and the natural world. This review was undertaken in order to bring together the wide range of relevant topics across multiple academic fields, with the goal to establish a foundation to better understand the effect and meaning of Indigenous Fijian- and English-language terms for nature and natural events within the Fijian- and English-speaking community in Aotearoa New Zealand. This review also focuses on the subject of Indigenous, and specifically Fijian, research methodologies, which inform the design and purpose of this research project. Research design and implementations must be undertaken with and for the community in question, and research methodologies appropriate for Indigenous data were also a core part of this literature review.

A multi-pronged, self-propagating approach was taken, with guidance from academic experts, community members, and cultural advisors. A review of the current research in the form of books, journal articles, and grey literature was conducted via the Massey University Library database, with secondary searches via ScienceDirect, SpringerLink, Sage Journals, Taylor and Francis, and Google Scholar. Further research and information was garnered via discussions with experts and community leaders, both academic and

cultural, including experts from the Pacific Research and Policy Centre (PRPC) at Massey, the Viti (NZ) Council o Aotearoa, and the Pasifika o Wairarapa Trust. Research was logged via personal notes and via the development of an annotated bibliography, and citations and references were collected in EndNote bibliography software.

This review broadly encompasses three main areas of consideration:

- the links between language and culture;
- the relationship between Indigenous Pacific cultures and emergency management; and
- potential research methodologies, both Indigenous and non-Indigenous.

While the overarching fields of emergency management, linguistics (Pacific and otherwise), and Indigenous cultures all interact heavily with nature and natural events, the perspectives within each field do not always, or often, overlap. Much of the literature currently published primarily utilizes a single dominant, field-specific perspective, although some literature exists in the overlapping spaces of these fields and provides more direct discussion of the impacts of these differing perspectives. Despite those bodies of work which are situated at the peripheries and consider cross-disciplinary questions, many conflicting ideologies and perspectives remain which affect our ability to discuss complex topics without introducing implications and assumptions from one researcher or field which may clash considerably with another.

This literature review seeks to discuss these differing perspectives without creating unnecessary confusion or dissonance, but given the complexity of the task it is recognized that not all of the viewpoints which are to be reviewed may be reconcilable.

2.2 Links between language and culture

In order to study the differing impacts of English- and Fijian-language terms, we must first consider the impacts of language choice overall. It is key to any effort at communication to recognize the implications of language choice, specifically that languages are developed as a part of a culture and have a strong relationship between the two (Völkel & Nassenstein, 2025). Even in bilingual or multilingual societies, the dominant language tends to remain the default and the language of choice in institutional communications and publications (Gentil & Séror, 2014). This has a wide impact, as language and culture affect all communications, both interpersonal and institutional (Hopf et al., 2016; Hopf et al., 2018; Shameem, 2007; White, 2002). Language and culture are tightly interwoven and cannot be fully separated; from this lens, language influences perceptions of the world, even perceptions of ostensibly innate natural phenomena (Hicks et al., 2015; Lupyan et al., 2020). Language also influences emergency management communications, including communications about nature and natural events (Federici, 2022).

This influence and impact is important to consider when developing and deploying emergency management operations, as successful emergency management relies heavily on effective communications (Ewart et al., 2016). Disaster management in multilingual societies therefore requires complex communications strategies, including dissemination of information in multiple languages and at multiple language skill levels to disparate audiences (Uekusa & Matthewman, 2023). This is challenging in the face of the significant urgency and turmoil produced by disaster events, and is often stymied by disaster management systems which persist in operating in a single, dominant language (Uekusa, 2019).

A recurrent feature in the conflicting perspectives of this review, in fact, is the hegemony of Westernized English-language frameworks and phrases in the field of

emergency management. Studies may critically discuss the concept of disasters as a consequence of nature as opposed to the decisions of human society without ever considering the implications of the terms “natural disaster” or “natural hazard” themselves (Chmutina & von Meding, 2019). Indigenous researcher-led studies, and the lived experience of non-Indigenous researchers, highlight the very real impact of linguistic choices when discussing nature and natural events with communities, as unexamined use of English terms such as “natural hazard” for elements of nature which are revered by local and/or Indigenous cultures has led to breakdown of relationships and significant contention between Western, English-dominated emergency management systems and Indigenous communities (Gabrielsen et al., 2018). This is notable especially in the field of emergency management communications in Aotearoa New Zealand, where emergency management systems and agencies operate predominantly in English at the national, regional, and local levels (Bush International Consulting, 2024; Lee, 1990; National Emergency Management Agency Te Rākau Whakamarumaru, 2026).

2.2.1 Language and culture in Pacific Islands communities

While many national agencies in Aotearoa New Zealand may operate in English, their audiences are certainly not strictly monolingual. Pacific Islands communities in particular make up the second-largest Indigenous demographic classification in Aotearoa New Zealand, following New Zealand Māori (Tatauranga Aotearoa Stats NZ, 2023a). This is both unsurprising and a somewhat disingenuous classification scheme, as “Pacific Peoples” encompasses a broad range of inter-related but still culturally, linguistically, and geographically diverse Indigenous groups (Mafale’o et al., 2024). The need for effective communications among such a diverse collection of communities introduces the question of broader Indigenous cultural relationships to language (Cunningham, 2006).

Indigenous Fijian communities, both within Fiji and within the Aotearoa New Zealand diaspora, serve as clear examples of complex multilingual Pacific Islands societies. Many established societies within the Pacific Islands have a broad diversity of location-specific dialects and ethnic groups which have maintained contact with the larger cultural group, such as the Lau group in the east of Fiji (Geraghty, 1983; GISGeography, 2026; Jourdan, 2010). Fijian and other post-colonial Pacific Islands communities and their international diasporae must also contend with the imposition of centralized governmental structures and the use of official languages, as well as the encroachment of English and other non-Indigenous languages often necessary for daily use (Ridge, 2025).

Like many other Pacific Islands nations, Fiji is notable for its majority-Indigenous population, which despite the structural and societal impacts of British colonialism persists as the dominant culture, with the Bauan dialect of Fijian the dominant language in society and government (Finau & Chand, 2023). The broader group of Fijian Indigenous languages count among them a reported 300 dialects, but some are at risk of becoming eradicated by the widespread use of English and the British colonial system's imposition of Bauan as the single official dialect (Pickering et al., 2024). Multilingualism in Fiji is thus common and in many environments necessary, but despite this, the connections between Indigenous language, culture, and identity remain strong (Pakendorf et al., 2021; Slotta, 2012).

In this context, Fijian communities within and outside of Fiji are widely multilingual and often have had to navigate the process of code-switching and situation-specific language selection from an early age. A study of language choices and linguistic multi-competence (the interconnected knowledge of more than one language within a single person or community) among Fijian school students fluent in Indigenous Fijian as well as other languages found that they often deployed and used different languages with different partners (Cook & Li, 2016; Hopf et al., 2018). Fijian was found to be a key language for

community social groups in Fiji, despite the widespread use of English, and school students demonstrated extensive code-switching depending on the social standing, familiarity, and cultural and ethnic backgrounds of conversation partners, highlighting the frequent utilization of multiple languages as deemed appropriate for a given situation, subject, or audience (Hopf et al., 2018).

This code-switching has impacts on identity and associated with language, including in overseas diasporae. Research into ethnic identity in Auckland Pasifika communities specifically found that while community language is not always described as central to individual identity, it plays a large role in the expression thereof, within some communities more than others (Starks et al., 2005). For many Pasifika communities in Aotearoa New Zealand, identity is complex and integrates a broad feature of attributes, customs and cultural practices (Starks, 2006; Starks et al., 2005). Starks et al (2005) posit that research in this sphere “too often take[s] language out of the cultural mix and look[s] at it in isolation” when connection between culture and language is important to inform decisions about policy and support (p. 2196). Supporting this, Kepa and Manu’atu’s (2006) review of a Tongan-language educational program for Tongan high school students reflects on the importance of having bicultural and bilingual members within communities as well as cross-community partnerships, alongside the critical need for trust and collaboration between members of the dominant Pākehā/English-speaking social structure and Pacific communities in order to achieve success (Kepa & Manu'atu, 2006).

Multilingual and multicultural audiences especially present unique communications challenges and opportunities in the discipline of emergency management, including in regards to what the discipline of emergency management refers to as natural hazards (Doyle et al., 2023; Federici, 2022; Gougisa et al., 2023). Oceania specifically is noted to have at least 1200 languages, often sequestered among small communities

(Cunningham, 2006). This diversity of Pacific languages lends significant complexity in the study of the impacts of language and culture on understanding and identity.

Each Pacific language offers its own unique and individual linguistic idiosyncrasies and symbology, and each language serves as “a vehicle for values, ethics and aesthetics expressing desires and utopias” (Cunningham, 2006, p. xi). Individual Indigenous communities develop and define their own distinctive traditions, rituals, social institutions, and cultural traits including language, and Indigenous languages are perceived to be deeply linked to physical place, with culture and language functioning as a marker of connection to ancestral place (Chiblow & Meighan, 2022; Ridge, 2025). (Benavides et al., 2024).

2.2.2 Language and culture influence perception and communication

These values, ethics, desires, and perspectives contained within language influence more than just individuals’ sense of identity and place. While culture affects language and vice versa, the impacts do not halt with this reciprocal interaction (Albarracin, 2025). Effective communications between culturally and linguistically distinctive groups are also impacted by the relationship between language and overall perception of the world, including social norms, expectations, and understandings.

Language and culture influences individual perception of what is being discussed, to the extent of affecting even perception of seemingly objective phenomena: the language used has been found to affect visual perception including the perception of colors (Lupyan et al., 2020). The impact of language, and, within language, culture, on perception therefore introduces the philosophical consideration of the deeply subjective nature of reality, and the challenges in recognizing that differences in perception even exist (Lupyan et al., 2020). Without inter-cultural collaboration and thorough discussion of perceived experiences, differences in perception may be elided or lost: “...how strongly we assume that the same perceptual input should produce the same perceptual

experience. It is only by comparing notes that we can appreciate that sometimes it does not" (Lupyan et al., 2020, p. 940).

When creating communications regarding nature and natural events, Indigenous populations' perceptions of and relationships with nature and the environment are fundamental to their understanding thereof (Chiblow & Meighan, 2022; Gougsa et al., 2023). Gougsa et al's (2023) global transdisciplinary research into minority and Indigenous populations' relationships to ecology found that languages were central, core "systems of knowledge on which one constantly relies to interpret and relate to" reality and one's surrounding environment (p. 4). The cognitive impacts of contact with nature has been shown to be dependent on the studied individuals' subjective states of mind (Zhi et al., 2026). Multilingual and multicultural communication must therefore be approached with an awareness of potential differences in perception.

This is true of any discipline of study, but is particularly relevant in those disciplines dominated by a single monocultural worldview. The hegemony of Westernized English-language cultural worldviews have repeatedly proven detrimental, intentionally or otherwise, in the context of Oceania. Analysis of legal testimony and court documents regarding European and Pacific Islander communications as early as 1993 showed that even simple yes and no answers were not utilized in the same ways in European or Pacific Islander communications, and that these discrepancies were high risk for resulting in profound miscommunication which disadvantaged one or both conversational partners (Lane, 1993). Skilled communications strategists, moreover, can and will employ careful use of language to maximize perceptions in their favor. Textual analysis of the Australian English used to discuss the natural environment has been found to be implicitly in favor of commercialization of the environment through the employment of deliberate linguistic tactics to favor commercialization and discourage conservation (Fill & Mühlhäusler, 2001). Through discourse, the societal process of

developing a system of linguistic representation to configure and reconfigure meanings and values, communities may thereby develop a shared concept of nature. During this discursive construction of nature, particular ways of knowing the environment are inevitably privileged or dismissed in the process (Astaburuaga et al., 2022).

Particular constructions of nature and culture may then inform researchers' consideration of what is important to critique versus what is perceived to be unremarkable. In a 2018 paper on terminology and meaning within disaster risk management, Ilan Kelman (widely influential in the field) seeks to interrogate the impact of language, but selects specific, English-only terms for review; he reflects on the etymologic origins of specific English words and their difficulty in being translated cross-linguistically and cross-culturally, but fails to consider the relevance of translation of any non-English words into English (Kelman, 2018). Kelman does recognize that "linguistic differences are not just in translation and interpretation, but are also cultural," but does not further reflect on Indigenous culture or Indigenous relationships to nature, nor their differences to Western philosophical perceptions of nature (Kelman, 2018, p. 282).

Results of the discursive construction of the relationship between humanity and nature may go unexamined while still having significant influence on research design, methodology, and outcomes. For example, in the past decade considerable study and discussion has focused on the term *natural disaster*; Chmutina et al's (2019) paper on the linguistic impact of the term extensively critiques the concept of natural disasters as a consequence of nature as opposed to as a consequences of the behaviors and actions of human society. Despite the paper's focus on specific linguistic considerations, nature and human society remain depicted as strictly dichotomous, framed within the established perception of nature and society as disparate processes (Chmutina & von Meding, 2019).

Protection of and engagement with linguistic diversity places value on individual languages as representing necessary adaptations to individual social and natural

environments (Fill & Mühlhäusler, 2001). Each language, Mühlhäusler states, is its own interpretation of the incomprehensible complexity of the truth of the natural world, and represents an opportunity to learn from cumulative cultural insights. While some claims in this essay overreach any supporting evidence, the statement that “Western languages have many gaps in their ability to express aspects of the environment” (Fill & Mühlhäusler, 2001, p. 163) has been supported in independent studies of climate-related Indigenous languages, specifically in the appropriation of Indigenous climate and environmental terms by Western science (Chiblow & Meighan, 2022; Fine et al., 2023; Ksenofontov et al., 2025).

Multilingual, multicultural discourse about nature and natural phenomena can offer an adjustment of perspective not only on the finer details but also on the broadest, most baseline of assumptions. Language places ecological understanding into cultural context, and this cultural aspect of language has an impact on and importance in understanding local ecologies and cultural revitalization, and many Indigenous languages both encode ecological knowledge and “reveal the way that we think about, act, and respond....learning a word sharpens the eye and changes the vision” (Wehi et al., 2024, p. 883).

Traditional methods of knowledge transmission are often critically dependent on Indigenous language and the culture. In a study of Indigenous knowledge specifically passed down through song in Indonesian culture, Sutton et al (2021) find that language and culture play a key role in communication and education, with traditional Indigenous language and song structures providing crucial disaster preparedness and response knowledge (Sutton et al., 2021). The authors conclude that maintenance of Indonesian Indigenous language and culture is key to transmission of this traditional knowledge from generation to generation and cannot be uncoupled from it (Sutton et al., 2021).

Unexamined perceptions of the importance of respective cultures and languages may also result in very real discrimination and harm. Within the field of emergency management, linguistic minorities are considered more vulnerable in disasters due in part to language barriers, as most disaster communications structures produce the preponderance of communications in the language of the linguistic majority. The particular cultural hegemony of prioritizing a dominant language in communications may be perpetuated even by linguistic minorities who may gain political, economic, cultural, and social advantages to learning and using dominant or more socially powerful languages instead of their minority language (Uekusa, 2019).

Communication in multilingual contexts is particularly important regarding nature and natural events, including within disaster risk reduction terminology. Translation of information into Indigenous languages is important to Indigenous communities, though these translation efforts can be fraught and badly under-resourced. The role of translation and interpretation in disaster risk reduction specifically is hindered by the challenges of translating key terms, as well as the field's avowal of the importance of multilingual risk communication without devotion of commensurate funding or efforts to access translation or other relevant technologies (Federici, 2022; Rangiwai et al., 2021). Without significant resources committed to high-quality or even any translation or interpretation, communication around nature and natural phenomena cannot effectively "vehicle knowledge and terminology across linguistic borders" (Federici, 2022, p. 383).

Linguistic minorities, typically Indigenous groups, internal migrants, and transnational migrants, are broadly disadvantaged by these predominantly mono-linguistic disaster communications (Li et al., 2023). Despite efforts to create robust emergency management plans, without multilingualism during disasters and emergencies, linguistic minorities are often excluded from "timely high-quality information related to disaster preparation, response and recovery" (Li et al., 2023, p. 383). A deeper comprehension of linguistic

minorities' cultural factors may result in better trust, collaboration, and understanding when engaging in disaster communications.

Combatting the self-perpetuating hegemony of monolingualism requires strategic inclusion and deliberate shifts in power dynamics. In his 2023 assessment of multilingual disaster communications, Uekusa is joined by Steve Matthewman to present an opinion essay considering the potential for multilingual programs and structures within disaster management. Their conceptual discussion focuses on the concept of inclusive multilingualism, wherein individuals and programs communicating not only from the dominant language into minority languages, but also reciprocally (Uekusa & Matthewman, 2023). While Uekusa and Matthewman's essay shares many of the points and some of the data from Uekusa's 2019 paper above, the joint paper branches out to introduce the term 'translanguaging', a verb meaning to simultaneously use multiple languages' words, meanings, and ideologies, the purpose of which is to decentralize structural and interpersonal social power. The authors' ideological appeal is less about an increase in fluency and "more about communication and mindsets" (Uekusa & Matthewman, 2023, p. 5). They support not simply increasing the number of languages used in official communications but going further to alter the balance of power and broaden the perspectives of those creating and deploying communications.

2.2.3 Multicultural disaster communications

How then to alter the balance of power effectively and safely? Best practices for communications regarding natural hazards and related disasters specifically are the subject of ongoing research. A historical review of the discourse on natural hazards, vulnerability, and resilience found that the way in which natural hazards have been perceived is changing within the fields, developing far beyond initial attempts to challenge the Western concepts of disaster in the 1970s (Le De & Gaillard, 2022). Pacific Islands such as Vanuatu have served as case studies for their experience with a

continuum of constant environmental and social hazards beyond the discrete boundaries of specific disaster events. Le De and Gaillard detail and recommend the idea of participatory pluralism in order to empower local communities to define disaster events and guide or even control decision-making about preparedness, response, or recovery (Le De & Gaillard, 2022).

Participatory communications systems, however, require the dominant risk reduction and disaster management systems to not only engage with communities and individuals but also to listen to them, a level of dialogue which has proven challenging to achieve under current structures and pressures. Despite its importance and social necessity, MacIntyre et al's (2019) evaluation of risk communication regarding extreme weather and climate change found that inclusivity is challenging and not often achieved. Much of the studied extreme weather risk communication was short-term only, despite the long-term nature of climate change and nature-related hazards, and there was a paucity of the long-term proactive risk communication necessary to complement any short-term disaster-related information (MacIntyre et al., 2019). Echoing many of the voices in the field, the authors express that despite considerable academic focus on the importance of risk communications as a reciprocal, interactive process, "the current literature suggests that most communication is a uni-directional warning from decision-makers to an uninvolved public, rather than a dialogue" (MacIntyre et al., 2019, p. 153).

Review of community initiatives following major disasters such as the 2011 Great East Japan Earthquake and Tsunami have found that community cohesion and resilience are critical, specifically connections between communities and authorities and disaster management systems (Siawsh et al., 2023). Effective communication requires "inclusive community-based approaches" which engage in reciprocal exchange of ideas (MacIntyre et al., 2019, p. 152). Communication with communities requires understanding of their values, goals, beliefs, and tolerance for uncertainty (Doyle, 2011).

Concordant with this, Gaillard and Mercer's 2013 review of the then-contemporary challenges in moving from theory to action in disaster risk reduction again highlights the needs for focus on integration of knowledge from multiple entities, alongside promotion of inter-actor cohesion (Gaillard & Mercer, 2013). In order to develop the multicultural, multilingual communication systems which discover and engage with Aotearoa New Zealand's diverse communities which are necessarily involved in disaster preparedness or response action, considerable time and effort must be taken to center and empower those communities' perspectives and understandings.

2.2.4 Topic Summary: Links between language and culture

Language and culture are deeply interwoven, especially with Indigenous Pacific Islands communities, and language provides a crucial link between individuals and their cultural identity and the larger cultural group. However, this is complicated by the influences of colonialism and centralized governmental bodies which prioritize one language, often English, over others. Multilingualism is common and often necessary within the Indigenous Fijian-speaking community particularly. There is a gap in the literature regarding the understanding of the relationship of the Indigenous Fijian language to Indigenous Fijian identity and culture within the Aotearoa New Zealand community.

The interconnection of language and culture influence understanding of the world and perception of events, interactions, and communications. Conceptions of nature and natural events are different between different cultures and subsequently between different languages. There is a gap in the understanding of how the Fijian language influences perception and understanding of terms for nature and natural events in the Aotearoa New Zealand community.

Emergency management communications about nature and natural events are impacted by language choices and cultural perspectives. Multilingual and multicultural societies like Aotearoa New Zealand face challenges in developing effective emergency management

communications, particularly with Indigenous communities such as the Indigenous Fijian diaspora within the country. Participatory, inclusive communications systems are recommended to help empower Indigenous communities and linguistic minorities within emergency management structures. Emergency management systems in Aotearoa New Zealand do not have active participatory communications systems established with the Fijian-speaking community, nor do they have systems established for Fijian-language-inclusive multilingual emergency management communications.

2.3 Indigenous cultures, language, and emergency management

While language barriers and conflicting or discordant cultural understandings have been found to affect outcomes in communications between Pacific Islands communities and English-dominated social and political structures, the value to both parties of mutual understanding and cooperation is significant (Cunningham, 2006; Lane, 1993). Pacific Islands and specifically Fijian Indigenous knowledge can provide significant benefits to emergency management regarding nature and natural events for both the overarching governmental power structures and the communities involved (Gaillard, 2007; Kelman et al., 2015; Mercer et al., 2009; Petzold et al., 2023).

Alongside recognition of the contributions and strengths of Indigenous knowledge to disaster management comes the understanding that Indigenous cultures and languages are different from colonial ones, not least in the way they collect, transmit, and receive knowledge. Utilization of and respect for Indigenous knowledge remains core to many Aotearoa New Zealand communities, both Māori and Pasifika. Indigenous communities typically engage in a longitudinal, long-term collection of knowledge which is then passed down throughout communities via oral traditions of knowledge transfer (Hautzinger, 2024; Latai-Niusulu et al., 2024). Community connections build strength through relationships, and local social networks serve to hold and transfer knowledge throughout community members. These communities rely not only on

governmental and larger committee efforts, but significantly on smaller-scale or local social networks to provide long-term knowledge transfer and risk reduction in respect to ecological risks (Ahangama et al., 2019).

2.3.1 Indigenous knowledge in the field of natural history and ecology

Indigenous knowledge has seen increasing integration into colonial systems of natural history and ecology research and policymaking. Indigenous, or traditional, ecological knowledge, while still frequently defined as separate from or complementary to the assumed standards of the dominant colonial structures of emergency management, has been recognized as valid, valuable, and in some settings necessary for effective understanding of nature and the environment. While Indigenous researchers and perspectives remain the minority in the field, increasing recognition of the impacts and effects of Indigenous ecological and natural historical knowledge has led to a growing output of research incorporating Indigenous knowledge.

Preservation of this knowledge, however, remains at risk. Disruption of traditional Indigenous knowledge transfer and implementation may disrupt previously effective long-term ecological management practices. Fire management has become a particularly common topic of review regarding Indigenous traditional ecological practices as Western colonial fire ban practices have shown themselves increasingly dangerous and ineffective. A review of severe fires in Australia and their contemporary forestry management practices noted that fire management practices changed dramatically with colonialism, and this corresponded with the onset of considerably worsened forest fires (Mariani et al., 2022). The authors posit that Indigenous fire management practices provided ecologically stable systems for millennia in Australia; they note that colonial fire management practices appear to have led to historically destructive fires and suggest that the interruption of Indigenous fire management practices has had immediate deleterious effects (Mariani et al., 2022).

While many traditional Indigenous practices such as fire management have been suppressed, some Indigenous communities have still maintained the transmission of knowledge about smaller-scale practices within their scope of influence. Pacific Islands Indigenous communities in the Solomon Islands have continued person-to-person transfer of traditional Indigenous knowledge and experiences related to tsunami response (Mikulecký et al., 2023). Māori residents of the Karikari Peninsula continue to pass down traditional protocols regarding fire management and fire risk reduction from generation to generation within whānau, and Māori residents' strong attachment to land and place was identified as a primary cause for interest in and awareness of these traditional protocols (Langer & McGee, 2017).

In this setting, there has been increasing recognition of the value of what Kyle Powys Whyte, a researcher and citizen of the Potawatomi Nation, terms traditional ecological knowledge, defined as both the knowledge itself as well as the collaborative responsibility to maintain and transmit it (Whyte, 2013). These responsibilities "arise from particular cosmological beliefs about the relationships between living beings and non-living things or humans and the natural world" (Whyte, 2013, p. 5). Powys White notes that while traditional ecological knowledge may be valued by those colonial systems which can benefit from it, engagement with traditional ecological knowledge is often predicated by its extraction and repurposing by those deeply entrenched in and committed to the Western scientific community and worldview.

If conservation efforts are therefore to effectively and meaningfully incorporate Indigenous knowledge, they must also incorporate Indigenous perspectives, experiences, and efforts. In a 2024 review of circumstances of the Soligas Indigenous Indian peoples in the Western Ghats, the Soligas' experiences under previous limiting and exclusive legislation had led to poor conservation outcomes, while their current hard-won forest management standards, based around living in cooperation with diverse

and risk-prone ecosystems, were found to be more effective and successful regarding forest health and biodiversity (Sangha et al., 2024). The authors propose that, following the Soligas peoples' example, government and non-governmental authorities' support of local forest management by Indigenous residents may more effectively achieve shared conservation goals (Sangha et al., 2024).

Without active, influential participation from those equally engaged in and committed to Indigenous cultures and worldviews, discussions of traditional ecological knowledge remain at risk of perpetuating dominant cultural perspectives despite themselves (Whyte, 2013). Powys Whyte thus states that engagement with Indigenous ecological knowledge must center reciprocal communication and the maintenance of Indigenous ownership of and responsibility for traditional knowledge; as in Gaillard and Le Dé's (2022) concept of participatory pluralism, local communities must be able to meaningfully influence outcomes such that they can "control the decisions intended to lift their well-being" (p. 10).

2.3.2 Indigenous knowledge in the field of emergency management

If the shared conservation and risk reduction goals of Indigenous communities and non-Indigenous governmental bodies are to be met via collaborative, participatory systems, communications between the two must be sustained and effective. There is an expressed need within Indigenous communities, including in Aotearoa New Zealand, for improved relationships and collaboration between mainstream and Indigenous emergency management groups; this effort at shared understanding must go both ways (Kaiser et al., 2025).

While still dominated by colonialist worldviews, the discipline of emergency management in Aotearoa New Zealand and worldwide has experienced a significant shift toward acknowledgment and interest in Indigenous knowledge and perspectives in recent decades. A multiplicity of studies have shown the beneficial effects of

incorporation of Indigenous knowledge into emergency preparedness and disaster recovery efforts. However, as in the fields of ecology and natural history, the metrics used to assess utility and success remain unquestionably within the control of Western, English-speaking institutions. Broad and simplistic definitions of Indigenous peoples as simply “communities that still live in harmony with nature” do not take into account the complexity of modern societies nor the increasing relevance of overseas diasporae (Mikulecký et al., 2023, p. 2). Without appreciation of the diversity of current Indigenous experiences, Indigenous communities risk continually being positioned as existing apart from modern society and without the necessary knowledge or abilities to effect change or improve their conditions (Dorji et al., 2024). In truth, Indigenous communities are broad-reaching and diverse and comprise an estimated 250–300 million people “who own or live on over 20% of the earth’s surface” (Cuaton & Su, 2020, p. 1), and simplified views of Indigenous communities’ relationships with nature and Western society may create a barrier to integration of Western scientific views and Indigenous knowledge.

In a 2023 study of the perceptions of Indigenous knowledge systems for drought preparedness in rural Umzingwane in Zimbabwe, the authors suggest a reconsideration of policy and research approaches to incorporate and benefit from the Indigenous worldview. They propose that while tensions continue to exist and grow between Indigenous knowledge systems and modern technologies, there remains considerable space to employ complementary approaches to achieve maximally beneficial outcomes (Mandiopera et al., 2023). Similarly, in a qualitative study of Indigenous peoples in the Philippines, the Indigenous Kankanaey people were found to maintain their own Indigenous methodologies while still seeking to effectively integrate Western scientific and Indigenous knowledge to build as accurate and effective a warning system for and understanding of high-impact weather events as possible (Balay-As et al., 2018). The

Indigenous community proactively utilizes both types of knowledge, and the authors reflect that Indigenous and Western scientific knowledge “may actually work together to reduce disaster losses” in multiple arenas when integrated by Indigenous communities (Balay-As et al., 2018, p. 23).

Indigenous peoples have developed traditional knowledge and practices through long association with nature and place in order to help them maintain resilience regarding climate hazards, and many of these practices remain effective (Sutton et al., 2021). Indigenous tsunami risk reduction knowledge, passed down via traditional songs in communities on Indonesia’s Simeulue Island, was found to corresponds with critical tsunami risk reduction actions as well as a remarkable survival rate from the 2004 Indian Ocean tsunami, despite the communities’ proximity to the epicenter and the widespread destruction of buildings and infrastructure (Sutton et al., 2021). Cuaton and Su’s (2020) review of local Indigenous knowledge following Typhoon Haiyan in the Philippines suggests that international and local disaster risk reduction bodies can and should learn from Indigenous knowledge regarding climate-related natural hazards. The authors tout the value of Indigenous knowledge and cultures to “develop community resilience, advance disaster risk reduction and management activities, and anticipate the effects of increasing hazards intensified by climate change” (Cuaton & Su, 2020, p. 7).

Indigenous populations worldwide have also been found to have remarkable resilience and self-reliance in knowledge acquisition, knowledge transmission, and overall community response to disasters, specifically those related to nature and natural events (Gaillard, 2007). Sustainable livelihoods and community cohesion can result in “a remarkable ability to cope and prosper in the face of a series of external hazards” (Rampengan et al., 2014, p. 247), as noted in a study of a village on Ruang Island in Indonesia throughout disaster, relocation, repatriation, and rebuilding. Similar work in

the Solomon Islands illustrates how research involving Indigenous Pacific peoples can provide clear examples of Indigenous methods of building capacity and incorporating traditional cultural knowledge with scientific knowledge and methodology in order to effectively prepare for and respond to nature and natural events (Pettersson et al., 2003).

Systems of knowledge transmission remain resilient as well. Investigation of traditional knowledge among Indonesian communities regarding Indigenous knowledge of nature and natural events found that a wide variety of signs and signals associated with warnings for natural events are embedded in religious teachings which are passed down even as societies lose more structured traditional knowledge (Nopriyasman et al., 2024). The authors suggest that with this understanding, specific policies based on Indigenous knowledge may be developed both within government and within those traditional communities (Nopriyasman et al., 2024). In a 2019 study of a northern Indian Indigenous population situated in a conflict zone, locals' knowledge of natural hazards was found to be concordant with established scientific geological knowledge (Ahmed et al., 2019). The authors note that many Indigenous populations may aspire to maintain their cultural, geographical, and institutional distinctions, and Indigenous knowledge acquisition and transmission is capable of providing similar level of understanding in a culture not reliant on colonial education systems (Ahmed et al., 2019).

Indigenous researchers' involvement has been identified as key in maintaining appropriate stewardship and integration of traditional Indigenous knowledge. In a 2017 Indigenous perspective on Ngāti Rangi's maunga's volcanic events, the authors highlight how Indigenous knowledge is infrequently considered when non-Indigenous groups have sought to define volcanic risks or develop emergency management plans (Gabrielsen et al., 2018). Underpinning the deep conceptual disconnect between

scientific Western and Indigenous perspectives on natural and natural events, the authors note the negative implications of the ubiquitous term “hazards” to describe volcanic eruptions and other natural events, and the resulting contentions this perspective produces between many emergency management professionals and iwi and other Indigenous groups (Gabrielsen et al., 2018).

2.3.3 Small island and Pacific islands Indigenous knowledge in the field of emergency management

Amongst the body of literature on traditional Indigenous ecological knowledge, small island and Pacific islands communities such as Fiji have been highlighted specifically for their diverse and unique perspectives on nature and natural events, particularly in relationship to the escalating frequency and severity of climate change (Elkharboutly & Wilkinson, 2022). The integration of small islands’ and Pacific Islands’ Indigenous knowledge with Western scientific knowledge has long been proposed as a strategy to better assess and mitigate disaster risk. Diverse and increasing disaster risks have been found to place Indigenous Pacific Islands communities such as Papua New Guinea and other small island developing states at severe disadvantage in regards to addressing and coping with nature and natural events (Mercer et al., 2009).

This disadvantage is attributed to small island nations’ geographical isolation and economic disadvantage as well as to the loss of Indigenous knowledge which had previously been employed as a system of risk reduction and mitigation. Mercer et al’s above-mentioned study is a notable relatively early example of consideration of small island Indigenous knowledge integration with scientific knowledge in efforts to reduce these communities’ vulnerability to natural hazards (Mercer et al., 2009). Despite nearly two decades of research by and about small island communities’ Indigenous knowledge contributions to climate change adaptation and resilience, the ongoing

discourse has not meaningfully incorporated much of the disaster-related research by and about island communities (Kelman et al., 2015).

Small island communities are disproportionately at risk of a wide range of natural events and disasters, and there remains a complex interplay of cultural values and resource limitations which contribute to the development or degradation of their resilience in disaster events. In Ching et al.'s 2020 study of volcano risk understanding in communities in Hawai'i, they discovered that most current scientific research remains focused on the risks and dangers of living in proximity to a defined natural hazard such as a volcano; the authors suggest that future research should be willing to investigate both the benefits thereof and communities' willingness to live with risk (Ching et al., 2020). Developing broader disaster risk reduction and response policies based on Indigenous knowledge requires culturally appropriate systems for considering those risks related to nature and natural events, and studies of climate change effects on Indigenous peoples worldwide have identified four main categories of risk: risk to basic resources, social risks, political risks, and economic risks (Benavides et al., 2024). This categorization is designed to provide a framework for review of climate-related effects and impacts on Indigenous peoples (Benavides et al., 2024).

Despite significant and increasing climate risks, shared cultural values and strong community relationships have been found to bolster small islands' responses to and recoveries from disasters. Research in Fiji following the severe 2012 cyclone event has shown that Indigenous Fijians' secure group membership, strong social system, and collectivist value system appears to have improved their group resilience to the event, even compared to Indo-Fijians undergoing the same event (Ching et al., 2020).

Indigenous Fijians living in the rural Fijian highlands were able to effectively prepare for and respond to the cyclone and subsequent major floods events even when hindered by subpar communication from central government sources to the inland villages and

the negative effects of fatalist perspectives which limited preparedness and risk reductions (Pearce et al., 2020). Despite a lack of supplies and specialty skills, rural Indigenous communities actively engaged with recovery efforts as a cohesive group (Pearce et al., 2020).

Alongside community connections, many Pacific Islands' Indigenous cultures maintain an enduring connection to nature and the natural environment, including a perceived responsibility for the transmission of ecological knowledge to future generations. Vanua, a Pacific Islands Indigenous concept of land, culture, and society shared by Fiji and many other Pacific communities, connects the past, present, and future within a fabric of belonging in or connection to a physical place. The term *vanua* may incorporate concepts as broad as the relationships between human society and the natural world; other related concepts such as the Samoan household unit *fua'iala* are more discrete while still representing a similarly dynamic, living system which "emphasiz[es] the reciprocal relationship between humans and nature" (Latai-Niusulu et al., 2024, p. 4).

Vanua exists as a central and powerful concept in the structure of Fijian society and interpersonal relationships, and many studies have assessed and explicated the meaning and role of the concept of vanua within Indigenous Fijian communities' experience of nature and natural events. In the context of Indigenous Fijian culture, vanua is widely viewed as essential to individual and societal identity (Yee et al., 2022). The Indigenous Fijian idea of vanua represents a shared cultural concept which comprises "the land, and the people, [and] dictates the ground rules of relationships and most other things, including the natural environment, social bonds, kinship ties, ways of being and knowing, spirituality, and stewardship" (Pickering et al., 2024, p. 3). Vanua represents and depicts an interconnectedness of society, ancestors, spirit, body, and nature, and the term *vanua* may mean land, culture, or society depending on

context. Vanua also speaks to Indigenous Fijians' connection to, stewardship of, and bonds with the natural environment, and the literal and figurative connotations of vanua are interconnected and contextual (Yee et al., 2022). The impact of climate change on sea levels, coral bleaching, and extreme weather events has been found to threaten the relationships between Indigenous Fijians and the natural world which are core to the concept of vanua (Pickering et al., 2024).

Because of the powerful connection to place and to one's specific natural environment, relocation within or from Fiji has proven an unpopular or difficult risk reduction and adaption action in response to climate change. Separation from one's vanua, both physical and societal, has been shown to be difficult and psychologically negative for many Fijian communities involved in climate-change related relocation programs, and Indigenous Fijians' perceived connection to place remained post-relocation, with some choosing to pursue lifestyle changes in order to avoid relocation (Neef et al., 2018). Such connection to nature and place is highly relevant in the context of discussion of the experience of the Indigenous Fijian-speaking diaspora in Aotearoa New Zealand, who necessarily are physically separated from the place of their forefathers and ancestors but maintain transmission of language and culture within the community.

2.3.4 Topic Summary: Indigenous cultures, language, and emergency management

The preservation, maintenance, and transmission of traditional ecological knowledge is valuable to Indigenous communities and to emergency management systems overall. There is a gap in the understanding of traditional ecological knowledge, particularly about nature and natural events, within Fijian-speaking communities in Aotearoa New Zealand. There is also a gap in the understanding of how these communities collaboratively maintain and transmit their knowledge about nature and natural events.

Despite recognition of the value and utility of Indigenous knowledge in emergency management, English-dominated emergency management systems in colonial nations

often do not actively or effectively integrate this knowledge, and there is high risk of misunderstanding or misuse of Indigenous knowledge in this setting. There is a similar need to better understand the breadth of emergency management knowledge held within the Fijian-speaking community in Aotearoa New Zealand, and the way in which the community maintains and transmits this knowledge.

As noted above, language is interwoven with culture, and many Indigenous cultures, including Indigenous Fijian culture, are also deeply connected to physical place. The concept of *vanua*, which is connected to culture, self, language, ancestors, and physical place, reflects these connections between language, self, and ancestral place. There is a gap in understanding of how the connection between language, nature, and place affects the impact of terms for nature and natural events within Fijian-speaking communities in Aotearoa New Zealand. There is a role for further research to investigate how the concept of *vanua* influences the community's desire to maintain and transmit knowledge of language, culture, and nature and natural events together.

2.4 Research methodologies

Core to any research project is the selection of a research methodology, or a structured approach by which the project may be designed and implemented. Underpinning the selection of a research methodology is the recognition and revision of the researcher's overall paradigm, that is, their perspective and beliefs regarding the world and knowledge itself. The traditional Western scientific definition of a research paradigm is a system of understandings which encompass four major philosophical assumptions: ontology (ideas about the nature of reality), epistemology (ideas about the construction of knowledge), axiology (ideas about values, emotions, and ethics in research), and methodology (ideas about the manner in which the project is performed) (Isik, 2025). All of these existing each research prior to the beginning of research design, and must be considered during the selection of methodological approach.

2.4.1 Decolonizing paradigms and methodologies in Indigenous research

If this research project is to avoid centering the conscious and subconscious views of dominant Western colonial research frameworks and assumptions, careful attention must be paid to the methodologies employed. Aotearoa New Zealand's higher education and research institutions are predominantly culturally Western, and while efforts are now underway in many institutions to progress toward specifically Kaupapa Māori research and toward Indigenous methodologies more broadly, these changes are relatively recent within the overall system (Tuhiwai Smith, 2021).

Over the past 15-20 years, a developing body of literature has been published in Western scientific journals reflecting on Indigenous research paradigms and methodologies (Chilisa, 2020; Datta, 2017; Denzin et al., 2008; Gilbert, 2021; Held, 2019; Sanga et al.). Indigenous researchers and scholars working with Indigenous groups have, through this concerted effort to consider Indigenous worldviews (ontologies), ways of constructing knowledge (epistemologies), and traditional ethical protocols (axiologies), developed a variety of methodologies relevant for both general Indigenous research projects and those projects specific to individual cultures. Broadly, scholars in the field strongly recommend approaching Indigenous data collection and analysis via Indigenous paradigms and methodologies, with the goal to halt further perpetuation of systematic colonial oppression of Indigenous cultures and to develop a reciprocal and collaborative relationship that is "culturally appropriate, respectful, honoring, and careful of the Indigenous community" (Datta, 2017, p. 1).

In the absence of Indigenous research paradigms and methodologies, the utilization of Western scientific paradigms and methodologies demands that Indigenous communities and Indigenous data conform to Western scientific worldviews. By approaching Indigenous data collection and analysis via Western scientific methodologies, cultural traditions are dismissed, valuable information is lost,

corrupted, or misinterpreted, and the systematic oppression and erasure of Indigenous worldviews is sustained and reinforced (Denzin et al., 2008; Ksenofontov et al., 2025). There is no single optimal Western scientific paradigm or methodology, and a first step to decolonization of research and the researcher is the recognition that “the way we come to know and understand, discuss, critique and analyse in university programmes is not the way Indigenous people come to know in local contexts” (Nakata, 2007, p. 8). It is disingenuous to prioritize Western scientific traditions, which have long been subject to many conflicting paradigms and methodologies of their own, as somehow superior to or more legitimate than Indigenous methodologies for the study of Indigenous cultures and Indigenous data (Williams, 2020).

With this in mind, the process of approaching research with Indigenous communities and data, particularly via a Western scientific institution and even more particularly as a non-Indigenous researcher, requires respecting the importance of these fundamental differences and seeking to center, respect, and uphold Indigenous worldviews. Decolonization, the “continuous process of anti-colonial struggle that honors Indigenous approaches to knowing the world, recognizing Indigenous land, Indigenous peoples, and Indigenous sovereignty” (Datta, 2017, p. 2), is an ongoing effort, and constant reflection and self-education is key (Chilisa, 2020; Denzin et al., 2008). Multiple Indigenous scholars, seeking to center Indigenous voices and perspectives in research design, have reflected on the use of Western scientific methods such as thematic analysis, and offered revisions or advice to the researcher in regards to their use (Rangiwai et al., 2021).

Given the nature of the project and its goal of better understanding and centering Indigenous Fijian linguistic implications and worldviews, Pacific and Fijian research methodologies have been prioritized over Western methodologies. This research project is therefore heavily guided by Indigenous Pacific and specifically Fijian

methodologies developed for information gathering, data analysis, and knowledge utilization and repatriation to the community (Thaman, 2003).

Indigenous Pacific frameworks for research prioritize a reciprocal, interactive, two-way communication between researcher and participants. Indigenous Pacific and Fijian research methodologies have been defined and developed for and with the Western research community over recent decades, with an increasing diversity of articles published on the topic by Indigenous researchers. While these published articles remain within the confines of the Western scientific research structure, the expansion of the field continues to showcase important conversations, collaborations, and academic dissension amongst Indigenous researchers.

2.4.2 Indigenous Pacific frameworks for research

The body of literature developing and expounding on Indigenous Pacific research frameworks is an active environment, with members of the research community frequently responding to and building on each other's work. In discussions of the research frameworks across Oceania, certain broad conceptual consensuses have been reached. A series of common values inform Indigenous Oceania communities' human research ethics, including, "empathy, collaboration, sharing of benefits, reciprocity, appreciation, empowerment, protection, safety and awareness of culture and languages" (Lovo et al., 2021, pp. 1-2). Relationships, and relationality, are core to culturally appropriate, safe, and valuable research with Indigenous community, and language plays a key role. "Language is a relational matter" (Sangha et al., 2024, p. 6), core to oralities methodologies and to research frameworks within the region. Relationship-building between researchers and Indigenous populations is considered a cornerstone of ethical human research in Oceania, and communities should be engaged via a participatory approach with respect for land and spirituality (Lovo et al., 2021).

Sangha et al (2024) highlight the relevance and importance of understanding Indigenous ontologies when utilizing Indigenous methodologies within Oceania, the diverse and multicultural region encompassing both Fiji and Aotearoa New Zealand (Sangha et al., 2024). Many communities within Oceania utilize dialectical, conversational interactions to construct knowledge, as indeed the talanoa and veivosaki-yaga methodologies discussed below illustrate. The researchers offer “three Melanesian prioritised principles” (Sangha et al., 2024, p. 2) developed from their Oceania Oralities Framework: relationality-as-connection, reciprocity-as-exchange, and gender-as-separation. The first recognizes that understandings of personhood and group identity are dependent on interpersonal relationships, and that disruption of or conflict within those relationships can be deeply harmful. Next, reciprocity-as-exchange proposes that exchange of commodities, language, or knowledge is based in a reciprocal framework which must be respected and sustained within relationships. Finally, gender-as-separation highlights the importance of maintaining separate spaces, roles, and responsibilities by gender in order to maintain an agreed-upon social order. All of these principles are presented as important in the process of developing relationships and collecting data via “customary dialogic conversational forms” within Indigenous groups in Oceania (Sangha et al., 2024, p. 2).

2.4.2.1 Talanoa data collection methodology

Some of these dialogic conversational forms have been presented for publication in Western scientific literature over the past 20 years, including the Pacific methodology of talanoa, which has become widespread within research involving Indigenous Pacific peoples (Analosa et al., 2025; Cammock et al., 2024; Stewart-Withers et al., 2017).

Talanoa, a culturally Pacific methodology of group discussion, exchange of information, and relationship-building, “removes the distance between researcher and participant” (Vaiotei, 2006, p. 25). Talanoa methodology is centered around a concurrent process of

“relational engagement within cultural connectedness” (Mafile’o et al., 2024, p. 3) that allows and fosters an inherently collaborative creation and construction of knowledge. Researcher Timote Vaioleti’s seminal 2006 paper centers and discusses talanoa research methodology from a personal and Tongan perspective but notes that many common themes and concepts exist throughout Pacific communities and within Aotearoa New Zealand, allowing a broader discussion of the framework with respect to Pacific communities (Vaioleti, 2006). Talanoa is a reciprocal, conversant research methodology which involves both the researcher and the participants mutually sharing and developing information and perspectives; the talanoa methodology particularly highlights the importance of developing and maintaining this relationship throughout the research process (Analosa et al., 2025; Vaioleti, 2006). Vaioleti’s work heavily references the field of contemporary Indigenous research methodologies and cites authors such as the renowned Tongan poet and anthropologist Konai Helu Thaman. Much of Thaman’s work makes a deliberate effort to decolonize the subject of Pacific studies, specifically via the efforts to recognize and realize the dominance of colonial worldviews within the field (Thaman, 2003).

Key to decolonizing research methodologies are efforts to actively value Indigenous Pacific ways of thinking, learning, and knowing, and to develop a new approach to the field which is inclusive of non-colonial, Indigenous values, cultures, and beliefs. For culturally Western researchers working with Pacific peoples and in Pacific studies, culture can and often does influence what is noticed or prioritized, guiding decisions and conclusions which may be deeply biased (Thaman, 2003). As culturally Western researchers we must recognize our biases and examine them carefully in order to support and center Indigenous perspectives and knowledge which have been “devalued or suppressed because they were or are not considered important or worthwhile” (Thaman, 2003, p. 2).

2.4.2.2 Fijian Vanua Research Framework

For research engaging with Indigenous Fijian communities, Fijian researchers have reviewed, catalogued, and developed frameworks based on traditional Indigenous Fijian research methodologies. The Fijian Vanua Research Framework, published in 2008 by influential Fijian researcher Unaisi Nabobo-Baba, offers a nine-step research methodology which guides research throughout all stages of conception to completion and return of benefit and information to the community (Nabobo-Baba, 2008). At the time of its development, Nabobo-Baba was concerned about the state of contemporary research into Pacific peoples, which she felt was failing to take into account Indigenous languages, cultures, protocols, or principles.

While some steps in Fijian Vanua Research Framework research methodology, such as Na navunavuci (conception), Na vakavakarau (preparation and planning), and Na i tukutuku (reporting/analysis/writing), are similar to the Western scientific research methods, others differ considerably, prioritizing the need for Na i curucuru/na i sevusevu (entry), Na vakavinavinaka (gifting), and Vakarogotaki lesu tale/taleva lesu (reporting back to the researched community). Nabobo-Baba's outlined methodology centers Indigenous Fijian cultural values and societal structures to provide a distinctively Fijian approach (Nabobo-Baba, 2008). Nabobo-Baba's clearly laid-out methodology, with in-depth discussion of the role and relevance of each of the nine phases of the research process, offers an invaluable resources for the conception and execution of culturally appropriate and effective research with Indigenous Fijian communities.

Supplementary to Nabobo-Baba's original paper has been Nanise Young Okotai's 2023 review and discussion of her personal experience employing the Fijian Vanua Research Framework in her PhD research (Young Okotai, 2023). Okotai, who is a mixed-race Fijian with Indigenous Fijian, Fiji Indian, and White American ancestry, reflects on the

experience of navigating the village research process as a woman and as a Fijian not fully fluent in the language and not always viewed as a part of Indigenous Fijian society due to her familial social structure, racial background, and life overseas (Young Okotai, 2023). Relevant to this thesis project, led as it is by a White American woman not fully fluent in Fijian, Okotai's work offers a perspective on the central aspect of gender relations and the challenges in navigating traditional Fijian society as a woman and, in many ways, an outsider, despite careful adherence to the principles of the Fijian Vanua Research Framework (Young Okotai, 2023).

2.4.2.3 Veivosaki-yaga

While talanoa remains a key step in Nabobo-Baba's Fijian Vanua Research Framework, this research project also utilizes the methodology of veivosaki-yaga. Tagicakiverata and Nilan's 2018 paper describing veivosaki-yaga methodology is a response to what the authors consider a progressive over-generalization of the use of talanoa research methodology for any and all qualitative interview projects (Tagicakiverata & Nilan, 2018). The authors propose that talanoa may include a more casual and less fact- or truth-focused manner of speaking, in contrast to the concept of veivosaki-yaga, which is perceived as serious, focused review of a specific topic with a discussion goal in mind. They present and review veivosaki-yaga as "a new culturally sensitive approach to collecting group discussion data in the Pacific" (Tagicakiverata & Nilan, 2018, p. 10), which is a complement to talanoa but offers a more serious, goal-directed discussion setting as well.

Finally, the Fijian Research Value System, presented in Cammock and Andrews's 2023 paper, provides a core value system to guide and support research to maintain connection with and utility to Indigenous Fijian society (Cammock & Andrews, 2023). This system particularly focuses on relationships, reciprocity, and on ensuring the purpose and products of the research has value to the community involved. The

authors offer seven core Fijian values, which have been used to inform this research project and guide its construction and execution: sautu (wellbeing), gauna (time), maliwa (space), veiwekani (relationship building), vakarokoroko (respect), veitokoni (reciprocity; sharing). and vei qaravi (service). (Cammock & Andrews, 2023). As with the above methodologies, these values serve as an entreaty to design and enact a research project which is respectful, engaged, and useful for the Indigenous Fijian-speaking community with whom it is performed.

2.4.3 Indigenous methods for qualitative data analysis

Alongside Indigenous methodologies for data collection, Indigenous qualitative data analysis methodologies have begun to be introduced into the literature, particularly by Australasian and Pacific researchers seeking a way to maintain an authentic, structured approach which retains and respects the Indigeneity of the researchers and the data. The manner in which the research approaches the data, the degree of acknowledgement of the researcher's presence in the data production itself, and the manner of collaboration with participants and community in constructing meaning via the data analysis are all varied depending on which data analysis framework or methodology is being employed.

2.4.3.1 Thematic analysis and Indigenous data

Thematic analysis, discussed in detail below in the section on Western scientific research and data analysis methodologies, is prevalent in qualitative analysis generally and in analysis of Indigenous data specifically (Mafile'o et al., 2024; Maguire & Delahunt, 2017). While reflexive thematic analysis as described by Braun and Clarke (2006) remains a dominant data analysis methodology for qualitative results, the reality remains that all forms of thematic analysis mandate that the researcher must be responsible for the construction of knowledge via "a series of active choices pertaining to how they engage with the data" (Braun & Clarke, 2006; Trainor & Bundon, 2021, p. 2).

Researchers' relational value systems inform their worldviews, cultures, and ways of relating to others and approaching data analysis and the construction of meaning and knowledge (Mafile'o et al., 2024). Contemporary Indigenous researchers frequently reference approaching reflexive thematic analysis through an Indigenous lens, which may include prioritizing Indigenous values such as Māori tikanga, whakawhanaungatanga, and manaakitanga, or conducting the data analysis in the Indigenous language used by the participants in order to retain the meaning couched in language (Kahika-Foote et al., 2026; Mafile'o et al., 2026).

Multiple recent papers by Australasian and Pacific Indigenous researchers have reflected on and critically assessed the suitability of thematic analysis and specifically reflexive thematic analysis for use in analyzing data collected from and with Indigenous communities (Mafile'o et al., 2024; Parter et al., 2025; Rangiwai et al., 2021). Rangiwai et al's 2021 reflection on reflexive thematic analysis found that without the researcher being of the same cultural and linguistic background as the participants, reflexive analysis privileges the English language as a basis for analysis and communication (Rangiwai et al., 2021). This was highlighted as particularly relevant in the analysis of research with Pacific peoples and other broad or heterogenous groups of Indigenous peoples, wherein multiple distinct cultural and linguistic lineages have been grouped by proximity, longstanding cultural and linguistic relationships, and Western scientific tradition such that it would be increasingly challenging for all researchers involved to be of the same cultural and language groups as all of the participants (Rangiwai et al., 2021).

2.4.3.2 Indigenous data analysis methodologies

In pursuit of development of an Indigenist data analysis framework, Parter et al (2025) reflected on the process of attempting to apply reflexive thematic analysis to Indigenous data as an Indigenous researcher pursuing a PhD (Parter et al., 2025). Parter

found quickly that “I underestimated the tensions between Indigenous ways of being, knowing and doing, with those of non-Indigenous thematic analysis methods” (Parter et al., 2025, p. 744), as developed from the 2006 paper by Braun and Clarke and subsequent works (Braun & Clarke, 2006). While not rooted in any specific theoretical framework, Parter, like other Indigenous researchers such as Mafile’o et al (2026), found that the “linear, rigid, systematic” (Mafile’o et al., 2026, p. 4) phases of reflexive thematic analysis as proposed and utilized in the Western scientific tradition were inherently difficult to reconcile with the nonlinear, relational process of Indigenous knowledge creation (Parter et al., 2025). Reflecting on the Indigenous Australian data analysis process of Storywork (Knowles et al., 2008), Parter proposes a process of deep reading, listening, re-telling of stories, and collaborative co-creation of knowledge with participants and co-researchers in order to create knowledge outside of the thematic analysis process of “pulling apart” (Parter et al., 2025, p. 746) stories given to the project by research participants. This data analysis framework, called Carmen’s Theory, offers an avenue to analyze Indigenous data in a nonlinear, collaborative approach designed to preserve and protect the Indigeneity of Indigenous researchers but also to remain accessible to non-Indigenous researchers working with Indigenous participants, co-researchers, and data (Parter et al., 2025).

Working to analyze data from an Indigenous Pacific perspective, Mafile’o et al noted in their 2024 paper on decolonizing qualitative analysis that talanoa methodology had become broadly utilized in data collection with Indigenous Pacific participants but was frequently then coupled with Western scientific data analysis methodologies such as reflexive thematic analysis (Mafile’o et al., 2024). In their reflection on the analysis of data from Indigenous Pacific participants, they developed and employed an analysis framework they also term the talanoa or fa’afaletui framework; this approach to data analysis maintains a dialectical, iterative process “directed more by relational than

temporal directives” (Mafile’o et al., 2024, p. 7). Gatherings among researchers, including the sharing of food, song, and prayers, as well as talanoa sessions with Pacific elders and leaders in the project’s advisory group all contribute to the analysis process. The authors specifically note that researchers employing the talanoa data analysis methodology must consider how to privilege and bring to the forefront Pacific-Indigenous languages throughout the process. The dialectical nature of the analysis and the explication and evaluation of individual perspectives are offered as tools to “explicitly address the complexities of conducting data analysis in cross-language research” (Mafile’o et al., 2024, p. 7). The authors propose talanoa qualitative data analysis methodology as a critical dialogical process for the analysis of Indigenous Pacific data, particularly those data collected via the talanoa methodology (Mafile’o et al., 2024).

2.4.4 Research frameworks in the Western scientific tradition

Despite efforts at decolonization of research methods, a Master’s thesis project in a colonial Western academic institution is still expected to rely on certain scientific frameworks long entrenched in the dominant literature. This project, while designed with talanoa and veivosaki-yaga data collection components, also utilizes elements of the semi-structured interview, a standard method of Western scientific qualitative research, as well as aspects of content analysis and reflexive thematic analysis methodologies.

2.4.4.1 Semi-structured interview

The semi-structured interview, which makes use of a formal interview guide and which covers topics, subtopics, and focused lines of questioning, allows also for open discussion of raised subjects and does not strictly proscribe the exact course of the interview. In the Western research tradition, the standard semi-structured interview strongly positions the researcher as the questioner and the participant as the

respondent (Bryman, 2015). The complex relationship-building and interchange of ideas and information between researcher and participant of the Indigenous Pacific methodologies discussed above are not present and in fact often discouraged as interfering with the objectivity of the research (Adams, 2015).

Some authors recommend using reflection and journaling to manage personal biases, or cross-checking the interview results to ensure that the interview's input and judgment do not affect the results; others are broadly proscriptive regarding even collecting data outside the confines of the interview guide, going so far as to warn against "gathering unnecessary, extraneous information must be avoided" (Magaldi & Berler, 2020, p. 4826). Many discussions of the semi-structured interview methodology instruct the researcher to avoid inserting one's perspective into the research conversation (Mashuri et al., 2022).

This is in notable contrast to the Indigenous Pacific methodologies reviewed above, which simultaneously accept the inevitability of the researcher's perspective altering their perception of meaning and also welcome the researcher to develop reciprocal relationships which broaden their perspective and understanding (Mashuri et al., 2022). It remains important to both avoid undue influence of the researcher over participants' input, and also to engage in equitable dialogue. Recognition and acknowledgment of the underlying structures of power between the researcher and the participants is necessary such that reciprocal relationships can be safely built and navigated.

Careful attention has been paid to utilizing the methodology of the semi-structured interview without losing sight of the broader Fijian and Pacific research methodologies guiding this research project. This project's use of the semi-structured interview is heavily informed by Galletta and Cross' 2013 discussion of the structure, development, and deployment of the methodology (Galletta & Cross, 2013b). There is considerable practical focus in their work on the minutiae of a successful interviewing experience,

and the authors break the interview experience into an opening segment, which creates space for a narrative grounded in participant experience, a middle segment for questions of greater specificity, and a concluding segment in which the researcher may revisit the opening narrative for important theoretical connections and moving toward closure (Galletta & Cross, 2013a).

2.4.4.2 Content analysis methodologies

Content analysis, a method of analyzing qualitative data, is a prominent and widely utilized methodology in Western academic literature. Content analysis seeks to review and code content, frequently text but also including other contextual forms of information such as visual data, in order to identify meaningful patterns and processes which can be reflected on in light of the existing literature and theories of the field in question (Lune & Berg, 2017). Researchers may analyze both manifest and latent content, that is, both the specific textual elements which are encountered and their subtext, for recurring meanings and implications which are then organized into categories and themes within the larger structure of the analytic process (Erlingsson & Brysiewicz, 2017; Lune & Berg, 2017). Classical quantitative content analysis may utilize codes in order to convert textual data to numerical outcomes, or analysis may be qualitative and produce codes and themes without a statistical or numerical aspect to the process (Bauer et al., 2000; Fairclough & Fairclough, 2015).

Some research topics may have an existing body of literature proposing pre-conceived, established, or expected themes or categories which may be identified prior to the process of text analyses, while others may lack significant existing theory or literature to guide researchers in developing codes prior to the analysis. Conventional content analysis, a subtype of content analysis as defined by Hsieh and Shannon in 2005, involves deriving coding categories inductively from the raw data in order to generate

theories and explanations directly from the text itself (Hsieh & Shannon, 2005; Lune & Berg, 2017).

A literature review was performed seeking out Indigenous methodologies for content analysis, specifically Indigenous Pacific content analysis, without significant literature discoverable, at least in the academic space. Conventional content analysis has been used in a considerable diversity of studies of Indigenous peoples' qualitative data, ranging from consideration of policy documents to focus groups transcripts (King et al., 2025; Weerasinghe et al., 2022). Conventional content analysis has specifically been utilized to study data from Indigenous Fijians, including interview studies investigating daily decision-making as well as studies analyzing government integration of Indigenous voices into health policy, and the nuances of these studies' specific methods may provide guidance on the practical application of the Western research methodology of conventional content analysis to Indigenous Fijian text sources (Morgan et al., 2016; Pickering et al., 2024).

2.4.4.3 Thematic analysis methodologies

Thematic analysis, referenced above the discussion of the recent development of Indigenous data analysis methodologies, is a longstanding approach to deriving and constructing meaning from qualitative data (Braun & Clarke, 2006; Thomas, 2006). Thematic analysis is broadly proposed as an effective way to analyze "almost any kind of qualitative data" (Damayanthi, 2019, p. 2) to identify themes which are relevant to a particular research question or questions. The basic process of thematic analysis involves assessing data and undergoing a process of coding, or identifying units of meaning within the data which may be repeating; these codes are then reassessed and collected to produce, via the researchers' reflections, themes which may be attributed to the data (Braun & Clarke, 2021b; Damayanthi, 2019; Maguire & Delahunt, 2017; Thomas, 2006). Codes may be *semantic*, that is, explicit, or they may be *latent*, or

implicit (Thomas, 2006). Multiple distinct subtypes of thematic analysis have been developed, nor is it the only approach to qualitative data analysis; Braun and Clarke's 2021 review provides an in-depth review of the comparative processes, challenges, and strengths of reflexive thematic analysis, content analysis, grounded theory, interpretative phenomenological analysis, and discourse analysis (Braun & Clarke, 2021a). Braun and Clarke detail and suggest utility in what they term reflexive thematic analysis, which has seen widespread uptake across many of the disciplines which regularly collect and analyze qualitative data.

Reflexivity, as defined by Trainor and Bunion in their 2021 paper on reflective thematic analysis, is fundamentally an attempt by the researcher to examine and deconstruct their impact on the research process, and to understand their and others' roles in constructing meaning (Trainor & Bundon, 2021). Trainor and Bunion highlight three key types of reflexivity: introspective, intersubjective, and, recalling the Indigenous methodologies reviewed above, mutual collaboration, wherein participants are acknowledged by the researcher as colleagues in the research, and as collaborators in the construction of knowledge (Trainor & Bundon, 2021). The reflexivity of Braun and Clarke's reflexive thematic analysis is described as acknowledging the inherently subjective nature of the coding process and avoiding proscriptive external structures of codes, instead allowing the researchers to construct codes individually.

In their 2019 paper, Braun et al suggest in fact that the coding process of reflexive thematic analysis should take care not to be too rigid (Braun et al., 2019), and in later works recommend that development of codes be "unstructured and organic" (Braun & Clarke, 2021a, p. 39). It remains distinctly structured, however, as the authors propose a six-phase process which takes researchers through clear steps of assessing and familiarizing themselves with the data, coding or classifying units of meaning, interpreting the data and constructing themes, theme review and development or

creation of further themes, refinement of the themes as constructed, creation of theme names and definitions, and the process of reporting the results, or what they shorten to 'writing up' (Braun et al., 2019). Reflexive thematic analysis offers an opportunity to bring the impact of the researcher as an individual into the analysis process. Utilized frequently in Indigenous qualitative data analysis, reflexive thematic analysis as proposed and developed by Braun and Clarke highlights the necessity of engaging with the researcher's positionality and role in developing and driving the construction of knowledge during data analysis (Braun & Clarke, 2021a).

2.4.5 Topic Summary: Research methodologies

There is increasing recognition of the impact of colonial systems of knowledge and research. Decolonization of research involving Indigenous communities is critical to avoid recreating systems of oppression and misuse of Indigenous knowledge. Application of Indigenous research methodologies is an important and effective approach to decolonizing research. There is a gap in the understanding of the application of Indigenous Fijian research design and data analysis methodologies within the Aotearoa New Zealand institutional research structure.

The vast majority of research continues to be performed completely or partially within Western scientific institutions. There is limited understanding of the specific experiences of the application of Indigenous research methodologies as a non-Indigenous researcher working within Aotearoa New Zealand, and of the process of gaining facility with specific techniques and approaches which are widely recognized as key aspects of Indigenous research methods.

Overseas Indigenous diasporae such as the Fijian community within Aotearoa New Zealand present a unique mixture of cultural knowledge and language abilities which may be different than those for whom methodologies like the Fijian Vanua Research Framework were developed. There is a gap in the understanding of how the application

of Indigenous Pacific and specifically Fijian research frameworks would be received within the Fijian community in Aotearoa New Zealand, including how community members would engage with these methodologies when they are coming from the Western scientific institutions and non-Indigenous researchers.

2.5 Summary of review

The foundation provided in this review offers background but also direction and clarity regarding questions which may be answered by this project. Language, identity, and culture, particularly that of Indigenous Pacific communities, are strongly linked; however, many such communities are also widely multilingual, and many are linguistic minorities within their current society. The relationship between language, identity, and culture in the Fijian- and English-speaking community in Aotearoa New Zealand would be expected to have a significant impact on the effect and meaning of terms for nature and natural events, but this specific relationship is not well-elucidated in the literature. This relationship would then be expected to influence the community's understanding of the world and perception of events and experiences. There remains a need to further investigate how the use of Fijian- and English-language terms for nature and natural events influences the community's perception and understanding of these events in Aotearoa New Zealand.

The purpose of this research project is the development of avenues for improvement of Fijian-language messaging about nature and natural events within the emergency management field in Aotearoa New Zealand; these communications are necessarily impacted by language choices and cultural perspectives. The Fijian community in Aotearoa New Zealand does not currently have the means or opportunity to engage in the type of impactful participatory communications systems recommended to improve communications quality for linguistic minorities and Indigenous groups during disaster events. There remains a paucity of Fijian-language communications about nature and

natural events within Aotearoa New Zealand, and the dominant emergency management systems function largely in English.

The relevance of language use is not only for effective communication of facts and figures, but also to engage with the preservation, maintenance, and transmission of traditional ecological knowledge, emergency management knowledge, and linguistic knowledge within Indigenous communities. There remains an incomplete understanding in the literature of the extent, importance, and methods of preservation of the above knowledge types in the Fijian-speaking community in Aotearoa New Zealand.

Finally, the process of research with Indigenous communities must take into account the impact of colonial systems of knowledge, and work toward decolonization.

Decolonization of research design and methods is crucial, and many studies of Indigenous research methodologies do reflect on the potential for application within Western scientific institutions and by non-Indigenous researchers. There remains little literature regarding the application of Indigenous Fijian research design and data analysis methodologies outside of Indigenous researchers working with Indigenous communities in Fiji, and none within the Aotearoa New Zealand institutional research structure. There is space to further investigate the application of Indigenous Fijian research frameworks within the Fijian community in Aotearoa New Zealand and better understand the effects and impacts of these methodologies on the research process.

Chapter 3: Methods

3.1 Introduction

As discussed in the literature review (chapter 2), it is critical to recognize and reflect on perspective and positionality during the selection and development of a research project involving Indigenous communities and Indigenous data collection and analysis (Datta, 2017). Prior to arriving at the below structure, a purely Western scientific approach of semi-structured interview for data collection followed by reflexive thematic analysis was considered. While both these approaches have merits, the literature review and closer assessment of the purpose of this research project made clear that applying a fully Western paradigm and methodology would likely serve to perpetuate existing oppressive systems and fail to provide new and useful information and perspectives.

A growing body of literature exists concerning decolonization of research paradigms within the Māori and Pasifika communities (ref. section 2.4.1) (Held, 2019; Tuhiwai Smith, 2021). Specific Fijian research paradigms have been developed specifically for research with the Fijian community, including the Fijian Vanua Research Framework and the talanoa methodology (Nabobo-Baba, 2008; Vaoleti, 2006). Both research approaches have been thoughtfully revised and developed by the Fijian community, and these revisions and critiques were also taken into consideration (Tagicakiverata & Nilan, 2018; Young Okotai, 2023). Throughout the process of conception and development, this research project was designed around Fijian methodologies for data collection as well as for appropriate return of the information to the community and use of the information for community benefit. Given the importance of culturally appropriate methodology, the literature review contains a dedicated subsection specifically investigating Pacific and Indigenous Fijian as well as Western scientific research methodologies (ref. section 2.4.2).

The decision was made to pursue primarily Indigenous methodologies for the framework, data collection, and data analysis, while utilizing select Western scientific methods to supplement the process. The hope is that this project will be able to present data, results and conclusions which have been arrived at with the input and centering of the peoples for whom and with whom it was developed. In remaining structured within a Western scientific institution and Master's degree program, this project is necessarily not fully decolonized, but it is hopeful that these constraints may be limited by careful methodological approach.

3.1.1 Methodology framework

This research methodology follows the basic outline set forth in Unaisi Nabobo-Baba's Indigenous Fijian Vanua Research Framework, as reflected on and revised by Nanise Young Okotai (Nabobo-Baba, 2008; Young Okotai, 2023). The Fijian Vanua Research Framework follows a nine-stage process from research project conception through to eventual transformative change as a result of the project:

- Na navunavuci (conception)
- Na vakavakarau (preparation and planning)
- Na i curucuru/na i sevusevu (entry)
- Na talanoa/veitalanoa (multilogue/dialogue/monologue/story collection)
- Na i tukutuku (reporting/analysis/writing)
- Na vakavinavinaka (gifting/thank yous)
- I tatau/(departure)
- Vakarogotaki lesu tale/taleva lesu (reporting back, revisiting site for the purposes of presentation/informing chiefs and people researched of completion)

- Me vakilai/me na i vurevure ni veisau se na vei ka e vou ka na kauta mai na bula e sautu (transformative processes/change as a result of research reports)

Young Okotai's 2023 paper reflecting on the application of this framework as a woman not fully fluent in Fijian and having lived for some time in America offers helpful considerations regarding the implementation of the framework from an outsider perspective (Young Okotai, 2023). This discussion was especially relevant as the participants of this study were not all themselves fully fluent in Fijian nor did they live in Fiji, two key differences from the communities around whom the original Fijian Vanua Researcher Framework was designed. Alongside the Fijian Vanua Research Framework, this project also seeks to center the Fijian Research Values System as developed by Cammock and Andrews, upholding and prioritizing the values of sautu (wellbeing), gauna (time), maliwa (space), veiwekani (relationship building), vakarokoroko (respect), veitokoni (reciprocity; sharing), and veiqaravi (service) (Cammock & Andrews, 2023).

3.1.2 Data collection

The data collection was undertaken via an integration of the Indigenous talanoa and veivosaki-yaga methodologies with the Western scientific methodology of the semi-structured interview. The talanoa methodology, a dialogical or group conversational methodology, has been well-established in research involving Indigenous Pacific Islands communities; the veivosaki-yaga methodology is a topic-specific method of focusing on detailed, concrete discussion of previously-identified subjects (Tagicakiverata & Nilan, 2018; Vaioleti, 2006). The semi-structured interview, utilized by Indigenous researchers and across many research projects involving Indigenous communities, is widely viewed as culturally feasible for Indigenous groups and easily integrated into traditional Indigenous data collection and knowledge construction methodologies such as yarning (Ayton et al., 2023; Finau & Chand, 2023; Neef et al., 2018). Core to Indigenous research paradigms is the dialogical aspect of knowledge construction which engages and

centers the research participants in a conversational approach (Chilisa, 2020; Denzin et al., 2008). Therefore, non-dialogical data collection methodologies such as surveys were dismissed as inappropriate for this project as they did not prioritize relationship-building, conversation, and reciprocity during the data collection process.

3.1.3 Data analysis

This project adopts the talanoa methodology for data analysis, while integrating elements of Western scientific reflexive thematic analysis (Braun et al., 2019; Mafile'o et al., 2024). The goal of this data analysis methodology was to maintain a collaborative and dialectical process of data analysis which centers Indigenous worldviews and perspectives and avoids the fragmentation and de-contextualization common to the Western scientific approach. Other common qualitative data analysis methodologies, such as content analysis, were considered and deemed inappropriate for primary use in analysis of Indigenous data as the process of data analysis removed and erased individual participant voices and failed to maintain adequate context to the data (Bauer et al., 2000; Erlingsson & Brysiewicz, 2017). Furthermore, content analysis methodologies fail to integrate and prioritize the research participants in the data analysis process, an important identified aspect to culturally-appropriate Indigenous data analysis (Datta, 2017).

The following sections describe the methodology of this project as per the structure of the Fijian Vanua Research Framework (Nabobo-Baba, 2008; Young Okotai, 2023):

3.2 Na navunavuci (conception)

This project was first conceived during my courses on Introduction to Emergency Management and Natural Hazards at Massey University, which were part of the curriculum for the Master's in Emergency Management. During this time, I was traveling to and from Suva, Fiji for work and also attending the Center for Pacific Languages' Introduction to Vosa vaka-Viti and Everyday Conversation in Vosa vaka-Viti. I have a

longstanding interest in language and communication, and earned Bachelor's in Chinese Literature and Languages prior to attending medical school. I also have a longstanding interest in nature and natural events, at least partially inspired by growing up in a rural environment, homeschooled, in a family which encouraged interaction with nature, either via foot travel or by vehicle, including the forests, mountains, rivers, lakes, plains, and ocean. The area where I grew up experienced frequent hurricanes and floods as well as landslides and droughts, which I learned about through personal experience and through direct education. As an American woman of White European ancestry, my relationship to place and culture was always present within a colonial structure. Further education on and experience with non-English language and with Indigenous cultures in America and Aotearoa New Zealand have spurred ongoing reflection on my position of power as a White English-speaking person, specifically when studying fields dominated by White English-speakers such as a medicine and emergency management.

In this environment, the language of emergency management and disaster risk reduction had two immediately noticeable characteristics: first, that many words about nature and natural events had been adopted wholesale from Indigenous languages into the otherwise English-dominated lexicon of emergency management. This suggested that the phenomena highlighted were of particular importance to the Indigenous cultures whose languages prioritized them, and that these terms were seen by the English-speaking Western scientific community as valuable in their descriptive capacity. Terms such as *lahar* (Javanese, fast-moving volcanic debris flow), *pāhoehoe* (Hawai'ian, smooth-surfaced low velocity lava flow), *a'ā* (Hawai'ian, rough-surfaced high velocity lava flow), *tuya* (Tahltan, specific type of subglacial volcano), and *jökulhlaup* (Icelandic, specific type of glacial outburst flood) appear throughout even introductory texts on disaster management and natural hazards (Coppola, 2020; Hyndman &

Hyndman, 2024). In a field where English is clearly the dominant language and Western scientific methodologies the dominant manner of knowledge construction, the presence of specific untranslated Indigenous terms was remarkable to me, especially in their power to define and focus the attention of colonial structures which otherwise did not initially develop with any overweening respect for Indigenous worldviews.

Secondly, the manner of discussion of nature, natural events, and disasters through the field of emergency management consistently presented a dichotomy of human society in opposition to nature. While authors reflected on the importance of acknowledging the role of human society in creating or precipitating disaster events, nature was still reliably presented as a force outside of humanity and human society which acted upon it. Through interaction with the Fijian community, culture, and language, I developed a better appreciation for and understanding of the depth of the relationships between Indigenous Fijian culture and the natural world, as well as a better comprehension of the Fijian language as varied, rich, evocative, and contextual.

In this context, this project is designed to investigate the effect and meaning of Indigenous Fijian- and English-language terms for nature and natural events within the Fijian- and English-speaking diaspora in Aotearoa New Zealand, for the purpose of improving efficacy and quality of nature and natural events-related risk awareness messaging design for the studied population. The hypothesis is that due to differences in language and cultural perspectives, assumed parallels in nature- and natural events-related risk awareness messaging are not in fact interpreted as equivalent or identical to the identified audience.

Prior to arriving at the current project, I proposed developing a project analyzing the Fijian-language available public messaging and information regarding nature and natural events available in Aotearoa New Zealand. However, this preliminary idea was inadequate for two main reasons: one, it lacked engagement with the Fijian

community; and two, a review of government and non-governmental source revealed that there was almost no publicly available Fijian-language messaging or information on nature and natural events. Given this, an initial literature review was performed and the methodology was revised to center and engage the Fijian- and English-speaking diaspora while collecting information on themes and perspectives on the meaning and implications of Fijian and English-language words for natural and natural events.

A full literature review was undertaken prior to and during development of the interview methodology and structure, with refinements ongoing throughout data collection and analysis (ref. chapter 2). Further research and information was garnered via discussions with experts and community leaders, both academic and cultural, including experts from the Pacific Research and Policy Centre at Massey, the Viti (NZ) Council o Aotearoa, the Centre for Pacific Languages, and the Pasifika o Wairarapa Trust. Research was logged via personal notes and development of an annotated bibliography, and citations and references collected in EndNote bibliography software.

3.3 Na vakavakarau (preparation and planning)

Cultural safety has been key in this project. Initial proposal and agreement to review aspects of the research with the Centre for Pacific Languages (CPL) was unfortunately met with significant scheduling limitations on the part of CPL, and after review with advisors, the decision was made to pursue other sources of review and guidance for cultural safety and appropriateness. The interview guide was reviewed with the Pasifika o Wairarapa Trust lead Iliana Sabutu and with Elisapeci Samanunu Waqanivala MRSNZ for advice and feedback prior to deployment, specifically ensuring that any informational materials and consent forms used appropriate, culturally competent language. The researcher's personal experience with Fiji, the local Fijian diaspora, and the Fijian language necessarily played a role, but understanding of cultural sensitivity

and best approaches to create a balanced, inclusive dialogue with participants were taken from advisory sources.

In order to minimize the risk of psychological, spiritual, or emotional harm either to participants or to the researcher, discussion of nature and natural events was intentionally general, without review of specific disaster events or personal disaster experiences. The use of the term *natural hazard* was avoided in favor of the phrase *nature and natural events* in order to present a deliberately neutral and non-oppositional perspective which allowed participants to choose the types of events and experiences discussed. Interview questions were tailored to explore participants' thoughts and feelings about general nature and natural events, with opportunity for participants to guide the discussion to focus on specific topics of their preference. Participants and the researcher both guided the conversation in choosing which details to discuss. In the events of difficult or upsetting topics surfacing, the researcher has formal training and experience both in discussing sensitive or distressing news with others, and in personally processing sensitive or distressing news.

The rurality and immigration status of participants, including their variable experience with research, was also important. Participants included citizens, permanent residents, and temporary residents. They spanned rural, semi-urban, and urban living circumstances. Data were carefully handled to avoid identification of participants within a close-knit community, especially in rural areas with smaller population numbers. All participant names were anonymized in the final publication, and any potentially identifying information was removed during data analysis.

Data collection was performed via audio recording and transcription with participant consent. All participants underwent the informed consent process, with standard written consent forms per the Massey Code of Ethical Conduct for Research and Code of Responsible Research Conduct. Participant consent was both verbal and written, as

some participants were not comfortable with signed consent and offered verbal consent alongside their names after review of documents and discussion of the purpose of the project. Pre-establishment of the purpose of the interviews and consent was carefully undertaken prior to any segment of the interview process.

3.4 Na i curucuru/na i sevusevu (entry)

Initial entry processes involved identification of community groups and cultural organizations with an interest in either Fijian language or Fijian community welfare. A total of three main contacts at three organizations were approached: Radio Viti Wairarapa, Pasifika o Wairarapa Trust, and the Palmerston North Fijian Community Facebook group. Their engagement and interest was crucial to the success of the project and deeply appreciated. Recruitment was then undertaken via engagement with local community groups and cultural organizations, as described below, with snowball accrual from recommendations of participants for discussions. Optimal numbers for accrual were identified at 7-12 participants depending on recruitment and interview quality, with a total of 13 individual participants included the data collection sessions, and an additional 19 community members included in the results review sessions.

Radio Viti Wairarapa: in the first steps of project planning for local recruitment, email contact was made with the broadcaster for Radio Viti Wairarapa, a bilingual Fijian and English language radio program broadcast from Arrow FM in Masterton, Wairarapa. The intent of the program is to serve both longstanding and newer member of the Fijian community through maintaining their Vosa vaka-Viti, Fijian language and cultural heritage on air in Aotearoa New Zealand. Email and then video call and in-person meetings were facilitated with the Radio Viti Wairarapa presenter, Elisapeci Samanunu Waqanivala MRSNZ, who is an educator, translator, community leader, radio presenter, and founder and chairperson for Viti (NZ) Council e Aotearoa. She recorded an introductory radio advertisement which was broadcast to the community on the show.

She also provided introduction to potential participants at local community events. As a longstanding promoter of Fijian language and culture and a registered interpreter, translator and oral historian, she offered invaluable advice on maintaining appropriate cultural context and safety during the recruitment and engagement process.

Pasifika o Wairarapa Trust: the Pasifika o Wairarapa Trust is a charitable trust with the mission to support Pasifika families in the Wairarapa by providing a one stop multi-disciplinary wrap-around approach that caters for the specific needs of individuals and families, including financial, education, general welfare, health, immigration, pastoral care, youth housing, and justice services. Pasifika o Wairarapa has previously engaged with the local community to facilitate and develop research projects, including recent work with Victoria University in Wellington. The Pasifika o Wairarapa Trust was created in response to needs identified during the Covid-19 pandemic, and seeks to engage the Wairarapa Pasifika community to uplift and support individuals and build strong connections to foster overall resilience and strength. Initial outreach to the trust involved in-person meetings with the trust General Manager, Luther Toloa, and the Fijian community liaison and Health Navigator, Iliana Sabutu. The talanoa session was organized via the trust's community outreach, especially reliant on Iliana Sabutu, who engaged openly and enthusiastically to help with community outreach and communications, provision of meeting space, and participant recruitment.

Palmerston North Fijian Community Facebook group: the Palmerston North Fijian Community Facebook group is a private, 900+ member group serving the Fijian community in the Palmerston North and Manawatu area. Initial outreach was via email to Pacific @ Massey, and with the guidance of Sonny Liuvaie and the Fijian student network at Massey, email contact was made with Fijian community member and Massey alumna Avisake Naivaluvou. She graciously reviewed the research information provided and posted the recruitment flyer on the Palmerston North Fijian Community

Facebook group page, and to aid in collecting and providing potential participant contacts via the Facebook group.

All three of these community partners offered significant and invaluable time, effort, encouragement, and cultural advice to facilitate entry into the Fijian community, without which the project would not have been able to progress appropriately or effectively.

3.5 Na talanoa/veitalanoa (multilogue/dialogue/monologue/story collection)

Guided by literature review of Fijian methodologies and advice from community leaders experienced in research projects with the local Fijian and Pasifika community, data collection was designated to take place utilizing two complementary approaches: talanoa with veivosaki-yaga (ref. section 2.4.2.1, section 2.4.2.3), and one-on-one semi-structured interview (ref. section 2.4.4.1) (Mashuri et al., 2022; Tagicakiverata & Nilan, 2018; Vaioleti, 2006).

In-depth semi-structured interviews and talanoa session included: A) an opening segment with generalized discussion of participant perspectives on nature and the environment, their experiences with nature and natural events in Aotearoa New Zealand and/or Fiji, and/or their experiences with the Fijian and English languages; B) veivosaki-yaga topic-focused conversation exploring the participants' perspectives on the meaning contained within English and Fijian words for nature and natural events; and C) closing section to allow exploration of any other topics raised in A) and/or topics and questions raised by participants if not discussed throughout. Talanoa sessions also included group community building and introductions, as well as group member-led opening and closing prayer. While introductions were a structured part of the planned talanoa data collection methodology, the group community building

exercises and the opening and closing prayers were organically offered and indeed expected by group members. These traditional opening and closing actions were integrated into the talanoa data collection session, in line with cultural appropriateness and safety recommendations reviewed above in Na vakavakarau.

Table 3: Engagement type, group makeup, location, and date of data collection and results analysis sessions; the researcher is included and was present at all events.

Engagement type	Members	Location (Modality)	Date
Semi-structured interview	2	Wellington (video call)	23/12/2025
Semi-structured interview	2	Palmerston North (video call)	06/02/2026
Semi-structured interview	2	Palmerston North (video call)	07/02/2026
Talanoa data collection	10	Wairarapa (in person)	26/02/2026
Semi-structured interview	2	Wellington (in person)	16/04/2026
Talanoa results review	2	Wairarapa (in person)	29/04/2926
Talanoa results review	15	Palmerston North (in person)	13/05/2026
Translation results summary	4	Wairarapa (in person, email)	19/06/2026

3.6 Na i tukutuku (reporting/analysis/writing)

3.6.1 Transcription and data organization

Audio recordings were securely stored on the researcher's hard drive and on Massey University OneDrive for file sharing. No other cloud program was used and data privacy was maintained with only anonymized access to raw data during review with community advisors and the thesis advisors. Transcription with manual analysis of themes then followed data collection. The interviews and talanoa were first auto-segmented with SayMore (Moeller, 2014), a specialized software which splits longer audio recordings into short segments to facilitate manual transcription. The transcription process then utilized ELAN (MPI Nijmegen, 2026), a specialized audio

transcription software. The transcription was entirely manual without any automated or artificial intelligence-assisted transcription of sounds, words, or phrases.

Reference was made to Fijian-English dictionaries, iVolavosa (Fijian-Fijian dictionary), Fijian grammar texts, a glossary of Fijian-English nature and hazard terms prepared by a professional Fijian interpreter, and the researcher's own Fijian language knowledge and ability (Capell, 1968; Gatty, 2009; iTaukei Trust Fund, 2026; Schütz, 1985).

Participants were identified by numerical placeholder, and participants within the larger talanoa data collection session were identified by numerical placeholder plus 1-2 letter identifier, i.e. '003' and '004Ty'. Place names, personal names, and specifics of workplace activities mentioned by participants were redacted from the final document if they could easily identify the speaking participant either within their personal community or within the greater Lower North Island Fijian community.

3.6.2 Data analysis methodology considerations

Initially, the Western qualitative scientific methodology of content analysis was considered, as it offered an opportunity to organize and analyze results via many codes that could then be grouped together into categories and utilized to reveal themes. Conventional content analysis had limitations that were revealed during the initial analysis attempt (Hsieh & Shannon, 2005; Lune & Berg, 2017). Key among them was the distance from the participants' words that was created via the coding and theme development process, and the proposed distillation of complex sentences and phrases into simplified, repeating meanings. Given the research focus on the implications of specific words, and the methodological importance of ensuring that participants exist as co-researchers influencing and engaging with the production and construction of knowledge, it was deemed inappropriate to adhere to traditional content analysis and risk creating distance between the results analysis and participants' unique word choices, turns of phrase, and methods of framing specific subjects. Supportive of the

concern that content analysis is in some ways structurally incompatible with the selected Indigenous Fijian research framework as described here, a literature review searching for papers describing Indigenous content analysis methodology was unsuccessful.

The analysis methodology was discussed further with the project's Massey advisors, and their recommendation was for consideration of other qualitative analysis methods, focusing on thematic analysis and more specifically on reflexive thematic analysis and/or inductive analysis. Qualitative content analysis and thematic analysis are acknowledged in the literature to share processes and values, and many thematic analysis approaches employ similar practices to content analysis in regards coding and identifying themes (Braun & Clarke, 2021a; Thomas, 2006). Key papers discussing thematic analysis, primarily reflexive thematic analysis, were considered. Foremost in the literature review was the need to prioritize effective and meaningful methodologies for research involving Indigenous participants. While reflexive thematic analysis is a part of the Western scientific methodology, key papers detailing Indigenous, specifically Pacific and Australian, authors' research and critiques of qualitative analysis, thematic analysis, and reflexive thematic analysis were integral to developing and maintaining a meaningful and culturally appropriate results analysis process (Rangiwai et al., 2021).

After literature review, the analysis was shifted to approach the data via a combination of the talanoa data analysis methodology and reflexive thematic analysis (Mafile'o et al., 2024). The talanoa data analysis methodology proposes a process of dialectical engagement with co-researchers, advisory members, and participants which allows acknowledgement of individuals' experiences and perspectives alongside exchange of ideas, thoughts, and interpretations (Mafile'o et al., 2024). The data analysis process undertaken, explicated below, combined reflexive thematic analysis involving close reading of the data and mental organization of recurring concepts and themes with

overlapping dialectical analysis via talanoa with participant and non-participant community members and advisors.

3.6.3 Data analysis process

The transcript texts were edited twice for spelling, content, and legibility, and then read through three further times for consideration of potential codes, categories, and themes. Initial review for identification of codes did not have specific pre-conceived codes to identify; however, based on the literature review and project structure, consideration of recurring ideas had already taken place to some degree during the semi-structured interview and talanoa experiences simply by virtue of the process of holding an attentive dialogue with participants. Based on topics highlighted in the data collection phase, particular attention was paid to: distinct value judgments (positive and negative) about any specific topic, discussion about Fijian culture, discussion about Fijian nature and natural events, discussion about Aotearoa New Zealand culture, discussion about Aotearoa New Zealand nature and natural events, discussion about the Fijian language, discussion about the English language, and discussion about translation between languages.

After transcription and editing for legibility, the texts were read through and annotated, and candidate themes were accumulated as recurring words and concepts were noted. Initial codes were identified and listed; further combinations of codes were then assembled to highlight frequently overlapping or complementary themes. During the talanoa and interview process, effort was made to explicitly review and confirm definitions, pronunciations, and spellings of Fijian-language words unfamiliar to the researcher. This linguistic discussion was supported by participants and integrated into the dialectical process (ref. section 4.7). The note-making process was employed to encourage the researcher to look deeply at each word, phrase, and sentence provided by participants and initially acknowledge and reflect on them without specific

classification or organization. This process was employed to highlight notable recurring concepts and ideas which presented themselves in the text after the note-taking process. Codes were created after reading through the original text and notes repeatedly in order to recognize common concepts, words, or turns of phrase which might represent shared, related, or even contradictory ideas presented by participants. Notes and codes were introduced not to distill the complex meaning and unique words of each participant into quantitative or simplified forms, but to allow the researcher the ability to maintain an organized record of recurring concepts and ideas expressed by participants. Attention was paid to avoiding what Parter et al (2025) referred to as “separating of pulling apart research participants’ stories”, and data were carefully viewed as longer quotes with more contextual information included (p. 746).

3.6.4 Results review process

In line with talanoa and other nonlinear data analysis methodologies, repeated returns to discuss results and conclusions with participants and community supports a dialectical, interactive data analysis process which prioritizes a two-way relationship between the researcher and the participant and openly acknowledges and engages with the researcher and participants as co-constructors of knowledge (Mafile’o et al., 2024; Parter et al., 2025; Trainor & Bundon, 2021).

After the initial experience of coding, rereading, and development of themes, thoughts about results were brought to the Pasifika o Wairarapa Fijian liaison, who had been a participant in the talanoa data collection session, for discussion and feedback. This was an informal conversation wherein I provided seven slides of potential themes and thoughts, with accompanying anonymized quotes from the data. The discussion was collaborative and highly engaged, and ranged from considerations of the meaning of specific terms to overall discussion of how best to incorporate the Fijian community’s knowledge and ways of knowing into disaster preparedness in Aotearoa New Zealand.

Ongoing results review was then undertaken, and further analysis was guided by and incorporated these insights and feedback. A second community results review was then undertaken; this was a talanoa session with a Palmerston North community prayer group, facilitated by a member of the Fijian community and academic colleague. These community members had not participated in the initial data collection interviews or talanoa. Results were provided for the group via oral presentation, with potential themes discussed as well as the possible next steps to move forward to use these data for the benefit of the community. This session was particularly useful in consideration of the potential ways to bring the results of this research back to the community, particularly in how to utilize existing relationships and community networks to create and propagate meaningful education on preparedness for, response to, and recovery from nature and natural events in Aotearoa New Zealand.

The results review sessions also aided in assessing for cultural appropriateness, comprehensiveness, and relevance. Active engagement and feedback was sought, and many new themes and ideas were developed in both of these sessions, which provided valuable data analysis as well as a deeply meaningful method of further developing relationships between the researcher and the community members involved. Community members were enthusiastic, insightful, and keen to take ownership of and collaborate in the processes of constructing meaning and of seeing the project through to a result that could benefit the community.

Following the dialectical results review sessions, the data were again reviewed and themes finalized. Themes were organized by contextual relationships and common subject matter. Coinciding with the process of write-up of the final Master's thesis document, a 2-3 page written summary of results was produced in English, and a translation team from the Wairarapa Fijian community has been engaged and is working on collaborative translation of the document into Fijian for return to the

community. This translation process is acknowledged as a part of the data analysis methodology, as the dialectical nature of translation involves further refining and clarifying meaning as it is transformed via this process.

3.6.5 Results presentation

Results were written up, per Massey University and general Western academic standards, into the Results and Discussion section of the Master's thesis document. Results and discussion were also developed into the following forms for return of information to the community (detailed further below in Vakarogotaki Iesu tale): oral presentation via one-on-one dialogue, oral presentation via group talanoa results review session, and written summary in English and Fijian as described above.

3.7 Na vakavinavinaka (gifting/thank yous)

A portion of the funding allocated via the Massey University Master's Research Scholarship to support this research project was dedicated to providing grocery store vouchers to participants as a recognition of the time and energy given to the above efforts, and to show commitment and support for the community which engaged willingly and thoughtfully in this research process. All participants received grocery store vouchers. The in-person semi-structure interviews, talanoa data collection, and data analysis sessions also provided food and drink to participants, the contents of which were reviewed prior to the sessions with the Pasifika o Wairarapa Trust Health Navigator and the Palmerston North community liaison to ensure that the food and drink provided was both culturally appropriate and, in the case of the Pasifika o Wairarapa Trust, supported the trust's goals regarding nutrition and healthy eating.

3.8 I tatau (departure)

All interviews and review sessions underwent a formal closing during the interview process. The talanoa data collection and data analysis sessions including opening and

closing prayers performed by the male members of the talanoa groups in accordance with Fijian social and cultural protocols. All participants were offered anonymity, though conversely participants were also offered to have their contributions acknowledged in the final work, which some preferred. Following the publication of the research, sessions are planned, as detailed below, to return to the community to provide the results back to the community and again express gratitude for the involvement and efforts of the participants and facilitators.

Participants were followed up with one time to inquire if they would like to have a further conversation or discussion over email, with these results also to be included in the research project. Participants were offered the choice of acknowledgement by name in the final publication. All results remained anonymized in the analysis regardless of participant acknowledgment.

3.9 Vakarogotaki lesu tale/taleva lesu (reporting back, revisiting site for the purposes of presentation/informing chiefs and people researched of completion)

A multi-stage plan has been created for return of information after publication. Initially, semi-structured interview participants will be contacted individually and offered either a discussion session to review the results, or a written 2-3 page summary of findings in English and Fijian as per the results analysis. A community discussion session for results and feedback will be offered via Pasifika o Wairarapa, and the written summary of the findings will be provided for Pasifika o Wairarapa to distribute to participants and the community. The written summary of the findings as above will be provided for the Palmerston North Fijian Community Facebook group liaison to distribute to participants and the community. An interview segment will also be recorded with the host of Radio Viti Wairarapa and broadcast on Radio Viti Wairarapa's biweekly bilingual Fijian and English language program.

3.10 Me vakilai/me na i vurevure ni veisau se na vei ka e vou ka na kauta mai na bula e sautu (transformative processes/change as a result of research reports)

The purpose and hope of this project is to begin a discussion of the value, impact, and implications of Fijian versus English language usage in resources on nature and natural events in the bilingual Fijian- and English-speaking diaspora in Aotearoa New Zealand. While this project hopefully will offer some initial insights, the purpose of this project is to provide an introductory consideration of the planning and conditions necessary for future projects. With this, I hope that ongoing research and efforts may be put toward the development and introduction of Fijian language resources on nature and natural events in Aotearoa New Zealand.

3.11 Limitations

Two immediate limitations of these research methodology choices include its lack of an Indigenous- or community-led research team, and its positioning within the Western scientific tradition and institution despite its focus and intent. The application of collaborative Indigenous methodologies serves to alleviate this, but it remains a limitation which introduces Western perspectives into the research from initial design through final submission, potentially crowding out perspectives more valuable to the participants and community. Another limitation is the limited sample size, which introduces possible bias toward individuals' or small groups' perspectives, and potentially fails to perceive other perspectives which were not encountered. This leaves potential for intra-community variation within other Lower North Island community groups, or within those outside of the region.

Methodology limitations specifically include that the Fijian Vanua Research Framework requires a high degree of cultural knowledge and integration. The original framework is

designed for application in the Indigenous community in Fiji itself, by Indigenous Fijians fluent in vosa aka-Viti (Nabobo-Baba, 2008). Young Okotai's (2023) reflections on the Fijian Vanua Research Framework highlight these key limitations but also propose a method of application appropriate for individuals who may not be viewed by participants as entirely culturally Fijian, or are not fully fluent in the Fijian language (Young Okotai, 2023). This is necessary as the researcher in this setting has an understanding of the Fijian language but is not fluent, nor have they spent extensive time embedded within the Fijian community in Fiji or in Aotearoa New Zealand.

Veivosaki-yaga or specific topic data collection method was developed to complement and strengthen the talanoa data collection methodology's limitations: Tagicakiverata and Nilan (2018) raised concerns that talanoa discussion may be less concerned with specificity or accuracy and more concerned with the process of dialectical conversation (Tagicakiverata & Nilan, 2018). Talanoa data collection methodology is therefore at risk of producing non-specific results without careful dynamic engagement by the researcher, which requires a strong degree of cultural awareness (Tagicakiverata & Nilan, 2018; Vailoti, 2006). It is possible that the research missed cultural cues which signaled the seriousness or casualness of topics, or, importantly, that the researcher failed to optimize the social dynamics of the talanoa to ensure accuracy of results where necessary.

In terms of Western scientific research methodology limitations, the preconceived questions of a semi-structured interview may limit responses, and there is risk that there is a degree of conversational authority exerted by researcher over the participant if power balances are not carefully managed; participants' close attention social structures and relative authority meant that at times the researcher was indeed positioned as the authority in the space despite efforts to maintain equitable balance (Kakilla, 2021; Ruslin et al., 2022). The semi-structured interview is also not an Indigenous methodology,

though it has been applied effectively for, with, and by Indigenous groups (Finau & Chand, 2023).

Reflexive thematic data analysis is limited by the process of breaking down interviews into specific themes or units of meaning (Parter et al., 2025). The reflexive nature of the process reduces the likelihood of unacknowledged bias, but the process maintains analysis authority within the research team. These limitations are countered in part by the inclusivity and redistribution of data ownership and authority of the talanoa data analysis methodology (Mafile'o et al., 2024). Talanoa data analysis methodology is itself, however, limited by the personal experiences and perspectives of those individuals engaged in the analysis, as well as by their interpersonal relationships, communication abilities, and shared values (Mafile'o et al., 2024).

3.12 Summary of methodology

This thesis project prioritized the use of Indigenous research methodologies throughout, including for research design and data analysis. However, this process is recognizably complex and de-colonization of research is a process of constant reflection and recognition of systemic colonial influences, especially within a Western scientific institution as a non-Indigenous researcher (Datta, 2017). Following the recommendations in the published literature by Indigenous researchers, this project opted to approach the research design via the Fijian Vanua Research Framework, with alterations for the consideration of an overseas diaspora community and a non-Indigenous researcher, as guided by surrounding publications (Nabobo-Baba, 2008; Parter et al., 2025; Young Okotai, 2023). The data collection process included both talanoa methodology and the semi-structured interview, a Western scientific method for data collection (Vaiotei, 2006). The latter was integrated into the project as recommended and guided by literature of the widespread application of this

methodology to Indigenous research and for the Indigenous community (Denzin et al., 2008; Neef et al., 2018; Young Okotai, 2023).

Data analysis similarly prioritized Indigenous data analysis methodology, specifically the talanoa method, alongside the Western scientific approach of reflexive thematic analysis (Braun & Clarke, 2021a; Mafile'o et al., 2024; Parter et al., 2025). Attention was paid to the importance of maintaining a dialectical process throughout the data analysis to maintain participant and community control over the data interpretations and avoid bias toward Western scientific cognitive frameworks and viewpoints (Mafile'o et al., 2024; Rangiwai et al., 2021).

Chapter 4: Results

4.1 Introduction

The chapter below presents an interpretation of the perceptions and understandings of the research participants regarding the effect and meaning of terms for nature and natural events in Fijian and English. These interpretations and constructions of meaning were arrived at via a combined process of reflexive thematic analysis and a dialectical talanoa data analysis methodology, wherein codes and themes were identified for close-reading and organizational purposes, but overall meaning and final interpretations were reached via a collaborative process of conversation with participants, community advisors, academic thesis advisors, and non-participant (that is, not interviewed in the data collection phase) community members (Mafile'o et al., 2024; Mashuri et al., 2022; Trainor & Bundon, 2021; Vaioleti, 2006).

This experience involved repeatedly reconsidering the data for new perspectives as well as repeatedly considering my own positionality, which influences the effect I inevitably have on the construction of meaning during the data collection and analysis (Rangiwai et al., 2021; Young Okotai, 2023). While I foremost offer an acknowledgement that my personal history, family experiences, received generational knowledge, and cultural background inevitably influence these interpretations, I also acknowledge the welcome influences of all those who engaged in the talanoa data analysis with me. All of the involved individuals committed considerable time, energy, and knowledge throughout their engagement with the dialectical data analysis process. These discussions served to develop and reinforce the relationships between participants and between the researcher and participants. These relationships have greatly strengthened the data analysis process, and they will hopefully serve to provide

a network of connections through which these results can be returned to the community for their benefit.

This results section is organized into six complementary and in many ways overlapping themes:

1. Fijian language, culture, identity, and ancestral place are inextricably interwoven
2. Fijian-language terms are strongly associated with certain traditional ways of learning about nature and natural events
3. English-language terms are not as strongly associated with these traditional ways of learning about nature and natural events
4. Aspects of nature and natural events typical to Fiji are more familiar and better understood than those in Aotearoa New Zealand
5. Semiformal, mixed Fijian- and English-language messaging about nature and natural events is desirable and valuable to the community
6. Enthusiasm for linguistic discussion and analysis about the Fijian language is widely shared within the community

Regarding transcription, participant names have been anonymized, but it is my hope that the reader will gain a sense of the personalities and voices of the participants as they proceed through the text. Effort is made to maintain context for quotations, including quoting larger sections of conversation when appropriate. For those quotations which are part of a back-and-forth conversation, the conversation is presented as it is transcribed and the researcher is included as "C".

The transcription has been faithful to the words spoken and minimal editing is employed; for example, there has been clarification or removal of overlapping speech and partially-

spoken words or sounds, but interjections and grammatical or lexical idiosyncrasies have been left in place. Among other things, this narrow transcription style serves to highlight the tendency of all participants to move between a flowing, unedited style of speech characterized by repetitions of a given word or phrase to hold place in a sentence while the speaker considered their next phrase choice, and a slower, more considered style in which statements are delivered in a careful, thought-out, and serious manner. Participant body language and vocal intonation, not marked in the transcription, mirrored this movement between casual and formal styles of speech in English. This is particularly valuable to note given the implications of casual versus formal Fijian language use, as discussed below in section 4.6.

4.2 Fijian identity and its relationship to language

Language provides a vital connection to cultural knowledge and worldview (Turin, 2012). Among Indigenous communities and cultures, Indigenous language use is linked to preservation of culture, maintenance of identity, and even health and wellbeing (Dinku et al., 2025; Harding et al., 2025). Within many of Aotearoa New Zealand's Pasifika communities, language serves as marker of ethnic identity and provides a link to their culture and community (Starks et al., 2005). Indigenous languages are inherently tied to the physical location of the development of both language and culture, and language is often considered a marker of connection to specific place or ancestral lands (Chiblow & Meighan, 2022; Gatty, 2009; Jourdan, 2010).

Love of language was immediate and apparent throughout the data collection experience. This was not unexpected; these sentiments are well in line with published literature suggesting that "widespread among Indigenous Peoples is the strong feeling and love they hold for their language, languages [that are] often understood as a sacred gift from their Creator, connecting them to their Ancestors" (Galla et al., 2023, p. 787). Participants offered simple and powerful statements such as:

003: Oh, I love my Fijian language.

And:

005: I love my language, because that's gifted to me by my forefathers.

There was frequent and prompt association of the Fijian language with one's cultural and personal identity within both the data collection participants and the results review participants. Participants across ages, durations of residence in Aotearoa New Zealand, education levels, and socioeconomic standings stated that the Fijian language, frequently referred to as 'my' or 'our' language, is linked to a sense of self and connection with cultural identity:

004I: For me personally that's my identity yes it's just, um, yes it's just who I am.
Who I am, yeah.

These comments were often presented as introductory, establishing information which then led to deeper discussion and consideration of the relationships between the Fijian language and personal and cultural identity. Participants engaged readily on the topic of language and identity, and the consideration of language and identity was perceived as an important topic; multiple participants commented that they had reflected on it previously. Participants clearly and definitively asserted that use of the Fijian language was connected to and maintained their personal and cultural identity:

002: Yeah, it um like um it keeps our identity in place, aye. Yeah because I've always believed that if we were meant to only speak English then God would have put us in a country that only speaks English. So yeah, yeah, I'm proud of that language and I love speaking it, yeah. It's easy, it's easier for me when I'm speaking to my children because I come, I always feel this sense of foreignness if I'm talking to them in English if I'm Fijian, yeah.

The Fijian language was highlighted among participants for its importance in establishing and fostering relationships with other Indigenous Fijians. This was viewed as

a welcome opportunity to connect to both the self and to the community through the use of this shared language. Participants preferentially spoke Fijian with other Indigenous Fijians, even those participants who were extremely familiar with and fluent in English:

001: Well my my job I ask a lot of questions obviously.

C: You do, yes.

001: So when I have Fijian [clients], um you know the first thing I always ask is how's the weather back in Fiji.

CF: Mhm.

001: That whole asking you know. So I say it in the mother tongue, you know.

C: Yeah.

001: So um it's always the same, you know hot humid and all that, that so yeah. So depending on who I'm with, again I'm always switching between the two. I've got um yeah I've got um Indigenous Fijians in front of me then I'll just bust it out. Start bringing out my Fijian.

Participants identified that speaking Fijian with other Fijians helped establish their identity as Fijians and their place within the community. One participant highlighted that this was especially critical since by their physical appearance it was not necessarily apparent that they were Indigenous Fijian, and their native Fijian language knowledge helped to establish and cement their place within the community. The acknowledgement of their Fijian identity via the use of shared language brought them joy:

004Sr: Fijian is my first language.

C: Io⁴?

004Sr: Because I was brought up in Fiji and I didn't know how to speak English, yeah, until I came here. So um if I see — a lot of Fijians don't know that I can speak the language, but as soon as I start talking then they all realize. But I'm

⁴ yes

happy when I speak Fijian to someone. That I know that knows that I can communicate.

One participant who had traveled back and forth between Fiji and Aotearoa New Zealand in their upbringing noted that they had at times almost fully lost the language:

001: Well as as as a child we we we I mean in Fiji we obviously we kind of spoke nothing but Fijian. But the moment we came to New Zealand, I think our parents wanted us to kind of like you know learn the language that a bit better than we were back in Fiji so we were trying to, we caught on to that and then by the time we turned around and went back to Fiji it was kind of like lost a bit.

C: Oh no.

001: We just spoke nothing but English at home as well.

C: Yeah okay, okay.

001: You know probably probably the small little things they would say to us in like little sentences you know this and that, but um but because of that we kind of lost it but then because we went back to Fiji for four years through high school I was able to kind of regain it again.

They perceived their move to Aotearoa New Zealand as a positive event and an opportunity given to them by the hard work and success of their parents, for which they were grateful. However, their reclaiming and relearning of the language was considered important to their Fijian identity, but their ability to navigate linguistically and therefore culturally was self-perceived to be limited due to process of loss and regain:

C: Have you, do you have experiences or can you can you think of any experiences where you've sort of had to think about whether you wanted to use Fijian or English or which one would be better or is it?

001: Um, uh yep yep. That'd be it's, it's probably, probably like in a formality setting.

C: Oh, okay.

001: Like when um when you have to do like um like a sevusevu⁵.

C: Yeah.

001: Or like something that's really detailed that'll be too deep for me. You know what I mean. That I kind of switch off, okay I I I don't know too much.

C: You don't know all the protocols.

001: That's it, that's it. Because I'm only I'm only on the basic level of uh you know of of the mother tongue or the culture itself.

Indigenous language transmission, preservation, and revitalization is strongly linked to parallel preservation of culture and knowledge (Galla et al., 2023). Participants cited a responsibility for collective maintenance and transmission of the Fijian language to future generations. This transmission of the Fijian language was associated with the handing-down of Fijian culture and identity. Many participants deliberately spoke Fijian in the home in an effort to pass down their language and thereby their cultural identity:

002: At home we speak um Fijian and you know and we encourage our children, I mean we continue to speak Fijian so we don't lose that identity.

Participants sought out opportunities to maintain and utilize their Fijian language, and prioritized maintaining any degree of language and cultural transmission:

003: We'll always find uh Fijian families in church where we'd definitely communicate in Fijian and at home I still talk my uh talk to my kids in Fijian, like they do not speak Fijian at all my kids they only speak English, but I like the fact that they understand what I mean. So they can keep that.

Multiple participants described Fijian as the language they were born with. Participants contrasted this with English as a language they had deliberately learned. One participant's response to an initial question about what they liked about their Fijian

⁵ introductory gift (ceremonial) of yaqona; greeting ceremony

language succinctly summed up this relationship between 'born' language and cultural identity:

004Ty: Yeah, we been speaking it since we're born, it's who are culturally. This sense of differentiation between 'born' and 'learned' languages had a powerful impact on the resonance and effect of individual languages on participants. One participant, who is fluent in English and has been residing in Aotearoa New Zealand for over twenty years, commented that:

005: I think because it's a learned language for me, and I discover words when I'm reading new words um I think, yeah maybe it's not fair to be pitting the two together.

C: I mean it's just how it feels to you. I'm not asking you to say that one is better than the other, but it sounds like you're saying because it's a learned language maybe it just doesn't carry the same.

005: It doesn't carry the same, it doesn't resonate with me at a deeper level. And vosa vaka-Viti is like it's just, it's like you've hit a drum and my whole being is like connected.

A strong sense of physical connectedness was presented by participants as associated with both the Fijian language, as above, and also with methods of knowledge construction regarding nature and natural events as will be noted below. This sensory experience of resonance or physical feeling associated with language is described in neurolinguistics as embodiment, a link between sensory or motor experiences and cognitive functions such as language processing (Jirak et al., 2010). Participants related a sense of connectedness of the physical body to language, including its attachments to parents, grandparents, and ancestors. Coherent with Galla et al's (2023) statement that "languages [are] often understood as a sacred gift from their Creator, connecting them to their Ancestors" (p. 787), the Fijian language was described as having been

created with intentionality by participants' ancestors and passed down. The Fijian language was clearly identified as something given to the participants by previous generations:

005: Yeah and so it's something that was handed down, my parents didn't invent vosa vaka-Viti.

The process of creation of the Fijian language was viewed as purposeful and was represented as a deliberate construction of specific words and meanings. One participant reflected that while they had not much previously considered the etymology of Fijian words, once they did, they organically associated these words with the ancestors' intentional constructions of meaning:

001: That's how the uh the ancestors were, how they noticed the wind so they called it that and that's exactly what's happened so. That's exactly what's happened. Yeah.

Transmission of knowledge and handing-down of culture from the ancestors was considered a broader process than only language transmission. The Fijian language was considered as a part of a larger cultural identity handed down from previous generations.

005: Yeah so language, language is a gift handed down. You know there's it's almost like you, when we grew up they said when you grow bigger always remember your ancestors carrying you there. And carrying you there means na vosa⁶, na itovo⁷, everything everything good that emanates from our ancestors help you to move forward is gifted.

This concept of cultural identity was repeatedly associated with the word *vanua*, which was variously described as ancestors, society, culture, self, and physical place. The terrific

⁶ the language

⁷ custom or manners

breadth of the term was a common topic of reflection for participants, and there was robust discussion of the many possible meanings and implications of the word:

004Sr: It could mean anything.

004Ty: It could mean anything.

C: So what do you think of when you think of *vanua*?

004I: I think of people, our community, connection, *io*. Everything. Land, ancestors

—

004Sr: Genealogy, *um* our forefathers —

004I: — and who you are. *Io*.

Participants related that they discussed *vanua* within their regular or everyday conversation, and that it was an important subject. Multiple participants related that they had had conversations with their family about the subject of *vanua*, which allowed to them to pass on that understanding and cultural education to their children:

002 [email]: When we talk about *vanua* in our household, we refer to our upbringing, blood tied families, friends, culture, our origins and our ties to the land. For example, if we have a cultural do back in Fiji and we have to contribute financially, my husband would normally say to our children.. “*Nanuma⁸ na⁹ vanua*” meaning.. “Remember.. All those things that I have explained above”..

Participants related comfortably and easily the multiple meanings and implications of the term *vanua* and the process of transmission of these meanings to future generations. In conversation with participants it was clear that this was a topic on which they had reflected previously:

003: *Vanua, vanua*, it makes me think of my forefathers, you know, it makes me think of *um*, how I am the way I am today. It makes me think of my parents'

⁸ to think, to remember; thought(s)

⁹ particle (multiple meanings), here 'the'

parents, of their parents and all that has been passed on from generation to generation to who I am today. So wherever I go I carry my vanua with me. And if you know, if I do something proud, it's it goes back to my vanua. If I do something that's um, that's not going to make my vanua proud, you know that's the same thing. So everything we do, it's not only for us as an individual, it's the whole entire people that comes behind my back, and also it's for me telling my kids this is the same thing that you're going to do. So you're going to carry all of us behind you when you go forward, yeah.

Alongside culture, self, ancestry, and society, the concept of vanua was linked to a wide range and breadth of physical places, including individual family homesteads, islands, larger culturally-connected island groups, and the collective national physical location of Fiji itself. The same participants who clearly identified vanua as associated with broader cultural concepts also noted that vanua was representative of physical location depending on the context:

C: I know vanua is a very big word.

002: Oh a very broad word.

C: Like vinaka¹⁰ there's a lot in that word. What do you think of when you think of it?

002: When I think of when I you know the first thing that comes to mind is the 14 provinces of Fiji vanua, yeah. Yeah that makes up the vanua that make up the whole country itself.

C: Yeah, because certainly there is no word, there is no word in English like vanua, io. We have land but the vanua is also things about how people, society, you know, it's not just the ground.

¹⁰ good, excellent, to thank (someone)

002: No, it's like *vanua*, where are you from uh um you know it refers to that where do I come from, so I can say someone asks me oh *vanua* where are you from oh I can say ah I'm from the eastern part of Fiji, that's referring to my *vanua*. Inherent in any discussion of the speaker's physical, ancestral home is the implication of the tightly interwoven nature of the concepts of physical place, culture, ancestors, and self. This layered and complex nature of the term *vanua* was presented by participants as an example of the highly contextual nature of many Fijian words. This contextuality was acknowledged as potentially challenging for translation, discussed further in section 4.6. However, the multiple meanings of the word were treated as both natural and as a necessary reminder of the deep connections between the ancestral past, wherein language creation occurred, and the present individual.

4.2.1 Theme Summary

Much of the above discussion of language, culture, and identity is consistent with the published literature on Indigenous and especially Pacific languages (Dinku et al., 2025; Galla et al., 2023; Starks et al., 2005). Participants engaged on multiple levels in conversation about language and culture, and reflected on their personal and family experience with language as well as on the broader cultural associations. This section serves to not only highlight specific reflections on the Fijian language and culture but also to bring to the forefront the importance of the language to the community. Conversations about language were vigorously taken up, and respectful, thoughtful, and considerate researcher engagement with participants was welcomed and reciprocated. Participants' love of their Fijian language was coupled with an awareness and consideration of the importance of language maintenance and transmission to support cultural preservation. The creation and passing-down of language from the ancestors was explicitly identified as part of the history and present state of the Fijian language. Finally, this passing-down of culture was directly linked to the concept of *vanua*, which

related both to specific physical locations as well as a much larger cultural identity which encompassed the Fijian language.

4.3 Fijian-language terms' connection to ways of learning about nature and natural events

Languages, particularly those associated with a culture of oral transmission of information, have within them “established systems of learning and knowledge exchange” (Turin, 2012, p. 840). Methods of Indigenous knowledge transmission are increasingly acknowledged and valued by Western science as Indigenous knowledge itself is increasingly recognized and prioritized within the field of emergency management (Balay-As et al., 2018).

Fijian-language words for nature and natural events brought up participants' prior experiential and narrative education about nature and natural events. The meaning of *experiential education* in this context is the individual having had a lived experience with a specific element of nature or a natural event. Personal experience with natural events has been widely shown to impact individuals' preparedness and understanding of future events, and as such these experiences are also expected to affect individuals' perspectives on nature and natural events (Becker et al., 2017; Becker et al., 2019).

The experiential education brought up by participants in response to discussion of specific Fijian-language words for nature and natural events took the form of both childhood or adult experiences of nature and natural events. One participant who had been present in Fiji for one of the most severe natural events in recent history noted that it was now inextricably linked to the word *cagilaba*, meaning cyclone or hurricane:

003: Um yeah *cagilaba* it takes me back to I think 2018 when a tropical 5 cyclone hit home which was Winston. Tropical cyclone Winston. I think I was a medical officer out in the interior of Vanua Levu¹¹.

C: Oh.

003: I was right in the eye where Winston hit.

C: Oh.

003: Yeah and uh we were part of this emergency team that came out to look for people, find, yeah. So when *cagilaba* is heard, I feel like all these memories come back. And yeah, it's uh just a different feeling to know that that the the effects of you know the same nature where you find laughter and love in and then it turns to that way. To that way as well.

In regards the above participant's experience, their primary association with nature and natural events remained with their childhood experiences and narrative education in Fiji, while their adult experience of serious danger and destruction was associated with the specific word *cagilaba*. The layered and complex potential of Fijian nature to foster love and connection as well as present serious threats is something that multiple participants reflected on; this is discussed further in section 4.5.

Not all associations with the term *cagilaba* were negative. One participant recalled that their childhood experience of *cagilaba* was tied to experiences of closeness with family and togetherness:

005: I think of home.

C: You think of home, in what way?

005: I think of home because as a child growing up uh this is the time that we huddle up.

C: Yeah.

¹¹ the second-largest island of Fiji, north of Viti Levu

005: And we were all in one corner you know as a family and all we do is we eat eat biscuits and eat this and play cards.

C: So this is kind of a happy sounding time or was it scary as well, tell me.

005: Yeah no I I mean I grew up knowing when it's we when it's going to be cagilaba it's hunker you hunker down you hunker down and everyone is indoors.

These positive personal experiences still served as educational events, with important information actively being passed down and highlighted in practice. This same participant related a comparative experience with a cagilaba event while a teenager:

005: So I can't I can't really, I just remember once I was at my sister's house when cagilaba was happening and we would all huddle up same thing.

C: Same thing.

005: I was now a teenager I was, but in the morning that was the fun part to go out and see how much damage has happened.

C: Ha, yes all the branches and the trees.

005: The fun part.

C: The fun part. All the fruit that's fallen down that you can pick up.

005: All the fruits that's fallen down yeah yeah all the bus you know the bu¹² the coconut the young one and we just go and collect all and I think it was just uh I don't know we found it fun.

C: Yeah you found it fun.

005: We found it like this is a time we — no jobs.

C: Special.

005: Special. We eat.

C: Yeah and you go outside and see what has happened.

¹² green coconut (differentiated from *niu*, mature coconut)

005: What has happened. Not allowed to go in the night, no, not allowed to go when in the high truss.

The participant's memories of family and safety during cagilaba are associated with experiences of preparation and risk reduction activities ("when it's going to be cagilaba it's...you hunker down and everyone is indoors") and risk avoidance education ("Not allowed to go in the night, no, not allowed to go when in the high truss"). These tools are presented as connected to the positive outcomes of the experience, and the perception of their effectiveness is thus reinforced by these associations.

Within the study participants, personal experience was considered valuable, particularly in learning and understanding the expected community responses to natural events. However, a considerable proportion of the specific education about nature and natural events brought up by discussion of specific Fijian-language words was not from personal experience, but from narrative education received by participants. The meaning of *narrative education* in this context is the individual having heard, read, or otherwise received information from another person, typically in narrative or storytelling form, to contribute to sense-making and understanding of a given element of nature or natural events. Lessons learned via this narrative education were presented as equally important to those learned via personal experience, and were reflected on deeply.

Narrative education included direct lessons from family or community members about nature and natural events, either via discussion of active events or via general information passed down. One participant related that natural events going on around them as a child provided an opportunity for their father to pass on information to them:

005: But yeah like I said to you one time when my father and I were, you know I always follow him around like a little little puppy and he'd be standing at the front and I'd go and I'd just stand alongside him stand with him, and I'm standing and

he realizes that I'm standing next to him as a young child and then oh where are the birds going?

C: Ah.

005: And he'll explain why the birds are going that way and he said they're running away, draki ca¹³. Cagilaba sa va ru lako mai¹⁴, see he's already picked up that the cagilaba is coming.

Another participant, who felt a closeness and connection to nature, reflected on why and how they had developed such a relationship to it. They related that their grandmother, who raised them, would provide education in day-to-day contexts about how to recognize and understand nature and natural events around them:

004Sr [email]: You have to learn to listen to the vibration of what the natural world e.g. mother nature is sending out. An example of this my grandmother would say out of the blue that bad weather is coming, and I would ask how she would know, and she would answer that her knees, joints or body ache. This was one of the signs that I would later learn that we are somehow connected to the natural world through taking the time to listen to the vibration/messages within our body. The second was looking in our own back yard e.g. if you have fruit trees, if the fruit tree has a much high yield in fruit than normal, that's another way to know that bad weather/storm is coming. The third is when the sea birds e.g. sea gulls etc are flying towards inland or flocking inland it also means a bad storm is coming.

Much of this knowledge was widely held and reiterated or expounded upon in further discussion; some information such as the activities of seabirds prior to a significant storm was related by multiple participants. Participants felt confidence in this information and exchanged and reinforced this knowledge with each other and the researcher:

¹³ bad weather

¹⁴ hurricane is surely coming

004I: We heard our forefather grandfather oh now look at the breadfruit it's three in one three so that's the sign of hurricane.

004Sr: So if it's, if other fruit are very abundant then that's the warning.

004I: Yes, that's the warning, yes.

C: That's the warning sign.

004Sr: That's how we know.

004I: Yeah.

004C: Is that still true or not any more?

004Sr: Oh yes it is still true.

The other primary source of narrative education was through stories from childhood or adulthood about historical or societal experiences of natural and natural events. Unlike personal experience or narrative education about ongoing events, this type of storytelling provided education about natural events which occurred infrequently but which were considered to be culturally or societally important.

Many less-frequent Fijian-language terms for nature and natural events brought up this type of education, which was readily related and shared with other participants and with the researcher. *Uneune*, or earthquake, and *ualoka*, or tsunami, were particularly focused-on as subjects of narrative education despite participants having minimal or no personal experience with the events. One participant, who had in fact experienced earthquakes in Aotearoa New Zealand, still reflected that *uneune*, as a Fijian-language word, was strongly associated with stories told to them in Fijian as a young person:

005: Um it's unfamiliar in the sense I've never, in Fiji I'm looking at Fiji I've never come across *uneune* in Fiji.

C: In Fiji, yeah. When you read *uneune* do you first think of Fiji or New Zealand?

005: I I think of stories that we read that is read to us.

C: That is read to you?

005: That has uneune mentioned in it yeah.

C: Yeah yeah.

005: That that that's my memory of it.

These stories may be read from written material as above or told from relatives' personal or shared experience. Other participants took the opportunity to discuss oral stories they had heard about natural events, specifically earthquakes in Fiji:

004Ty: No, no.

004K: Only small ones.

004Sr: I the uh very severe one that was back in 1956? Was that the year of that one? Yeah my mother was in that and she said she got it.

004I: Once in a while, and not bad yes.

004Sr: That was the very last one.

Similarly, ualoka was considered an extremely rare but important natural event, and the word brought up narrative education they had received as a child:

005: Yeah but ualoka sort of was part of my growing up.

C: Yes.

005: And and I could feel it because we talk about it as kids and yeah we were told you know lako mena ualoka cici¹⁵, like it was a drill but not a drill.

C: Yes yeah.

005: And it was storytelling kind.

C: Hmm okay.

005: yeah it was more like storytelling that you know, dua na gauna¹⁶, one time — there will come a time.

C: There will come a time?

¹⁵ when the ualoka comes, run

¹⁶ a/one time

005: That is ualoka will come.

C: Io.

005: So it has it just has a resonates with my childhood growing up that we live by the waterfront and anyone out the waterfront will have to move to higher ground.

This transmitted knowledge allowed the above participant to put into context an ualoka that resulted in the destruction of their Fijian family home in a known low-lying area, well after they had moved to Aotearoa New Zealand:

005: I was watching particularly for [Fijian village] to see whether our house was gonna stand. And the ualoka took it.

As these quotes illustrate, narrative education was not considered an exceptional action or one separate from regular conversation and discussion. In fact, narrative education occurred during the data collection process, both between participants and the researcher and between participants during the talanoa data collection session. During the talanoa data collection session, one of the elders within the group (004K) told the history of ualoka affecting their village:

C: So ualoka when you think of ualoka what does that make you think of?

004I: Well go up to the hill!

C: Run for your life?

004[all]: Yes, yeah.

004I: Run for your life.

004Ty: It's uh the last in uh 2016 that's the cyclone Winston that had ualoka there.

C: Everybody remembers.

004Tk: Everybody yeah.

C: So ualoka is something that could be Fiji or it could be?

004K: One ualoka in Fiji, my island, we lived in a different place, in Malolo¹⁷. And the ualoka come. No village. We ran in the hill and we changed the village. We went the other side, yes, to face Viti Levu¹⁸. To face the Viti Levu. The other one, it faced this side, yes. They told us. Many of you still not born here. Because when we, after school we always play marble, and we always go on the top of the mountain in Malolo, and we saw all the sea shell all around there and we asked. That's why they say we move the village.

C: Io.

004K: And we stay there since. So that's one.

While it is difficult to indicate in written form the impact of the narrative as it was told, this story was delivered carefully and with formality, and received by the group with widespread interest and gratitude. The storytelling provided multiple avenues of understanding and giving context to the specific natural event reflected on. The participant provided a narrative of historical events, interwoven with community response actions ("we ran in the hill") and recovery actions ("we changed the village. We went the other side, yes, to face Viti Levu"), as well as depiction of the methods of discovering and receiving this knowledge ("we always go on the top of the mountain in Malolo, and we saw all the sea shell all around there and we asked").

Participants were comfortable with this manner of education and connected it to traditional cultural methods of passing down information. The participant who had received narrative education about nature and natural events from their grandmother relayed that this manner of education was linked to the oral traditions of Pasifika and Māori knowledge transmission:

¹⁷ a small island to the west of Viti Levu

¹⁸ the largest island of Fiji, with the capital, Suva, as well as the main international airport in Nadi

004Sr [email]: Information being passed down from generation to generation by the Taukei in Fiji and Māori in New Zealand would have been very similar through oral messages/stories. A lot of the oral stories of learning to listen to nature is now being revived by those who want to keep the information alive by means of recording the information.

This manner of relating narratives of specific natural events was not confined to events in Fiji, nor was it confined to discussions between participants. One participant, reflecting on the words *uneune* and *earthquake*, related a story of two times they had experienced an earthquake in Aotearoa New Zealand, and what they had noticed and what they had done. This was not related as a discussion of how they had learned from the experience, but as a story given to the researcher to share the participant's understanding of earthquakes in Aotearoa New Zealand with them:

005: Like I was on one particular night I was doing recording and at the time our recording studio was in the sun room, the main entrance as you come in there's a sun room and I converted I claimed it to be a studio.

C: This is your studio now, you said thank you for this lovely house this is my room now.

005: Yeah yes and one night I was recording it was a I think I was recording for a radio show. I was sitting there headphones and everything and I and I saw the table all started shaking.

C: Oh, yeah.

005: And it was captured on the on the recording, and I'll send it to you. And I thought okay, and I sat still, I think I was I was in shock that I let it go I let it go until it stopped.

C: Yes until it stopped.

005: Then I put my everything and I went to [—] and I said did you feel that, she said yeah.

C: Yeah [laughter] of course of course she did but you want to check you want to ask.

005: Yeah that was the closest and we've had a few we've had a few.

C: You've had a few.

005: There was a quite a one that destroyed Wellington.

C: There was uh yes years ago.

005: Yeah we were yeah we were in the Terrace.

C: Yeah that happened.

005: Yeah and we had to just stay still, stay still. And the next day we like we do after the cagilaba we go wandering around to see.

C: Go wandering around to see what happened.

005: [laughter] To see what uh being nosy.

Much of both the experiential and the narrative education about nature and natural events was strongly linked to family and family experiences. Family experiences in both Fiji and Aotearoa New Zealand provided both experiential and narrative education about nature and natural events. The same participant who had relayed the above story noted that they were not afraid of the ocean in Fiji because their parents and family had spent significant time in proactively educating them about it, including direct lessons on ocean ecology as well as observed lessons on safety practices:

005: So I guess my love for nature and the ocean, um I was never scared of it because we were immersed in it. And I remember mom would take us out on our boat the little boat the punt, she would go and show us what's underneath, you know how to look at what ever's out there and what you can eat and what you can't. We used to do that, she would take us out, you know before the reef.

C: Just learning and teaching.

005: Yeah. We I remember when we were growing up she would do that take us out to the reef. Not right to the reef but when the water is out and it's safe to go.

C: Safe to go and she'd take you there and show you things it sounds like.

005: And she'd take us and show us things, yeah. And the lighthouse is here, there's a lighthouse here, and so over here this is where the communal for the women, women's communal, and the reef starts just at the end of it, so we in the night during moonlight we would go out, to go and look for shellfish or just go and go for a walk on the reef. But the thing is if you fall —

C: I was going to say.

005: You're falling into the big ocean.

C: Right? No fear.

005: So we would go, we would go but we can't go alone. There must be an adult. No I can't go alone we always go as a family because we come from a big family boys and the girls, yes. We always go.

C: You all go together.

005: We all go together and making sure that we are okay and then we just go and as soon as we know, one of them will watch the tide, as soon as the tide's coming in, we're going back.

This detailed account again contains a great deal of knowledge transmission about nature and natural events, as well as about risk awareness and reduction. Individual direct lessons about nature and safety are layered with practical experience and observed practices, all of which are carried within the positive context of relationships with family and belonging within the natural environment.

4.3.1 Theme Summary

Among participants, Fijian-language terms for nature and natural events were strongly associated with Fijian events and experiences, but importantly these associations were not always personal associations. Fijian-language discussion of these terms brought to the forefront the way in which knowledge was passed down and shared, specifically highlighting the importance of narrative storytelling in providing education about and context for important elements of nature and natural events. Participants actively shared knowledge via storytelling throughout the data collection process, and related the ways in which they had been taught throughout their lives. While direct experience remains an impactful aspect of education and understanding about nature and natural events, it should be recognized that person-to-person storytelling is a widely accepted, culturally appropriate, living methodology for the transmission of knowledge among the Fijian- and English-speaking community involved in this study.

4.4 English-language terms' connection to ways of learning about nature and natural events

Traditional cultural methods of knowledge transmission such as oral storytelling are not universally ingrained, and non-Indigenous languages may carry these associations more weakly or not at all (Fisher et al., 2024). In contrast to the above discussion of Fijian-language terms, English-language terms for nature and natural events did not bring up experiential or narrative education for the majority of participants. Those that did were primarily in the context of experiential education.

English-language terms were perceived to be less likely to evoke familiar or relatable places; one participant found that while the Fijian-language term *veikau*¹⁹ brought up a complex and rich mental construct of a range of places in Fiji, the English word *forest* was considerably less associated with any personal or ancestral experience:

¹⁹ the bush, the forest

C: Yeah yeah. Um when you talk about a forest in English what do you think about?

002: I think of Nottingham Forest in um.

C: Do you?

002: With uh with that guy.

C: Robin Hood?

002: [laughter]

C: [laughter] Very different kind of forest.

002: Yes, yes. Yeah.

Words which are etymologically loan-words from English, including *tsunami* (despite its own etymological origins), were perceived as English words with similar implications or lack thereof. These 'learned' terms tended, as above, to be words that participants had encountered in reading or other education which was couched in neither personal experiences nor in contextual narrative form. These English-language terms were perceived to be abstract or foreign and lacked the resonance and relatability of Fijian-language terms:

005: Yeah so tsunami doesn't really yeah tsunami it's abstract.

C: Ah yeah yeah and ualoka is?

005: Ualoka is like I see it. I see the ocean and one day it's gonna come, I don't see that in tsunami. It's foreign.

C: It's foreign. Yeah.

005: The word the concept it's foreign.

C: Is foreign. Do you think looking at cagilaba and talking about like, cyclone or hurricane, do you how do does — we've talked about cagilaba, thinking about cyclone and cagilaba, again do they feel do they bring up the same thing?

005: There's a difference, the distinction between the two word is like, cagilaba I relate.

C: Yes.

005: It resonates with me, it touches me.

In some participants, while English-language and Fijian-language words for nature and natural events were considered related, the experience of reading or hearing them was identified as clearly non-equivalent:

005: Yeah so earthquake is a very New Zealand word.

C: It's a very New Zealand word.

005: Mhmm.

C: It's a very New Zealand word. Uneune even though you haven't experience it in person though it sounds like you still have some association with the stories with things that you've been told?

005: Yeah. yeah. Yeah again because is, is vosa vaka-Viti.

C: lo yes.

005: It is it just resonates you know something about the word, oh yeah I heard about uneune. But not earthquake.

C: Not earthquake.

005: Earthquake is like cut and dry.

Certain specific English-language terms for nature and natural events which are rare in Aotearoa New Zealand but common in Fiji brought up Fijian experiences of nature and natural events. Particularly words for storms, including cyclone and hurricane, were strongly linked to Fiji despite not being Fijian-language terms. The participant who had been present in the area centrally hit by a severe cagilaba in 2018 related that any term for a similar storm event was evocative of Fiji and their experiences there:

C: And you think about the for for cyclone when you thinking about cyclone or hurricane, is it what comes to mind for that the same or different? Hurricane, cyclone.

003: I don't know really I just feel like it's the same.

C: No no it feels the same does it pull you back as well?

003: Oh yeah yeah absolutely. Absolutely it does, yeah.

Using the term hurricane in English conversation with a group of participants with varied storm event experience still brought up memories and thoughts of Fiji as opposed to Aotearoa New Zealand:

C: So when you think of hurricane you're talking about hurricane there, are you thinking of Fiji or?

004Sr: No I'm thinking of Fiji.

004[all]: Fiji, Fiji yes.

This may have been due to personal experience, though not all participants who reported this relationship had personally experienced significant storm events in Fiji. However, most had, and storm events were universally viewed as one of the most common natural events to occur in Fiji, thereby heightening the association.

Conversely, among many participants certain specific Fijian-language terms for nature and natural events which are rare in Fiji but common in Aotearoa New Zealand brought up Aotearoa New Zealand experiences of nature and natural events. As discussed in the section 7, the English-language term *volcano* lacks any associated, commonly-known, non-loan Fijian-language term, and was immediately associated with Aotearoa New Zealand as both a term and as an event:

004Sr: Volcano?

C: Volcano, do you think of volcano as Fiji?

004Ts: No.

004[all]: Volukano²⁰? No, no.

C: You think of volcano as?

004I: Io, New Zealand. Volukano.

In contrast to the above participant quote which noted clear, differentiated associations between the English-language term *earthquake* and the Fijian-language term *uneune*, participants in the talanoa data collection session broadly associated both terms with Aotearoa New Zealand due to the familiarity of the experiences in Fiji and Aotearoa New Zealand respectively:

C: But earthquakes when you think of an earthquake do you think New Zealand or Fiji?

004[all]: New Zealand.

C: Even if we said it in Fijian, if we said *uneune*, would you still think New Zealand? Or does saying it in Fijian make you think of —

004[all]: New Zealand. New Zealand. *Uneune*? Yes.

004I: I haven't come across since I've been there. But here it's like *uneune*, it's like, ahh!

C: All the time eh?

004I: Yes.

C: So it sounds like the way that you think about these kind of natural disasters is, depends on?

004Sr: The experience.

One participant was able to reflect on and analyze the reasons for this difference in resonance between *uneune* and *earthquake*, specifically noting the Fijian-language relationship to personal as well as generational and ancestral knowledge noted in sections 4.1 and 4.2. The English-language term was noted to be associated with formal

²⁰ volcano (English loan word)

educational like school reading or informational posters, as opposed to the Fijian-language term's broader associations with experiential or narrative education:

003: Uneune versus earthquake, um I think um I don't know about other people but when you talk about something in Fijian it it as I said it reflects on the past.

C: Ah.

003: So um when when you say earthquake in English, like okay it's earthquake, we've heard it in we've heard it in school we've heard it here we've seen it in posters but when you say uneune because we don't really see it out there a lot.

C: Right yeah exactly.

003: We don't see it out there a lot, so when you say uneune for us how have we felt in the last uneune, right, that's what that's what brings the word uneune back to us. And so um I can't remember being in Fiji when an earthquake when we had an earthquake, so I wouldn't really feel the effects of uneune compared to someone saying cagilaba. Because you know okay we were there.

C: You know that you were there.

003: We know how it feels like and I know what it had done to my people, but it's not the same as uneune because I can't remember maybe even I was really small but I cannot really remember.

C: Yeah and if it did happen it wasn't that same experience for you.

003: Nah, yeah.

Participants who had had experiential or narrative education about specific nature and natural events in Aotearoa New Zealand described feeling a connection to and familiarity with those aspects of nature and natural events in Aotearoa New Zealand. That education may have been as simple as repeatedly experiencing family holidays in nature in Aotearoa New Zealand:

001: Yeah yeah so um we uh we do some uh some fun stuff with the kids but yeah definitely nature we're already planning Christmas day to head out to the wharf and jump and things like that you know so yeah.

Another participant had received more direct education about nature and natural events in Aotearoa New Zealand via a rongoā Māori course which involved structured educational outings into natural areas:

005: I think when we went for um our rongoā I did the rongoā Māori last year and we would go out into the woods to discover the canopies and what's out there.

C: Yes.

005: Um yeah it's beautiful, it is beautiful.

Finally, the participant who had recalled being raised and educated by her grandmother related that this education had been deliberately applied to building a meaningful connection with and understanding of Aotearoa New Zealand nature and natural events:

004Sr [email]: Yes, I do feel connected to the nature. It is no different to me being connected in New Zealand versus Fiji. In fact, the wisdom that my Bubu²¹ installed in me while I was a little girl (I was brought up by my Bubu) is what has enabled me to connect with while living in New Zealand. I would say that you have to be in tune with nature to be able to have the feeling of knowing. This can either be passed down from generation to generation, and/or some may just have a natural ability to know.

As noted above, this natural ability and sensory experiences reflects other quotes regarding resonance and embodiment of language and of being in nature. Participants reflected on the physical, sensorimotor experience of understanding nature and natural events, similar to the sense resonance or connectedness noted with the use and hearing of Fijian language highlighted above in regards the embodiment of language (Jirak et

²¹ grandmother

al., 2010). This physical connection between the body, language, and nature may reinforce the cognitive connections created by narrative education (Thierry et al., 2024).

The receipt of generalized narrative education about nature and natural events has supported the development of a deeper understanding of and familiarity with nature and natural events in Aotearoa New Zealand, which was not widely available to many participants. As will be discussed in section 4.5 below, this type of connection and relationship is potentially beneficial in building an understanding of nature and natural events, and disaster risk reduction, in Aotearoa New Zealand.

4.4.1 Theme Summary

English-language terms for nature and natural events were perceived to be more abstract than Fijian-language terms, and carried markedly less association with either experiential or narrative education. This was true particularly of terms for nature or natural events typical to Aotearoa New Zealand and rare in Fiji. When discussing specific terms, English-language terms for storm events, which were perceived to be extremely common in Fiji, were likely to be associated with Fijian experiences and narrative education. Conversely, some participants associated Fijian-language terms for earthquake and volcano with Aotearoa New Zealand, again due to the apparent perception of the frequency of these events in the two respective locations.

While some participants had direct educational experiences with nature and natural events in Aotearoa New Zealand, most had not, or did not have strong association with them via English-language terms. This marked variability in the associations of individual Fijian- and English-language terms for nature and natural events has potential implications in regards to effective education about expected risks and response behaviors suitable for Aotearoa New Zealand. Careful attention should be paid to the audience's understanding of and response to selected terms.

4.5 Relative familiarity of nature and natural events in Fiji and Aotearoa New Zealand

Small island communities face some of the highest relative rates of natural hazards and related disasters in the world, particularly meteorologic and volcanic (Komorowski et al., 2018; Rampengan et al., 2014). Communities which have lived with risk from nature and natural events over many generations may accumulate local knowledge and understanding regarding behavior, signs, and responses to frequent natural events (Komorowski et al., 2018). This proximity and its resultant collected knowledge is established and transmitted throughout communities as a form of preparedness for familiar or expected natural events.

In conversation with the study participants, nature and natural events in Fiji and Aotearoa New Zealand were presented as distinct in terms of comfort, familiarity, and understanding, even amongst those participants who had spent the majority of their lives outside of Fiji. On initial discussion about the perception of nature in Fiji and Aotearoa New Zealand, Fijian nature was widely described both as familiar and pleasant:

001: I mean Fiji's nice because you know it's humid it's hot and the moment you dip into the waterfalls in Colo-i-suva²² and all that it's the best feeling ever you know what I mean. It's like those hippos just sitting in the water for ages. You just can live there.

Being in nature was a source of comfort and calm, and carried with it a sense of belonging or rightness:

002: And I knew and the the beauty about it is that um it was like um like a way to destress and recoup you know and out with nature you just you feel so calm in the you know you take it you know the air is fresh yeah. Yeah it just feels right. Yes.

²² nature reserve north of Suva

One participant related that they loved and missed their prior experiences of a comfortable, family- and community-focused, idyllic life in Fijian nature:

003: Um yes um you know growing up in Fiji always sends up the weather how hot it is so I always I always it always goes back to you know hot it is and you know how my mom would just spread the mat under the mango tree and just getting all us kids just relaxing under the mango tree and then one of my brothers would just run and get a coconut, green coconuts, bu, and just slice it up and we'd have it and just chill. I just really love that life. I really miss it too. Yeah so and just having the cousins you know cousins going by and saying hey let's go get some guavas or let's go get some mangos you know from the other aunt they'll come home and we'll just sit there under the mango tree having all the tropical fruits with all the cousins laughing and just chilling.

Nature in Fiji was frequently described as complex and lush, with easy access to water, food, and shelter:

C: And when you say veikau as forest in Fijian um do you think of a forest in a forest anywhere what kind of a forest do think of in your mind when you hear that word?

002: When I talk about forest I think back to where we were in Fiji where the farm was because it has um hills and a river running through the two hills and there's a house and there's some coconut trees and there's some big trees some kauri, fruit trees big fruit trees yeah.

Despite this initial discussion, when conversations turned to specific natural events in Fiji, these events were immediately acknowledged by participants to be potentially very dangerous, as noted in section 4.3. This dichotomy was referenced by multiple participants who had immediately beforehand been discussing the pleasant and comfortable aspects of Fijian nature:

001: So uh when it comes to yeah when you connect Fiji and weather I mean everyone thinks of the tourist side of it, it's beautiful and tropics and all that but then you forget about the other side which is when it's cyclone season, yeah. It basically just rips through the whole whatever part of the island it's at.

Participants related that terms for storm events such as *cagilaba* were immediately perceived to be dangerous and saddening to think about:

003: Um *cagilaba* yeah um it I don't know it um it's you know it's that experience when you're laughing and you're sharing all these good things about nature and you think about *cagilaba* and your face just completely drops.

Participants felt aware of the specific dangers and risks which might occur throughout natural events common to Fiji, and keenly felt the potential for destruction from multiple compounding natural events:

C: When you think of *cagilaba* as the word itself, what do you what does that make you think of?

002: It it makes me think of destruction you know like uh yeah how it can destroy the house and uh and what could follow is uh those um what do you call, tsunami?

C: Mm.

002: Always concerned about that like you know.

C: Yes.

002: Hurricane will come in and the tsunami will follow. And uh with that destruction will come through yeah.

Many Fijian-language terms for natural events including *cagilaba* and *ualoka* were well-known even if they were not common, and specific severe natural events were well-remembered by the community. One participant recalled their most recent experience

hearing the term *covulaca*, meaning waterspout or tornado, after reviewing its definition with the researcher:

C: Do they have a lot of covulaca in Fiji?

002: No no.

C: No.

002: But it happened recently in one of the hurricanes in Fiji that was way I think way back I think in 2015-16, so yeah that they had the covulaca which really destroyed all the houses in one of the islands.

The frequency of dangerous natural events in Fiji carried with it a sense of awareness and understanding, and experiences of these dangerous natural events in Fiji were associated with personal, family, and local community preparation and recovery. In the talanoa data collection session, a primary association with the term *cagilaba* was preparedness:

C: What do you think of when you think of *cagilaba*?

004I: Well, corned beef, get ready! [laughter]

004Ty: Preparation! *Cagilaba*.

004Ts: Just get there.

The term *cagilaba* was considered a call for preparedness, both personal and community-wide, among the group:

004Sr: It's a warning.

C: It's a warning.

004[all]: Yeah, yes. Io.

004Sr: To get ready get yourself sorted.

004Sv: Yeah get it sorted.

004Sr: Yeah um just make sure you make sure the community's all ready.

Participants promptly, organically engaged in a review of preparatory actions and considerations, discussing best practices and reviewing potential outcomes. This was a pleasant and energetic conversation, and participants appeared confident in their knowledge and enjoyed sharing it together:

004Sr: Yeah so they if we're thinking of hurricane the first thing you think of is putting your windows closing your window, the shutters.

004I: The hurricane shutters.

004Sv: Water, boiled water and get candles.

004K: Candles.

004Sr: Batteries whatever radio just in case, have your boat just in case you you have to —

004K: Go rowing, rowing around.

004Ty: Rowing around the village [laughter].

In contrast to the above picture of nature in Fiji, nature in Aotearoa New Zealand was perceived as overall less pleasant, or at the very least more neutral, but significantly less familiar or deeply understood. Participants were perhaps unsurprisingly widely not in favor of the coldness of the ocean in Aotearoa New Zealand:

002: Ah yes the water is so cold oh I think I've only gone out swimming twice in Foxton yeah because it's just so cold. And people are out New Zealanders are out swimming and you have they have to but it's so cold.

Nor of the rain:

C: Rain certainly. Warm rain, is it?

004I: Cold.

C: Cold?

004Ty: Over here it's cold. No one wants to go outside.

Nor the wind:

001: Um no no I mean you know Suva obviously it's a bit more humidity there um and uh totally different yeah, the rain is warm you can stand out in the rain and just enjoy it you know. Have a rain bath like they do back in Fiji. The wind is warm as well you know what I mean, blowing over here the wind blowing at you you're trying to find cover because it's so cold this icy cold wind but there you know it's a nice warm breeze blowing at you so. Yeah. Nature wise yeah it's just nice and humid back home. Yeah.

Apart from discomfort with the temperature, some elements of nature in Aotearoa New Zealand were also uncomfortable in their unfamiliarity and lack of deep connection. One participant, who had had considerable narrative education about the ocean in Fiji and felt deeply connected to it there, related that they lacked the same familiarity or connection with the ocean in Aotearoa New Zealand. This resulted in an element of fear and wariness:

005: Yeah mm but in New Zealand I'm a bit, I'm a bit scared of the ocean here.

C: I was going to say talk to me because you were talking about you know, being near the sea here in New Zealand, how how is the ocean in New Zealand feel to you?

005: You know like I said when we came I wanted to be by the ocean so we moved to [suburb]. Um but venturing out into the ocean to swim, I was a bit wary because I don't know it. I don't know it.

C: Yeah and it's that familiarity? What do you think did it just did it just feel strange to you or you said that you were a little scared of it?

005: Yeah even even today if we go like summer we would go down to [suburb] Beach and we would go out and and the tide's well out and I'd be looking for a little deeper spot but I I get conscious that there might be a shark in the in the water. And our totem is shark.

C: Is it? I see. I see.

005: That's our totem. But in [Fijian village] because there's a reef we are protected all the big sharks stays out, all the big fish stay out so we are protected. And there's no protection this is open sea.

C: It is open sea right up to you.

005: So that's why I'm a bit scared.

Their childhood education and experience in Fiji regarding the ocean, the reef, and appropriate safety practices had led to a comfort and understanding of what to expect and how to behave which was not held equally with regards to the ocean in Aotearoa New Zealand. Knowledge of risk and safety in the ocean in Fiji was applied to the ocean in Aotearoa New Zealand ("there's no protection this is open sea"), but with the awareness that this may not be as relevant or applicable ("I was a bit wary because I don't know it").

Nature in Aotearoa New Zealand was also perceived to be less frequent or severe in its natural events. In the talanoa data collection session, nature in Aotearoa New Zealand was presented in contrast to that of Fiji, and specifically it was noted that while flooding was extremely common in Fiji, there was no flooding expected in the city where most of the participants lived now:

004Tk: Back home it's too much rain.

C: Back home it's too much rain?

004To: And natural disasters, flooding.

004Tk: But it's warm rain.

C: It's warm rain but it's always flooding and raining back home.

004[all]: Io yes yes.

C: Not so much here?

004I: No.

004K: We live in [town]. No flood in [town].

This was despite the participants' knowledge that flooding did in fact occur in Aotearoa New Zealand and had even recently occurred in a limited degree in the local area; however, a community member noted in the talanoa data analysis session that in these events in Aotearoa New Zealand were much less frequent, less widespread, and perceived to be exceptional, while in Fiji they were regular and expected.

Those natural events which did occur in Aotearoa New Zealand were also perceived as less familiar or less relatable. Multiple participants commented that it was somewhat disconcerting that they would hear of regular weather events such as strong winds being discussed in Aotearoa New Zealand, particularly when similar weather events in Fiji would be expected to have destructive or severe impacts:

004Sr: Here it's like it's nothing. Yeah they don't do a lot of —

004Ty: Windy Wellington, like that's normal.

004Tk: Like here it's windy, but at home when it's like that it's hurricane.

004L: Hurricane, yes.

Participants also related a sense of disconnectedness with the general Aotearoa New Zealand framing of those natural events with which they already felt very familiar from their Fijian experience and education. Storm events were noted to be especially distinctive in this way, wherein participants felt that they themselves were well-educated about and ready for storm events, but there was concern that the Aotearoa New Zealand public may not understand the severity and potential danger as well. In the talanoa data collection session, participants related that their level of concern and preparation for storm events seemed to be much more significant than those around them who did not share their cultural background:

004Sr: But here it's when they say strong winds, they think strong winds like a hundred and thirty knots. To us when you hear that it's like oh my gosh these

people are crazy. We're ready, but a lot of them they have no clue what the disaster would be.

004[all]: Yeah, yeah.

004Sr: But a lot of — they have no clue what the disaster would be. That's just my take.

C: So when you hear hurricane cyclones in New Zealand it's just different.

004[all]: Yeah it's just yeah.

004Ty: Yeah it's just nothing. You can just leave the house.

004Tk: Not like back home.

004Ts: Back home I was just like I have to be prepared for hurricane.

This degree of concern and preparation was associated with the experiential and narrative education discussed in section 4.3. One participant noted that the emergency preparedness information being broadcast on the radio in regards a recent storm event in Aotearoa New Zealand was familiar knowledge that they had grown up being taught and frequently using in Fiji:

005: Yeah and because of the experience I had and I listened to what is being talked about in the news and I said isn't it funny they're telling everyone A to Z about how to what to do around the house and I thought, we grew knowing all this.

C: You grew up with this so these things they all come right back, they're still with you.

005: Yeah and and they're spelling out everything you must do and I'm going for us it's quite natural.

In line with perceptions that natural events in Aotearoa New Zealand were less destructive than those in Fiji, the government in Aotearoa New Zealand was perceived to be much more proactive about preparation for, and engaged in recovery from, nature

and natural events. The government in Fiji was not perceived to be especially proactive about preparation for or engaged in recovery from nature and natural events, leaving participants to manage preparedness and risk reduction themselves as a community. One participant noted that during their time living in Fiji, they would typically only hear about natural events when they were actively happening:

002: Well here in New Zealand we, that notification that alert, aye, on our phones, io. But uh in Fiji it's just through television and the radio yeah. Television and the radio where you get all these warnings and um not really education, it's more like uh they they they are not, they in Fiji it's more like a reactive thing instead of being proactive. And you talk about it when it actually happens there.

C: Ah so in New Zealand they talk about it more in preparation eh?

002: Yes yes. And I don't know about now in Fiji but at that time where were there I know yeah it was more like a reactive thing.

One of the elders in the talanoa data collection session related during a discussion of the term *sisi ni qele*, meaning landslide, that a large *sisi ni qele* had destroyed some terraces between Suva and Navua, a coastal town to the southwest:

004Sv: [in Fijian] In the place between Navua and Suva, the terraces there have landslides.

004Sr: Oh aie.

004To: So Suva to Navua?

C: Navua?

004To: All the way to Suva.

004Sr: That area always, with heavy rain right?

C: That area always has landslides?

004To: Yes.

004I: [in Fijian] Did they do anything to fix it?

004Sv: [in Fijian] Nothing.

004To: They just left it like that, ese sisi ni qele²³.

004Sr: Oh aie.

004I: Nothing done they just left it.

C: Nothing?

004Sv: Nothing.

004Sr: Aie.

004Sv: All going back to funding.

In line with this, the Fijian government and society was perceived as having lost or forgotten about ancestors' knowledge of how to prepare for nature and natural events. Participants discussed their ancestors as having had direct experience with nature and natural events, and as having developed that relationship with nature and handed it down:

005: And that's when I go into the forest you you mentioned something just just the ancestral feeling.

C: I see.

005: That they did this.

C: They did this?

005: They did, they walked the forest, yeah they planted for them to survive and it got handed down. Yeah.

This was perceived to have been lost in the present. In a discussion of effects of climate change on the weather in both Aotearoa New Zealand and Fiji, the talanoa data collection group reflected on the changes they perceived to have happened in homebuilding techniques in Fiji and even in Aotearoa New Zealand. Modern

²³ there was a landslide

homebuilding techniques were viewed as having clearly forgotten or put aside known, ancestral techniques which were focused on readiness for severe natural events:

004Sr: Um I think of the current houses the way they're built, mm.

C: In New Zealand or Fiji or both?

004Sr: I would probably say both, and Fiji I would say during my grandfather's time they would, I don't know the, back then they had they would know that if you're building that you have to build your house on stilts regardless of if you're living near the river or the sea or quite close so that way when it floods it just goes underneath.

004Ts: Underneath yeah.

004Sr: Uh but they with modern technology now even just having homes built quickly not a lot of houses I've noticed anyway either when I'm in Fiji there are some old houses that are still around but a lot of the houses are very much even here are built on the ground level so regardless of how many times you have the weather coming through the the hurricane or heavy rains and floodings for some reason it's, I don't know, builders still don't seem to.

004I: Get it, yeah.

004Sr: I think that there are some areas that you build in that will flood, so um I'm guessing in Fiji it would probably be the same if you live in the river area or whatever.

004[all]: Yes io io.

004Sr: You had been built on stilts.

004I: All of the years past because it always kept flooding so our houses just like that high io, once the flood come and we see it's like yeah we have to go.

C: So some of it sounds like some of it is the weather is changing but some is how people are building is changing. You know and maybe they're not thinking of the weather?

004I: They are not thinking of our forefathers, yeah.

C: Because your forefathers —

004I: They are ready.

This knowledge, like other ancestral knowledge of nature and natural events, was viewed as important to pay attention to and revive, as it remained relevant to modern circumstances. In the discussion above, participants in the talanoa group presented this ancestral knowledge as potentially applicable to Aotearoa New Zealand as to Fiji ("I would probably say both"), though their experience was less significant with the Aotearoa New Zealand context.

4.5.1 Theme Summary

Perceptions among participants of nature and natural events in Fiji and Aotearoa New Zealand were complex. Participants related seemingly contradictory perceptions of Fijian nature as highly desirable and pleasant, but also as potentially, and regularly, extremely destructive and dangerous. In comparison, nature in Aotearoa New Zealand was discussed as not nearly as comfortable, idyllic, or familiar, but also as sometimes disconcertingly disconnected from the same degree of danger and familiarity to its natural events.

This apparently contradictory series of results did not coalesce into a clear and meaningful picture on first assessment, especially because the way in which the above subjects were discussed did not seem to carry much cognitive dissonance or tension. In the moments when individual participants reflected on the above dichotomy of Fijian nature, their affect was primarily that of disappointment or resignedness regarding the

significant destructive capacity of Fijian natural events and the Fijian government's poor response or failure to prepare.

This, therefore, was a topic heavily discussed at both the one-on-one and the talanoa results review sessions, which were invaluable. Participants in these results review sessions reflected that these findings were likely representative of the fact that significant natural events in Fiji are extremely frequent and largely normalized, while significant natural events in Aotearoa New Zealand are perceived as unusual and poorly understood by the community. While destructive, natural events in Fiji were discussed as a known, predictable, and expected experience for which the community knew how to prepare and respond on its own. Participants in the results review sessions suggested that they felt more comfortable with how to act during familiar, Fijian natural events than during those in Aotearoa New Zealand, and in fact that they prided themselves on their accumulated cultural and community knowledge of preparedness for and response to those types of events.

This aligned with the conversations with participants in the data collection sessions. The quoted participants above felt clearly that their experiences, upbringing, and education had given them valuable information on how to prepared for and endure significant natural events, especially storm events; they reported that it was unusual and sometimes unsettling to note the difference in awareness and understanding that seemed to be present in the general public in Aotearoa New Zealand.

4.6 Desires and intentions for messaging about nature and natural events

Messaging in emergency management, including natural hazards and related disasters, is highly dependent on the dominant language, often English (Federici, 2022).

Multilingual messaging is a critical aspect of engagement and communication before,

during, and after natural events, and effective communication may rely on tailored messaging and community engagement (Gabrielsen et al., 2018; Kaiser et al., 2025).

Study participants expressed a strong desire for some degree of Fijian language messaging about nature and natural events in Aotearoa New Zealand:

C: When you think about messaging so you're here in New Zealand now as you are what language do you want to get information about nature and the weather?

005: Fijian. Vosa vaka-Viti.

Participants noted that Fijian language messaging about Aotearoa New Zealand nature and natural events would be expected to improve engagement as well as understanding of and connection to the subject matter. One participant, who worked with incoming Fijian-speaking visitors and workers in Aotearoa New Zealand, felt that accessible information in Fijian would facilitate improved understanding of the differences in nature and natural events:

001: Yeah, but uh as far as natural disaster — that's a good idea you know because the amount of people that work in different industries who have ones that you know that will flick to a page and understand their section better about the natural disaster.

Most participants related that the primary messaging they recognized and received about nature or natural events in Aotearoa New Zealand was the emergency alert text message service. This is only in English as far as the participants were aware, though they expressed a desire to see it in Fijian were that an option:

005: It's in English, you know, or the phone rings you know that emergency.

C: It's in English, I do yes.

005: Boy it'd be nice to read it in Fijian.

Many participants spoke of messaging as ideally being translated into Fijian. Participants did not expect or discuss the idea of information in Aotearoa New Zealand being initially composed in Fijian, but they did strongly support translation of information into Fijian for transmission to the community:

004Ty: We would like something translated into Fijian.

Participants suggested the use of mixed Fijian- and English-language messaging to reach the widest possible breadth of audience members. Fijian- and English-speaking community members in Aotearoa New Zealand were perceived to be, and self-identified as, extremely variable in their respective language abilities, and it was a common concern that audiences might struggle to fully understand information provided in only one language. One participant noted that they would often select the language they used to discuss nature and natural events depending on the perceived skills of the person with whom they were conversing:

001: Yeah, it depends on who I'm um are we still talking about about Fijians with other Fijians?

C: Mhm.

001: It depends on how plastic the Fijian is in front of me. If it's a New Zealand born who's born here who's just, I know quite a few of them, then I would just stick to the, if I was like to start yapping on about cagilaba and that which is cyclone.

C: Yeah.

001: They would not even, they would not return that back you know what I mean.

C: Oh interesting. Huh.

001: Just cause maybe they're shy to bring it back or whatever I just take my cues from them.

C: You just feel like it wouldn't connect the same to say cagilaba or whatever uneune I guess it's.

001: Or they would look at me and like again trying to figure out what I just said you know. So yeah so it depends on the uh the Fijian who's standing in front of me. Because if it's a lot of the ones that I've you know known growing up we've all come from Fiji um I've known them since I first came here you know with them it's just you know yapping in our mother tongue. About the weather and about did you hear about the natural disaster back home.

Multiple participants noted that the mixed literacy levels in both languages within the community made the use of both Fijian and English necessary in order to reach the entire community as an audience. Two participants provided detailed discussion of this in follow-up email conversations:

002 [email] My view is that they should be in English and also translated. Some understand the information better in Fijian whilst others in English. We have a mixed literate efficiency Fijian population in New Zealand which is now forever changing due to the ever changing immigration laws. We have workers coming in more so often now and in my experience I've noticed that they struggle a bit in English. It's quite hard to divide which should be which. I prefer a holistic approach as this would be cost effective and easier in covering the said community at large.

And:

003 [email]: I think here in NZ important information is best conveyed in both the languages English and Fijian. Mainly because our targeted population are in both extremes ie. Fijians who've gotten here seeking higher education and Fijians who've also gotten here through PALM/NEC scheme to seek greener pastures for them and their family. It's important to recognize our targeted audience and convey this information appropriately so it is better understood at both levels.

Both statements acknowledge that members of the community may have limited fluency in English, but they may instead or also have limited fluency in Fijian, particularly in the complex or technical language often used to communicate about nature and natural events. One participant, who has been quoted previously discussing the loss and regain of their Fijian language upon moving back and forth between Fiji and Aotearoa New Zealand, described an experience of reading a translated document at work prior to its being sent through to another professional translator for reviews:

001: Well I I thought it was pretty good but [—], because she's you know that's her that's her um baby you know she she loves translating a lot of things, you know, proofreading our Fijian, she thought it was the messiest work ever. And so I knew I knew my Fijian was not on her level at that point.

When considering the language used for specific information and instructions, many participants stated that English-language messaging was preferable for specific instructions. This was strongly endorsed by the results review sessions. The English language was generally viewed to be more effective for direct, discrete information such as instructions or classes of things:

003 [email]: If we have to relay other instructions on why a cyclone happens or the differences in intensity maybe like different categories of cyclone then that's best done in English.

English-language messaging was generally agreed to be more succinct and specific, while Fijian-language messaging would require considerably more description and high word counts, and potentially be less clear. As noted in previous sections, English-language terms were associated with formal schooling and 'learned' language, and resonated less deeply with participants. However, this discrete or abstract element to the terms was potentially beneficial in allowing a single, focused, and specific piece of information to be conveyed without the need for further description language, nor the

inevitable addition of other implicit information. One participant reflected that objective description in Fijian was considerably wordier than the same experience in English:

002: Yeah. I guess uh when you describe something in Fijian it can take you like three four sentences to actually describe it but in English it can just take you one sentence or like words eh even words like some words just just need one English word but in Fijian you have to use so many words to describe it you know.

Furthermore, the breadth and depth of Fijian words, though considered a valuable asset in communication, was acknowledged by participants as a potential barrier to certain aspects of emergency management messaging. The layered, contextual nature of many Fijian-language terms such as *vanua*, as discussed above, meant that it was difficult or impossible to convey any single meaning of the word without the inherent associations and implications. English, conversely, was viewed as considerably more limited in its meanings, which allowed focused, technical communication:

004To: Land in English it's just formal and technical. But in Fijian *vanua* it's like broad.

Certain technical or specific subjects were also identified as considered more serious in English; one participant related the experience of speaking with patients in their role as a medical professional Fiji, and the relative weight and seriousness of describing medical terminology in English:

C: Are there any uh words or situations things that you word want to talk about where you feel like English would be more like you would chose to the use the English specifically?

003: Yeah um when when we also grew up in our family we had um we were all educated my three brothers and I so when we went on with education we finally found out that there are some things that we learnt like say medicine like someone is having a fever like if I had to explain that person in Fijian it won't be

the same as me explaining in English. Just to get the real meaning across as to why that person has a fever, why it's very important to get medical attention and why is it that it's urgent. Because in Fijian it's a fever oh we go for the massage, bobo²⁴, but then to —

C: You're saying this is an English fever.

003: Absolutely.

C: That would be serious.

003: Oh exactly.

While English-language messaging was presented as more effective at communicating specific and concrete terms and information, Fijian-language messaging was perceived to be more relatable and to have a deeper meaning and resonance than English. Fijian terminology and words were generally considered broader in scope and meaning than English ones, providing a wider sense of meaning available to the speaker but requiring knowledge and understanding of context and implications:

004Sr: It's generally more broad and it depends on the context.

004I: In one Fijian word, a lot of meanings.

004K: A lot of meaning. A lot of meaning.

Fijian-language messaging was described as resonating more deeply with participants, potentially due to the connection between Fijian-language terms for nature and natural events and the narrative education discussed in section 4.3. One participant commented that the use of Fijian-language terms made messaging about potentially dangerous natural events less frightening:

005: When you say uneune even though it's scary, but the word, the word you know makes me go you know, be prepared get yourself organized but it's in a

²⁴ traditional Fijian body massage

way that's so gently said that it doesn't scare me. It's not scary. Whereas earthquake it's like, that is scary.

C: All right.

005: I don't know, I'm not sure why. It's because of the English, again it's foreign, it's foreign it's uh. Maybe if I was just born uh knowing only English then it resonates with me but it doesn't.

While dual-language messaging was endorsed and translation of English-language information into Fijian was assumed, the quality of translation was noted to be extremely important. Many participants had had experiences in Aotearoa New Zealand with mediocre or poor-quality translation which affected comprehension and perception of the information, and of those responsible for producing it. One participant recalled receiving translated information in a medical context which was suboptimal; this brought up not only concerns about the information being conveyed but questions about the person chosen to do the translation:

C: Yes. How effective do you think that translation was?

002: Uh, uh there's room for improvement I'd say. But I'd say at least the the message you could understand what the message was about.

C: Yeah? Yeah what what makes you say that?

002: Because uh the way the sentences were structured.

CF: Ah. Yeah.

002: Like uh I mean I don't know maybe because I lived all my life in Fiji because yeah it is like to me I don't know it was just my assumption, I may be wrong, it's probably translated by people who have spent more of their life here and just because they are well-educated you know they you know were probably given that uh task, that assignation. Yeah.

C: But the sentences didn't feel as natural or what about it?

002: Yeah the sentences didn't really reflect the intended um message aye.

C: Mm.

002: I guess because I was reading it and I knew what it was in relation to in that moment I could interpret it you know.

Another participant, who is involved in distributing information to the community, related that even official documents provided by the government were often poorly translated and required rewording by the community prior to dissemination:

005: As community members we are asked to distribute the information.

C: Yes, appropriately.

005: And not just me there's a few, [—] who calls me up in Fijian and says oh my gosh have a look can you read, and we had to double up and tweak and reword.

C: Oh I see yeah.

005: I said not good you people are paying a lot of money, the government is paying a lot of money and we are having to double up because we can't announce it as how it's.

C: As it stands.

005: Yeah as it stands.

This same participant noted that the formality of the language also affected the quality of the translation and the trustworthiness of the message; overly casual translations of documents raised the question of whether they were accurate or reliable, as well as again the question of the decision-making process and skill level of the translator:

C: And does that make you more likely to believe that what it's saying is true?

005: Yes. Yes. If it's street, then you go who translated that?

The selection of formal versus informal Fijian language was highlighted as an important aspect to communication of information about nature and natural events in Aotearoa New Zealand. The participant who above described observing a document go through

the process of initial translation and then revision supported this sentiment, and they reflected that the final product was clearer, more formal, and more professional-sounding:

001: Uh it was good. Yeah it was good. Because when I read the final product it was yeah it was like more formal more you know. My basic mind of the Fijian language did not yeah. Did not think that way but when I read the formal version I was like that sounds yeah a bit better.

While some degree of formality to the language was considered important to convey the professionalism and seriousness of the subject being discussed, participants suggested avoiding extremely formal language due to its complexity, need for knowledge about the individuals being addressed, and difficulty level for those with limited Fijian-language abilities.

Briefly, features contributing to the formality of language in Fijian include both vocabulary and grammar, which may be combined as many Fijian words serve both a lexical and a grammatical function. For example, the word *vakarokoroko*, mentioned below by a participant (p. 132), was offered as more formal and meaningful than for example *rokovi*, though both mean 'to respect'. The prefix *vaka* and the repetitive aspect of the word may serve to indicate formality to the audience, though this is not always the case. In other circumstances, formal versus informal language may also be related to the level of respect indicated, as in 'greetings my brother', which more formally may be *ni sa bula vinaka na turaga tuakaqu*²⁵, more semi-formally *ni sa bula tuakaqu*, or more casual *bula tuakaqu*. Extremely casual or 'street' level language may use something like *bula veiwekani*, which means 'relative' or 'friend', but which would only be appropriate for use in a very casual bantering style between *tau-vu*, or close friends.

²⁵ *ni sa bula vinaka*, polite greetings; *turaga*, gentleman or chief; *tuakaqu*, the speaker's older sibling of the same gender, from *tuakana* with the possessive suffix *-qu* indicating belonging to the speaker.

This is held separate from regional dialects other than the official standard Bauan dialect, which may be acknowledged as locally appropriate for more formal usage, such as the Lauan regional usage of *wese* instead of *tuakana*. Such regional dialect terms still retain a specific meaning, in contrast to the example above in which the most casual or 'street'-level term does not convey the genders, relative ages, or even the specific relationship of the speaker and the subject. In this context, overly casual language or street language was highlighted as at high risk of being misconstrued or perceived as untrustworthy:

005: It has to be uh in the middle.

C: In the middle okay.

005: Not not street because that's where things get misconstrued.

C: I see.

005: And not too formal because a lot of the younger generation wouldn't even know what you're talking about.

Formality of the language was important in conveying the seriousness or importance of the information being relayed. In one email discussion about developing Fijian- and English-language messaging to reach a wider audience, a participant commented that if instructions or other important details were being communicated, it would be preferable to use formal Fijian language to signal the seriousness of the topic:

003 [email]: In saying that I think one thing becomes common in both the groups is that important information are best conveyed in formal Fijian. For eg, if we talk about hurricanes and cyclones and we know that we need them to understand that when this happens you are to go from point A to point B for evacuation etc then that's best relayed in Formal Fijian.

Similarly, technical language or special instructions, or any specific or complex language, were viewed as better relayed in formal Fijian as opposed to casual Fijian:

004Sr: Well if you're using some government special language then possibly there might be some formal introduction to that.

004I: Technical special language, formal.

The participants in the talanoa data collection session, however, noted that excessive formality was not widely expected, and that messaging about nature or natural events in Fiji itself was not always very formal:

004Ty: There's nothing that's in formal like when our, those things they been given there's nothing that's in formal it's all informal.

C: Okay yes.

004Ty: We're texted the warnings texted in Fiji also brought in the radios, or television but all are informal.

C: All are informal?

004Sr: And the government things are, yes.

004I: They don't have time for you know formal.

In this discussion, however, there was not a clear distinction made between casual and semi-formal language, and the talanoa group spoke more about the differences between extremely formal language and less-formal language without discussion of very casual terms. The talanoa group highlighted that extremely formal language could lead to messaging being too indirect or overly focused on the relative social statuses of the audience members and the speaker:

004To: For formal you have to know who you introduce it to, the audience, so if it is a chief you have to [fawning gesture].

004[all]: [laughter]

004To: In casual, vakarau²⁶, okay, warning.

004Ts: Yes, it's easier to convey the message.

²⁶ to prepare, to get ready

It is worth noting that the term *vakarau* is not considered excessively casual or street language, and it carries a specific meaning which is well-defined in available dictionaries. However, the phrasing as a single word is a very direct command not couched in the necessary polite or respectful terms to address an elder or a social superior, and thus it is not classed as formal language.

The participant who is personally involved in conveying information to the community noted that they and their colleagues had developed an understanding of a three-level system of formality to Fijian-language messaging, and endorsed a mid-level or semi-formal approach to maintain an impression of professionalism and truthfulness:

005: I said we just go if three is the standard, one being formal, two being the business relationship with words and with whoever we're dealing with and the third being um street.

C: Yes.

005: Then we'll go business. We'll go into the semiformal because it's uh yeah it may not be fun but it carries the meaning, it is, there is some importance and some surety that this is real.

C: Yes, yes that's interesting, that's come up a little bit around formal or semi formal having some weight to it.

005: Yes yes because if you start using the conversational language that you use around the *tanoa*²⁷ how much of it is true? You start but then if — but if it's precise.

C: Io.

005: You know, the weatherman has said this.

C: Yes

²⁷ traditional wooden bowl for making *yaqona*

005: Then it's believed to be true and whoever is making reference will make reference to where the source of information.

Finally, formality of the language was noted to evoke not only seriousness of the subject but also a deep connection to Fijian values and culture, as referenced in section 4.2. One participant noted that to use formal Fijian-language terms had a powerful resonance with them as a listener:

003: Because to us like being formal um we had a lot of more formal Fijian words that had deep and uh very deep values. And it was just hard to translate that into English, like um say vakarokoroko²⁸ you know respect like if you say respect okay it's respect but when you say vakarokoroko it has that I don't know that tone and tune that just makes us know that it's a very important word.

In keeping with the findings in section 4.2 regarding participants' love for and connection to the Fijian language, all participants in the data collection sessions and results review sessions were enthusiastic about the prospect of mixed Fijian- and English-language messaging about nature and natural events in Aotearoa New Zealand as a potential benefit to the community.

4.6.1 Theme Summary

Participants were highly aware of their own language abilities and those of their community. The recognition of variable levels of language skills throughout the community led to proactive recommendation of the provision of dual-language information and documents to reach the widest possible audience. In the talanoa results review session, one of the younger participants commented that translated materials would be beneficial for elders; one of the elders then commented that the same materials would be beneficial for education of the younger generations and transmission of the language, a highly valued action as noted above in section 4.2 as

²⁸ to show respect

well. However, it is apparent that creation of these materials requires a significant level of skill not always seen in translated documents encountered by the community, even official ones. Attention to the level of formality is crucial in producing a document which is both trustworthy and accessible to the community.

4.7 Participant-led linguistic discussion and analysis

One feature of these interviews, talanoa data collection sessions, and talanoa data analysis sessions which does not fully appear in the results analysis above is the widespread interest and delight from participants in regards discussion of the specifics of Fijian-language terms for nature and natural events. While the results section does reflect on the impacts of Fijian-language terms for nature and natural events, nearly every participant also contributed to discussions about the variety of terms available, reflected on differences in regional terminology, and shared education between participants and the researcher about specific terms, many of which are reflected in the Glossary provided above in the introductory materials.

The two quotes below, taken from the talanoa data collection session and a semi-structured interview respectively, showcase instances of participants organically shifting to active discussion of definitions and terms. In the first, the group had been discussing the implications of the terms *uneune* and *ualoka*, when the question was raised about other terms we might not have discussed yet:

004Sr: Do we have lightning?

004I: Na liva²⁹ because it's connected with electricity.

004L: Na liva?

004To: Io, na liva.

²⁹ lightning, electricity

004L: And the other one is kurukuru³⁰.

004Sr: Liva is lightning and kuru is thunder?

004I: Io thunder.

004K: Lidi ni yaseyase³¹.

004I: Lidi ni yaseyase io. [to C] So you have to write this, a new word for you.

C: Thank you. Lidi ni?

004I: Lidi ni yaseyase.

004Sv: Lidi ni yaseyase.

004I: I can write it for you.

C: Lidi ni yaseyase. [laughter] I can write, and read!

In the next example, a participant who was a longstanding Aotearoa New Zealand resident, and reported having minimal knowledge of technical or specific Fijian terms, noted that they did not recall having heard the term *uneune*, but they had heard other terminology:

001: But I have heard people talk about earthquakes from there about here you know because they'll ask me what's the you know they'll say oh you guys have earthquakes back in New Zealand. But they described it as, what's it, toso na qele³². It means that the ground moves. I've never heard that one, but I've heard the other one.

C: Okay, and in what context have you heard the other one, just chatting with people?

³⁰ thunder

³¹ lightning strike

³² the earth moving

001: Just chatting with people and they ask me like they've never felt a earthquake before. Yeah. So they you know like what it is what is it like having the ground move. You know? So they might say it like, yeah.

C: And what were you saying how do they say it?

001: Um toso na qele. Yeah so the movement of the movement of the ground. The earth, the earth. Yeah.

C: Huh! Yeah.

001: So I've just heard that but I've never heard uh uneune. So that's something new.

Important features of the conversations above which may not come through in the transcript are the ages, educational backgrounds, regional backgrounds, and social roles of each speaker, with older speakers or those more recently come over from Fiji serving to emphasize or correct various offered terms or meanings, and those speakers with specific education or knowledge about local dialects or particular subject matters similarly being looked to as authorities on these topics. While it is not necessarily a part of any individual topic or theme identified above, the process of brainstorming, investigating, explaining, and learning about specific Fijian-language terms was valuable not only in expanding the lexicons of the researcher and participants alike, but also in establishing our shared interest in language education and utilization.

This culture of enthusiasm for and enjoyment of shared language education illustrates the overall environment of the collaborative data analysis process. Not only were the words discussed of high utility for current and future data collection, the process of discussion and language education helped develop and maintain a relationship which established the researcher and participants as having a shared interest in the Fijian language, the Fijian culture, and in communication overall. Participants engaged freely in offering specific words to the interview and to each other, and their consistent enjoyment of, and

generosity with, their linguistic knowledge fostered relationship-building and expanded the researcher's ability to communicate and engage in effective data collection.

002: Um yeah so there's like cagilaba, uh covulaca³³.

C: Covulaca?

002: Covulaca yes.

C: What is that?

002: Covulaca yeah. Covulaca yeah. You know that's the that's the um what's that twist? That twist, that twist.

C: Oh tornado?

002: Tornado.

C: Oh I had not heard that one thank you.

In the above exchange, the word *covulaca*, which is not included in some of the available Fijian-English dictionaries, was presented to the researcher as an example of an important word for a type of Fijian nature or natural event. This word then was brought up organically by participants in the talanoa data collection session:

004Sr: It's uh tornado.

004I: A tornado, are you talking covulaca?

004Sv: Covulaca, io.

C: Covulaca, do you have a lot of that in Fiji?

004Tk: No, but most it happens in the sea.

C: It happens in the sea?

004K: It's in the sea. Most in the sea. You will see the cloud.

This reciprocal sharing of linguistic knowledge had a multi-pronged effect on the research process. On the most direct level, the additional knowledge of otherwise not immediately available Fijian-language words better prepared the researcher for future data collection

³³ waterspout, whirlwind, tornado

experiences. Apart from this, however, the exchange also allowed the researcher to demonstrate their own enthusiasm for the Fijian language and interest in learning, which established this as a shared value between the participant and the researcher. On yet another level, this exchange positioned the participants as the present authorities on the subject of the Fijian language and allowed both the researcher and the participants to acknowledge this expertise.

The topic of specific terms in the Fijian language was also a fertile ground for participant engagement in the collaborative process of knowledge construction. For example, the participant noted above who had heard the term *uneune* previously did not feel that they were an authority on the Fijian language due to their loss and regain of the language during their time moving back and forth between Fiji and Aotearoa New Zealand. They initially did not feel comfortable offering specific terminology to the researcher and described their knowledge of the Fijian language as basic. However, toward the end of the interview conversation, they noted that the process of discussing the meanings and effects of Fijian-language terms had led them to consider aspects of the Fijian language that had not previously occurred to them, and on which they readily offered thoughts and perspectives:

001: You know because um if you were to like actually think about the words the Fijian words then it's, yeah. I wouldn't, you know, it's just describing how the wind is right? If you were to look at it, if you were to look at the Fijian word *cagilaba*³⁴ you wouldn't think of cyclone you would just think about what the wind is actually doing you know the movement of the wind.

C: The movement of the wind itself.

³⁴ *cagi*: the wind; *laba*: to strike, to kill

001: Yeah which kind of makes sense because it's describing what a cyclone does.

Um yeah never really thought about it that way, you know, like looking at the words and what they actually mean cause they're trying to describe this sort of.

C: Yeah, so that's really interesting. So *cagilaba* just because of the way the word is constructed you just think well it's referring to the same thing sort of, but this is how it's talking about it so that's what it's.

001: Yeah. That's it, that's it. Well it kind of makes sense why they use those two words to describe a cyclone.

This was also touched on by another participant who had considerable Fijian-language education and skills. They also related that their knowledge of the etymology of the word made it more meaningful and familiar to them:

005: Na *cagi* is the wind, and *laba*.

C: Is the wind and *laba* is to kill, yes.

005: Cyclone is something you clone something? So cyclone is still foreign.

C: Is still foreign.

005: And I think over time we get to learn it means that but because it's a learned language it still feels yeah it feels a bit foreign.

The first participant, who had initially brought up *cagilaba* and its construction, noted at the closing of their interview conversation that they viewed this process of discussing Fijian-language terms and their meaning and etymology as valuable and engaging. In contrast to their reticence in the beginnings of our dialogue, they were open and eager to discuss new specific terms familiar to them and to share the process of discussion and linguistic analysis with the researcher:

001: No no that's about it from me, I — that's pretty cool that you know I've been able to you know kind of see that side of it, and not just you know these are Fijian words that I've always known for ages, but now I can kind of like, yeah okay, that's

why that call that, like medicine is wainimate³⁵, it's water to keep you from dying.
You know what I mean.

C: I mean it is really. I mean, at the heart of it.

001: So you don't die.

This enjoyment of sharing discussion and linguistic analysis with the researcher was present throughout all levels of language education. At the talanoa data collection session, the participants noted on review of potential terms of nature and natural events in Aotearoa New Zealand that the only familiar Fijian-language term for volcano was the English loan-word 'volukano'. There was then discussion amongst the group as to whether any of them knew other words or had resources, such as Fijian-language dictionaries, that might provide further information:

004I: No, that's one I'm I will have to do research on.

C: I will say I went, I will say doing reading I didn't find.

004L: A Fijian word.

C: Yes all these others I did.

004Ty: A Fijian word yes.

004L: Io, io.

C: A lot of loan words you know volukano and that kind of and that's not like.

004I: [to 004K] Well we got elders so we gonna ask them!

004K: [laughter] No, no!

004Sr: If I find it I'll message it to you.

C: Please do.

Multiple participants offered to do research, provide resources, or review linguistic information for the researcher and this project. One participant, who is involved in language preservation and Fijian-language communications, brought multiple resources

³⁵ medicine; wai: water; ni: particle (multiple meanings), here 'for'; mate: death, sickness

to the interview conversation, including a Fijian-English grammar and a language handbook both from the 1930s (Atkinson & Atkinson, 1937), as well as a glossary of relevant or interesting Fijian-language emergency management terms which they had personally put together (appendix F). Two further participants had done translation work themselves for their communities or workplaces in Aotearoa New Zealand after moving from Fiji, one having had considerable experience in translation in Fiji during their work for the Fijian government:

C: How was that, what was that like?

002: I guess it was it was um it wasn't that difficult for me at that time I don't know about now because that time we were just coming from Fiji.

C: Yeah. Did you like it?

002: Yes I did it was a good experience because even when I was in Fiji my work, um what I did back in Fiji was uh sometimes we had to translate a lot of our um um like newsletters or even um educational information into Fijian.

The other had not had significant translation experience previously, though they had recently emigrated from Fiji and had maintained their Fijian-language knowledge. In this case, they had involved their community in Aotearoa New Zealand to aid in the process of appropriate translation:

C: How was, what was how was the experience of translating?

003: It was hard.

C: It's hard.

003: It was hard but um yeah um it was it was yeah it was kind of difficult, because um I had to go to the library, couldn't find resources there, went online you know tried to find the right words to use and called up my friends you know. It was hard in that way because I had to find, um I had to really actively find these words and find the true meaning of what this means in real Fijian, appropriate and respectful

Fijian language, yeah. That that was hard to find, but then it was manageable, we we went through that and we came out okay.

C: Yeah do you think um did it feel effective in the end?

003: Oh absolutely.

Both participants found the process challenging but rewarding, and both noted the importance of ensuring that translations were high quality and used respectful and appropriate language. Another participant, the community leader who helped facilitate the group talanoa data analysis session, offered advice regarding the ethics of Fijian language for public messaging, focusing on translations by Fijians for Fijians, as well as connections to the Fijian community to support the process of translation and dissemination of Fijian-language messaging on nature and natural events.

4.7.1 Theme Summary

This research project saw sustained support, collaboration, and interest from participants with diverse backgrounds, social circumstances, and levels of Fijian-language knowledge. The collaborative nature of the methodologies chosen did allow and encourage participant engagement, but it is still noticeable that participants put forth considerable time and energy, particularly to support a project led by a researcher from outside the community. While it must be acknowledged that the commitment to application of the Indigenous research methodologies likely contributed to the necessary relationship-building and respect necessary to gain entry and develop trust, this degree of engagement cannot be dismissed as purely secondary to applied methodology or inherent to an interesting project. Many members of the community had already dedicated thought to their relationships with their Fijian language, and some had done translation work themselves. Even participants who felt that they did not have an extensive knowledge of the Fijian language found the process of considering the

language enjoyable and engaging, and most participants were eager to offer their analysis, thoughts, perspectives, and opinions on the language.

Summary of results

These results serve to illustrate the strong connection between Indigenous Fijian language, identity, and culture in the participant community. Concordant with many studies of Indigenous groups' perspectives on their language, the participants viewed language as created by and a gift from their ancestors, and therefore a responsibility for the present generation to maintain and pass down to those in the future. The concept of *vanua* helped unite participants to their ancestors, their ancestral lands, their language, and their own identity.

Most Fijian-language terms for nature and natural events were strongly associated with events or experiences common in Fiji, but knowledge and education about these associated events as frequently learned or shared via either storytelling or lived experience. Participants had a wide range of disaster risk reduction knowledge regarding these types of natural events, and expressed comfort and a sense of preparedness for these types of events due to the knowledge that had been accumulated and passed to them. English-language terms for nature and natural events were less commonly associated with these methods of learning and transmitting knowledge, and those natural events typically associated with Aotearoa New Zealand were presented as less comfortable for participants to manage.

Participants expressed the clear and consistent opinion that the variable levels of language skills throughout the community necessitated the development of dual-language Fijian and English messaging about nature and natural events. Translation, including the selection and employment of appropriate levels of formality, requires significant skill and community engagement and is a particularly critical piece of effective messaging production for the community. Despite the potential challenges of translation,

the participants expressed widespread engagement with and interest in linguistic discussion, even those who had not previously considered the topic of Fijian-language linguistics, and strong support for the development of target messaging for their community.

Chapter 5: Discussion

5.1 Introduction

C: So tell me what you like about your vosa vaka-Viti?

005: I think there's a lot of spirituality in it. A word has many layers to it.

What then to do with knowledge once it is constructed? A critical facet of Indigenous research methodologies as discussed below and in the Literature Review and Methodology chapters is the return of the research to the community for the benefit of the community. The people to whom this research belongs are the Fijian- and English-speaking participants and community members who engaged in its development and production. They make up the audience as well, alongside and overlapping with those people who work within the centralized, English-speaking systems of knowledge construction and dissemination which currently dominate the emergency management agencies throughout Aotearoa New Zealand. That being said, the purpose of this project is not to create opposition, but to bring these two groups closer together. The discussion to follow therefore considers the results with its goal as the provision of information and insights which may support the effective development of Fijian-language messaging on nature and natural events in Aotearoa New Zealand.

This chapter is divided into two sections: results discussion, which considers the content and meaning of the results as just reviewed, and methods discussion, which considers the process of undertaking the research. The focus of both of these sections is the potential learnings which may be applied to the development of effective, appropriate, and inclusive messaging which can acknowledge and fully engage with the community for and with whom it is produced.

5.2 Results discussion

5.2.1 The relationship between language, identity, and culture

The relationship between language and culture is well-established, particularly within Indigenous communities whether overseas on their own ancestral lands. However, the Fijian diaspora in Aotearoa New Zealand has not often been the subject of study, and participants in this research offered a unique and specific look at the association of Indigenous Fijian language, identity, and culture within the Fijian-speaking community in Aotearoa New Zealand.

In line with the research on language, identity, and, culture in other Aotearoa New Zealand Pasifika communities, the study participants expressed a strong connection between their cultural identity and the Fijian language (Starks et al., 2005). While some studies of Aotearoa New Zealand Pasifika communities found that language was not always considered fully central to ethnic identity (Starks, 2006), participants in this study framed language as a core aspect of personal cultural identity and connection to Fijian community, ancestors, and culture. This was reflected even during the talanoa data analysis process by community members who were not fully fluent in the Fijian language, but who still described the importance of the language to their cultural identity.

Participants showed consistent and widespread love for their language, as well as evidence of active and ongoing discussion within the community about the relationships between language, culture, and identity. This is well in line with existing studies which illustrate how Indigenous language education provides Indigenous communities with avenues to connect to and reinforce their Indigenous identity (Harding et al., 2025; Zobule & McDougall, 2026). Participants' Fijian identity and culture being deeply connected to language is concordant with the published literature regarding other Indigenous languages and cultures, and participants' reflections on the importance of the language for maintenance of cultural identity are consistent with their statements of

strong support for the development of Fijian-language messaging for the community (Galla et al., 2023).

Participants made clear throughout data collection and results review sessions that a person cannot communicate in Fijian without contending with the considerable cultural history carried forward in each word. This was not viewed as a weakness, but it was acknowledged to add to the complexity of producing and receiving Fijian-language messaging. Participants discussed that it is challenging to effectively and clearly translate English into Fijian, and though messaging in Fijian was presented as desirable to participants as both a communication strategy and as a way of engaging the community and maintaining the language, it was made clear that it cannot be translated word-for-word from the English-language manner of presenting information about nature and natural events. A dialectal, community-led approach to translation was advised, mirroring recommendations in the published literature about translation for emergency management purposes (Federici, 2022; Uekusa, 2019). However, two distinct features were highlighted regarding the Fijian-speaking community in Aotearoa New Zealand: the impact of the level of formality of the language used, and the need for dual-language Fijian and English messaging.

The formality level of the Fijian language used was perceived as important in providing trustworthy-appearing information which is still legible and comprehensible. Not all Indigenous languages have such distinct and codified registers of formality, and translation resources are not widely available even to the Fijian community. Furthermore, participants acknowledged that the Fijian diaspora in Aotearoa New Zealand had a wide variability in language skills which would impact their ability to engage with highly formal language. Some participants had never learned or had lost their knowledge of formal Fijian. There was discussion of the need to ensure high-quality translation is provided to

support in maintenance of the community's language skills, but it was noted overly formal messaging would be unlikely to be effective.

Moreover, the participants noted that messaging either solely in Fijian or in English was unlikely to reach the community effectively; this is well-established and consistent within the Census data on linguistic diversity within the community (Tatauranga Aotearoa Stats NZ, 2023a, 2023b). The widespread use of English and the variability of language skills both in English and in Fijian amongst the participants and community were considered practical realities which warranted the development of dual-language messaging. However, this was not presented in a negative light, and participants offered an inclusive, matter-of-fact perspective about the necessity of such messaging choices.

This flexible, community-focused approach is in agreement with Hopf et al's (2018) studies of segments of the Fijian population in Fiji, in which code-switching and use of multiple languages is normalized even during school age in order to communicate appropriately with diverse social and cultural groups (Hopf et al., 2018). As in Hopf's studies, Indigenous Fijian remains a crucial language amongst the participant community for maintenance of connection to culture and identity, but utilization of semi-formal Fijian and the need for the use of multiple languages was presented as normal, appropriate, and practically necessary, especially within the Aotearoa New Zealand context (Hopf et al., 2016; Hopf et al., 2018).

5.2.2 Vanua and the maintenance and transmission of knowledge

The maintenance of connection to language, identity, and culture is deeply intertwined within the Indigenous Fijian society with the concept of vanua, which represents a broader connection to ancestral lands and ancestors as well and to culture and identity. This research serves to better illustrate how participants' shared understanding of vanua influences their desire to maintain and transmit knowledge of language and culture.

Participants highlighted the strong relationship between the concept of vanua and their connection to Fijian culture, language, and identity. Concordant with published literature, vanua was described by participants as involving the entirety of Fijian culture, as well as ancestors, land, language, identity (Alam, 2025; Yee et al., 2022). Vanua was recognized by participants as encompassing generations past, those present, and those in the future in an unbroken lineage of responsibility, education, and transmission of culture.

These connotations of vanua, with its connection to culture and language, are particularly relevant in the setting of the overseas community's physical separation from the physical place of Fiji and their ancestral lands. Perceived separation from vanua has been shown to have a negative psychological impact on Fijian communities during relocation programs (Neef et al., 2018). Maintenance of the Fijian language and with it the Fijian culture appeared as a core value of the participants. In the talanoa results analysis session, Fijian-language resources were framed as an effective approach to engage those members of the community who already deeply understood the language, whilst simultaneously providing a resource to propagate the language amongst those who had not yet learned or had lost their Fijian language.

Maintenance, or reclamation if lost, of the language was presented throughout the interviews, talanoa data collection, and data analysis sessions as important both personally and societally. A desire to pass down and maintain the language in order to maintain connection to culture and identity is in line with the broader academic understanding of Indigenous cultures' relationships to language, and Indigenous language reclamation and revitalization projects have been found to foster wellbeing and connection to culture (Dinku et al., 2025; Galla et al., 2023; Harding et al., 2025). The development of Fijian-language emergency management messaging as a language revitalization effort has not been studied, but as noted above, participants perceived this

to be a potential opportunity to connect language, culture, and emergency management education.

The additional aspect of the connection to vanua as land and physical place brings to the forefront participants' discussion of the way in which the Fijian language resonates with them and is embodied in them, and is a natural or 'born' language as opposed to an external, learned knowledge. Within the participant community, the concept of vanua established a clear connection between language and the natural world via ancestral knowledge of both. Participants connected the production of the Fijian language to the deliberate actions of ancestors who had observed and interacted with nature and then intentionally selected words and meanings which would best describe the natural world as it is; this is an explicit and concrete realization of the established connection between Indigenous language and physical place identified by Chiblow and Meighan (Chiblow & Meighan, 2022). The physical connectedness of language and place mirrors the sensory response of place experience and place attachment noted by participants regarding the feelings of being in nature; this experience of place attachment is well recognized in the immigrant community as well (Rishbeth & Powell, 2013).

5.2.3 Knowledge about nature and natural events

Indigenous groups' traditional knowledge of nature and natural events has proven effective in disaster risk reduction. However, this knowledge is typically studied within the context of Indigenous peoples maintaining on ancestral lands and utilizing place-specific knowledge. This research offers a deeper look into the extent of knowledge about nature and natural events within the Fijian-speaking community in Aotearoa New Zealand, and how the community maintains and transmits this knowledge.

Given the above associations with language and ancestral knowledge, it is unsurprising to find that Fijian-language terms for nature and natural events were presented by participants as innately connected to personal, historical, and ancestral events. The

resonance experienced in hearing and using the Fijian language was reflected also in the sensorimotor experience of internalization of knowledge of nature and natural events, bringing forward not only language embodiment but suggesting also the impact of language on participants' sensorimotor interactions with the physical world (Jirak et al., 2010; Thierry et al., 2024). The participants and community members involved in this study noted that many Fijian-language terms for nature and natural events recalled a wide body of knowledge gleaned from experiential and narrative education, specifically about those common to or important in Fiji. While this has been well-studied within the context of Indigenous communities residing on their own ancestral lands, this study suggests that the Fijian community in Aotearoa New Zealand continues to hold a connection to knowledge about nature and natural events in Fiji, and to transmit it via storytelling as well as direct education and experience.

Indigenous Fijian communities in Fiji have developed, maintained, and utilized traditional knowledge and practices regarding nature and natural events; this knowledge has directly benefitted the affected communities during disaster, and impacted community resilience to climate change and its associated risks (Mafile'o et al., 2026; Singh et al., 2022). Community members in the results analysis sessions noted that the Fijian experience of nature and natural events was one of expecting to have to rely on community, and they described strong community links and strategies for preparedness and response. They identified that even within the Fijian community in Aotearoa New Zealand, these connections were strong and accessible. Participants felt well-versed in this knowledge, and there was recognition that participants felt able to prepare for and respond to these types of natural events. These community links and strategies have been recognized as crucial in Aotearoa New Zealand as well as Fiji. Important aspects of community resilience in Aotearoa New Zealand, including shared gathering places, mutual social supports, community understanding of risks, and a strong sense of

connection within the community, are considered by Wellington regional emergency management practitioners and policymakers as key social resilience attributes (Kwok et al., 2016).

This study also offers a perspective on the Fijian community's strong relationship between language and the recall of historical or ancestral knowledge about nature and natural event in Fiji. Small islands Indigenous communities have been shown to have robust, longstanding methods of transfer of knowledge of preparation for and response to nature and natural events, but these effects are studied within Indigenous communities on their ancestral lands (Gaillard, 2007; Kelman et al., 2015; Mercer et al., 2009; Petzold et al., 2023). Despite the participants' physical and temporal distance from Fiji — in many cases having spent upwards of two decades in Aotearoa New Zealand — the relationship between Fijian-language terms and nature and natural events common or important in Fiji remained significant, with considerable experiential and narrative knowledge still powerfully recalled by the use of these terms. Participants associated these terms, such as *ualoka* and *cagilaba*, with narrative education including storytelling provided by elders and family members.

However, there were some natural events which participants presented as less familiar, and participants' represented that their understanding of typically Aotearoa New Zealand nature and natural events was not as deep or as comfortable as those typical in Fiji. Participants felt they lacked significant experiential education about nature and natural events in Aotearoa New Zealand, and only those who had directly engaged in the active seeking-out of narrative education felt comfortable with their knowledge of the specific topics studied. Nature and natural events in Aotearoa New Zealand were not presented as deeply connected with most participants, despite Aotearoa New Zealand being viewed as generally well-prepared and with less-frequent disasters than Fiji.

This raises the question of the optimal methods of knowledge transfer between Aotearoa New Zealand emergency management systems and the participants. In studies of the methods of maintenance and transmission of Indigenous knowledge, many Indigenous communities were found to rely significantly on their internal community and cultural networks to effect long-term knowledge transfer, and with it, emergency management preparedness and risk reduction (Ahangama et al., 2019). The above findings suggest that narrative systems of knowledge transfer with which participants were more culturally familiar may be more effective for the community than the Western scientific methodologies frequently employed by Aotearoa New Zealand emergency management systems, and that these emergency management systems may be required to acknowledge and receive reciprocal knowledge transfer via these methods.

Person-to-person transfer of traditional Indigenous knowledge and experiences via oral traditions and storytelling are widely represented across many Indigenous communities, including Pacific Islands communities (Mikulecký et al., 2023). However, many of these studies focus on Indigenous communities as located within their home countries; it is not as clear how consistently these methods of traditional knowledge transfer are utilized in the overseas diasporae such as the Aotearoa New Zealand Fijian community, or other diasporae within Aotearoa New Zealand or elsewhere.

In this study, the words and ways of telling information in Fijian could not be separated from the memories, both individual and societal, of experiences and knowledge in prior events. Fijian-language terms for nature and natural events, even those rare or not experienced by participants in their lifetime, still brought with them an inevitable calling-up of memories, experiences, and stories handed down. English-language terms for nature and natural events largely did not, though some English-language terms for nature and natural events very common in Fiji did strongly linked participants back to Fiji,

perhaps suggesting that experience and cultural connection is also playing a role in creating these links.

Participants related and illustrated that culturally Fijian, Fijian-language education about nature and natural events is deeply tied into personal experiences and storytelling, specifically storytelling about generational or historical experiences as a method of providing context to important information; storytelling has been highlighted as a key method of transfer of knowledge within Fijian society in Fiji as well (Wilson, 2025).

Storytelling and narrative education via talanoa approach is considered a core aspect of information exchange, experience sharing, and collaborative planning within Fijian culture (Hautzinger, 2024). Fijian-language messaging is highly likely, therefore, to not only provide factual information, but to recall events and experiences which inform preparation and response.

5.2.4 Knowledge about emergency management and development of participatory systems

The transition of knowledge of nature and natural events carries the potential for improved risk reduction throughout any community, effectively strengthening emergency management systems. This project offered insight into the extent and manner of transmission of emergency management knowledge within the Fijian-speaking community in Aotearoa New Zealand specifically, and the potential benefits of participatory communications systems between emergency management agencies and the community.

Though it has been established that Indigenous communities' knowledge about nature and natural events can significantly affect outcomes during disaster, there is a lack of study regarding the relevance of this traditional Indigenous knowledge about nature and natural events within overseas Indigenous communities not living on their ancestral lands, as with the community involved here (Sutton et al., 2021). It is well-studied that

Western, English-speaking emergency management systems often fail to engage with Indigenous groups and linguistic minorities, despite calls for reciprocal communications and shared development of emergency management resources (Uekusa & Matthewman, 2023). Effective engagement of emergency management systems with both linguistic minorities and with Indigenous knowledge have the potential to significantly improve effectiveness of preparedness and response to natural events (Federici, 2022; Pearce et al., 2020).

In fact, a recurrent topic within participant discussions was the transmission and understanding of traditional Indigenous knowledge of nature and natural event risk awareness, for example the identification of flocking of birds or patterns of fruiting trees. These “changes in animal behaviours, flora and weather patterns” have been shown to be a common finding within other Indigenous disaster risk reduction and emergency management studies (Kaiser et al., 2025, p. 287). There was belief among participants that this type of historical and cultural knowledge, including skills such as traditional homebuilding techniques, is a valuable resource for emergency management preparedness and is worthwhile to preserve or bring back into use.

In this study, participants’ perceived familiarity with Fijian nature and natural events was presented as bringing with it important traditions and understanding of community and family preparedness. Participants described feeling well-prepared for those types of natural events which they had repeatedly experienced or about which they had been taught, whether they were in Fiji or in Aotearoa New Zealand. Participants also engaged in Fijian- and English-language narrative education about natural event risk reduction and response during data collection, and perceived this to be a familiar and effective way of sharing or passing down knowledge, as has been established in broader studies of disaster risk reduction methodologies (Keswick et al., 2025; Sutton et al., 2021).

The study participants noted that their expectations of emergency preparedness and response were clearer for events more strongly associated with Fiji, as opposed to Aotearoa New Zealand, and that much of their knowledge of preparedness and response was at the community level without expectation of significant governmental involvement. This is concordant with studies of Indigenous community resilience, and within the Fijian context, Indigenous Fijian groups have been shown to have strong collectivist values and social structures which improved resilience in comparison to other cultural groups in Fiji in the aftermath of the 2012 cyclone Winston (Ching et al., 2020). Furthermore, studies have found that rural Indigenous Fijians prepare and respond to cyclone events as a collective group despite poor penetrance of government support to remote areas (Pearce et al., 2020). Participants, and community members in the talanoa data analysis session, suggested that there was a sense of expectedness or regularity to those types of nature and natural events common in Fiji and therefore associated strongly with Fijian-language terms, and that community members could rely on one another to utilize their knowledge to prepare and respond.

The strength of knowledge of natural events strongly associated with Fiji, and with the Fijian language, appeared as a potential source of resilience and capability within the participant group. However, natural events more strongly associated with Aotearoa New Zealand such as earthquakes and volcanos did not carry the same strong associations with narrative or experiential education on preparedness or response. However, participants did engage in narrative education in English and about Aotearoa New Zealand events during the interview process, suggesting that structured narrative education may be a culturally accessible method of knowledge transfer about Aotearoa New Zealand nature and natural events. Indeed, during one data analysis session, a community member commented that in Fiji, there are individuals or families responsible for natural sites such as rivers or lakes, and that to access those one must ask to do so: this was not presented

as a prohibitive process but as an educational one, where the inquiring individual would then be educated about the history, risks, and current state of the site prior to accessing it if appropriate.

Participants' comfort with this manner of knowledge transfer, and the strong association between it and the use of Fijian-language terms for nature and natural events, suggests that this may be an avenue for development of tailored messaging for the participant community. The integration of Indigenous knowledge systems and Western models of emergency management may improve outcomes for all involved via the development and employment of complementary approaches (Mandiopera et al., 2023), and in fact, many Indigenous communities have been shown to actively and effectively employ both Indigenous and Western scientific knowledge (Balay-As et al., 2018, p. 23). Tailoring messaging not only in the Fijian language but also within the structure of narrative or experiential education may provide an opportunity to integrate participants' existing knowledge of Fijian nature and natural events with knowledge about those more common in Aotearoa New Zealand. Active engagement with community translation would provide the opportunity for dialogue and evaluation of the information being transmitted, providing a less top-down and more reciprocal relationship between centralized scientific groups and community audiences.

5.3 Methods discussion

5.3.1 Application of Indigenous methodologies within a Western institutional research structure

Successful implementation of participatory, collaborative interactions with Indigenous communities demands that dominant Western scientific systems engage with Indigenous methodologies and ways of constructing knowledge. In light of this, it is important to better understanding the effects of the application of Indigenous Fijian

research methodologies within the Aotearoa New Zealand institutional research structure, including how they are received by the Fijian community.

Application of Indigenous research methodologies to Indigenous data and communities is increasingly strongly recommended by Indigenous researchers, as the use of Indigenous methodologies lowers the risk of misinterpreting or misusing Indigenous data, especially the risk of deliberately or unintentionally forcing it to conform to and benefit Western scientific worldviews and power systems (Denzin et al., 2008; Ksenofontov et al., 2025). However, the structure of Aotearoa New Zealand's higher education and research institutions remain definitively Western and colonial (Tuhiwai Smith, 2021).

Notably, this study prioritizes application of Indigenous Fijian methodologies to a community outside of Fiji, when many Indigenous methodologies and frameworks are specifically designed for use by Indigenous researchers, in Indigenous communities living on their ancestral lands (Bishop, 2011; Nabobo-Baba, 2008; Smith, 2015). There remains the question, then, of the effectiveness of the application of Indigenous Pacific and specifically Fijian methodologies to research with the Fijian community in Aotearoa New Zealand. Indigenous methodologies rely heavily on relationship-building and reciprocity, but how practical or effective these methodologies are for a research project in this context is not well-studied (Sanga et al.).

It was clear that commitment to relationship-building and reciprocity was integral to gaining entry into the community. A large part of the relationship-building process was fully integrated into the methodologies chosen: the centering of participant perspectives and the reciprocal, conversational engagement throughout was the foundation of effective relationship-building. Repeated visits and conversations with individuals and groups helped to establish the commitment on the part of the researcher to the project and to making time for the participants. Gift-giving was

effective, including traditional offerings of food at gatherings as well as grocery vouchers. Participants and community members valued having their opinions and perspectives acknowledged and respected. It was extremely important to participants and community members that core cultural traditions and ethics around language use and knowledge transmission were respected and followed.

Despite aspirations to create an equal and collaborative approach to this proposed development of Fijian-language messaging, knowledge is still often determined by those stakeholders who have been accorded power and agency within the emergency management systems in Aotearoa New Zealand (Kaiser et al., 2025). Results review sessions benefitted the research project by offering new ways of understanding and constructing knowledge based on the data collected, and also by offering new ways of considering how the data and results might be utilized to benefit the community. Adherence to the steps and protocols of Indigenous methodologies was crucial in managing and reassigning power and agency throughout this project, and would be important going forward in the development of messaging as well.

5.3.2 Application of Indigenous Fijian research methodologies as a non-Indigenous researcher

A collaborative, dialogical approach to development of more effective systems for Indigenous communities requires the establishment of new capabilities for non-Indigenous individuals within the dominant Western scientific systems. This research offers a perspective on the specific experience of the application of Indigenous Fijian research methodologies as a non-Indigenous researcher working within Aotearoa New Zealand.

Many Indigenous research frameworks, including the Fijian Vanua Research Framework, have been designed for and by Indigenous researchers to apply to research with Indigenous communities living within their ancestral lands or physical place (Nabobo-

Baba, 2008). However, many Indigenous communities in today's world occupy physical locations distant from these ancestral places. Moreover, researchers and even participants in studies with Indigenous communities may be from diverse cultural and social backgrounds, and may be either completely or partially considered to be outsiders to the Indigenous communities on those ancestral lands. Nanise Young Okotai's 2023 reflections on application of the Fijian Vanua Research Framework from her perspective as an outsider to some aspects of the Fijian culture highlights the reality of research and the potential barriers to effectively applying Indigenous frameworks designed for specific but limited groups of researchers and communities (Young Okotai, 2023).

In this context, Rangiwai et al (2021) highlight the complexity of Indigenous research with groups like the Pacific community in Aotearoa New Zealand, where the heterogeneity of participant backgrounds couples with the heterogeneity of researcher backgrounds and the overall Western scientific structure of research projects to create intense difficulty maintaining any single Indigenous viewpoint (Rangiwai et al., 2021). Other Indigenous research frameworks have been deliberately designed for potential application by non-Indigenous researchers, and for research with a broad range of types of Indigenous communities. Cammock and Andrews' paper outlining key Fijian values for application to research has been designed for use by those both inside and outside of Indigenous Fijian communities (Cammock & Andrews, 2023). Indigenous data analysis frameworks such as Carmen's Theory are similarly designed for application by non-Indigenous researchers to guide appropriate and effective analysis of Indigenous data (Parter et al., 2025).

Approaching this project as a non-Indigenous researcher, it was clear that respect for an adherence to the protocols of the Indigenous methodologies chosen was critical in developing and maintaining the necessary relationships required, as sustained interest

and support was provided despite the fact the the researcher was neither Indigenous Fijian nor fully fluent in Fijian. As the researcher, an openness and willingness to talk about personal interests, motivations, and goals was critical in gaining the trust of the participants. Hearing the details of the researcher's personal connections to Fiji and to Aotearoa New Zealand was important to the participants in establishing trust in the researcher's position and giving their presence and actions context. The researcher's ability to speak some Fijian, as well as their overall interest in language and in the Fijian language specifically, was clearly critical in the establishment of this trust.

Summary of discussion

This project has, through application of both Indigenous and Western scientific methodologies, developed a greater understanding of the specific experiences and perspectives of the Fijian- and English-speaking community in Aotearoa New Zealand. The work of this research project has been in service of the development of more effective messaging about nature and natural events for the community involved, but the in-depth interviews, talanoa discussions, and data analysis sessions have provided valuable background into the community's interest in language, their considerable shared knowledge about certain aspects of nature and natural events, and their active use of traditional cultural ways of transmitting knowledge. The process of undergoing this research project has allowed reflection on potential avenues for the collaborative development of mixed Fijian- and English-language messaging which may provide both emergency management information and language maintenance and revitalization within the community.

Chapter 6: Conclusion

6.1 Introduction

The purpose of this research was to investigate the effect and meaning of Indigenous Fijian- and English-language terms for nature and natural events within the Fijian- and English-speaking diaspora in New Zealand, for the goal of improving efficacy and quality of nature and natural events-related risk awareness messaging design for the studied population.

6.2 Key themes

Results review illustrated a widespread desire for Fijian-language messaging, but significant differences in the implications and associations of Fijian- and English-language terms for nature and natural events. The research process also highlighted the strong interest in and engagement with linguistic discussion and shared knowledge construction among the community.

Collaborative data analysis noted six key themes, as explored in Chapter 4: Fijian language, culture, identity, and ancestral place are inextricably interwoven; Fijian-language terms are strongly associated with certain traditional ways of learning about nature and natural events; English-language terms are not as strongly associated with these traditional ways of learning about nature and natural events; aspects of nature and natural events typical to Fiji are more familiar and better understood than those in Aotearoa New Zealand; semiformal, mixed Fijian- and English-language messaging about nature and natural events is desirable and valuable to the community; and enthusiasm for linguistic discussion and analysis about the Fijian language is widely shared within the community. These themes offer focused insight into the Fijian-speaking

community within Aotearoa New Zealand alongside broader understandings of the Pacific Islands Indigenous diaspora experience.

6.3 Pathways for further study

Further study could include broader sampling across the community in Aotearoa New Zealand; deeper discussion of specific topics and phrases likely to be present in messaging about nature and natural events; and more focused sampling of community subgroups such as recent immigrants, Aotearoa New Zealand-born members, or long-term residents to identify themes common to particular community subgroups.

Further study would also benefit from identification of Indigenous Fijian researchers to center and lead study design, data collection, and data analysis to offer an Indigenous perspective from the researcher side (Mafile’o et al., 2024; Nabobo-Baba, 2008; Parter et al., 2025; Young Okotai, 2023). This would be expected to offer further insights into Indigenous Fijian culture and intra-cultural variations, and to facilitate meaningful relationship-building between researchers and community members.

6.4 Pathways for further action

The hope is that these leanings can be used to develop messaging for the Fijian- and English-speaking community which recognizes and centers the community and their identified needs. This project highlights the importance of application of Indigenous frameworks and methodologies for research particularly within the Western academic structure. These results illustrate a willingness of the community to engage with this research as well as the resources they offer. Potential pathways for further action may include:

- Approaching Fijian- and English-speaking community leaders to discuss these results and establish priorities for next steps in develop and dissemination of messaging,

including identifying the individuals and groups most appropriate to lead the creation, translation, and transmission of information for the community.

- Approaching Aotearoa New Zealand government and non-government organizations responsible for the development, production, and dissemination of messaging about nature and natural events with these study results, with a goal to identify individuals and groups open to engagement with the community.
- Bringing-together of community members and the above agencies to collaboratively develop mixed Fijian- and English-language messaging which centers the community and prioritizes culturally-appropriate methods of learning such as storytelling or narrative education. Notably, a process to develop messaging which integrates scientific knowledge as well as historical and cultural knowledge of place necessitates centering and including Māori members within the development teams.
- Developing messaging which recognizes and utilizes existing community knowledge about Fijian nature and natural events, while focusing on familiarizing the community with Aotearoa New Zealand's similarities and differences.
- Positioning the above messaging as valuable for language preservation and transmission as well as for subject matter information. This requires ensuring throughout the process above that there is high-quality translation, likely utilizing a semi-formal level of Fijian, in order to produce messaging which is perceived as trustworthy and reliable.
- Maintaining Indigenous leadership, Indigenous knowledge ownership, and Indigenous methodologies for the creation of messaging. Indigenous Fijian methodologies should be prioritized when engaging in development and production of messaging, and Māori methodologies should be applied to any aspect of the process which involves Māori knowledge as mentioned.

6.5 Recommendations

The community's baseline interest in and engagement with the study of language and culture offers a potential ground for collaborative production of emergency management information. The following conclusions and recommendations take into account the need for culturally appropriate, Indigenous-centered, community-led work:

1. Interest in mixed Fijian- and English-language messaging is widespread and strong, and should be acted upon. Participants want Fijian-language messaging and believe that Fijian-language messaging can gain community engagement.
2. Language transmission is important to the community and Fijian-language resources are viewed as valuable linguistically and culturally, as well as for any specific information. Participants anticipate good uptake of messaging particularly if it is from a trusted community source and has good-quality translation.
3. There is space for collaborative, community-led development of messaging which acknowledges and utilizes current knowledge resources in the community regarding nature and natural events, especially those common in Fiji. The community has existing knowledge about nature and natural events and is open to sharing within the community and with broader audiences.
4. There is significant opportunity for familiarization of the community with Aotearoa New Zealand's nature and natural events via existing, culturally-appropriate methods of learning about nature and natural events, specifically storytelling or narrative education. Multiple educational approaches should be taken to optimize uptake of information and integration with existing knowledge.

5. Application of Indigenous Fijian methodologies is a crucial step in the necessary relationship-building for collaborative knowledge construction. Indigenous Fijian methodologies should be prioritized when engaging in development and production of the above resources.

The participants and community members involved in this study showed significant motivation, interest, insight, and capability. The community was keen to engage with the research process, but also described an interest in and responsibility to lead in looking after its own members. Beyond these specific suggestions above, the overarching recommendation from this study is for established emergency management systems to engage with and empower the Fijian- and English-speaking diaspora in Aotearoa New Zealand toward the development of messaging which would be meaningful to their entire community, whether longstanding residents or those newly arrived.

These insights into the perspectives and priorities of the participants provide a framework for engagement not only with the specific Fijian-speaking community in Aotearoa New Zealand, but also for consideration of effective engagement with other Pacific Islands Indigenous groups in Aotearoa New Zealand, and with Indigenous diasporae more generally. There is potential for application of Indigenous methodologies to develop and refine emergency management messaging techniques and content which is in line with Indigenous communities in overseas environments, providing an avenue to better achieve international disaster risk understanding, resilience, reduction, and preparedness among an increasingly diverse global community (Aitsi-Selmi et al., 2015).

Bibliography

- Adams, W. C. (2015). Conducting Semi-Structured Interviews. In *Handbook of Practical Program Evaluation* (pp. 492-505). <https://doi.org/https://doi.org/10.1002/9781119171386.ch19>
- Ahangama, N., Prasanna, R., & Blake, D. (2019). 'Living with the floods': the influence of relational and cognitive capital on disaster risk management capacities in Ratnapura, Sri Lanka. *Resilience*, 7(1), 41-58. <https://doi.org/10.1080/21693293.2018.1485622>
- Ahmed, B., Sammonds, P., Saville, N. M., Le Masson, V., Suri, K., Bhat, G. M., Hakhoo, N., Jolden, T., Hussain, G., Wangmo, K., & Thusu, B. (2019). Indigenous mountain people's risk perception to environmental hazards in border conflict areas. *International Journal of Disaster Risk Reduction*, 35, 101063. <https://doi.org/https://doi.org/10.1016/j.ijdr.2019.01.002>
- Aitsi-Selmi, A., Egawa, S., Sasaki, H., Wannous, C., & Murray, V. (2015). The Sendai Framework for Disaster Risk Reduction: Renewing the Global Commitment to People's Resilience, Health, and Well-being. *International Journal of Disaster Risk Science*, 6(2), 164-176. <https://doi.org/10.1007/s13753-015-0050-9>
- Alam, M. (2025). Preserving cultural heritage and empowering indigenous communities for sustainable development in Fiji. *Social Sciences & Humanities Open*, 12, 101760. <https://doi.org/https://doi.org/10.1016/j.ssaho.2025.101760>
- Albarracin, M. (2025). Chapter Seven - Cultural bodybuilding: The embodied influence of culture on perception and action. In K. D. Federmeier & J. O. S. Goh (Eds.), *Psychology of Learning and Motivation* (Vol. 82, pp. 207-257). Academic Press. <https://doi.org/https://doi.org/10.1016/bs.plm.2025.02.002>
- Ali, T., Paton, D., Buergelt, P. T., Smith, J. A., Jehan, N., & Siddique, A. (2021). Integrating Indigenous perspectives and community-based disaster risk reduction: A pathway for sustainable Indigenous development in Northern Pakistan. *International Journal of Disaster Risk Reduction*, 59, 102263. <https://doi.org/https://doi.org/10.1016/j.ijdr.2021.102263>
- Analosa, V.-U., Jean, M. U. A., Tim, B., Selena, M.-W., Rahera, M., Jacinta, O., & Maria, C. (2025). Embracing Lalaga and Talanoa: Weaving Relationality, Respect, and Reciprocity in Pacific Research and Education. *New Zealand Journal of Educational Studies*, 60(1), 111-130. <https://doi.org/10.1007/s40841-025-00387-1>
- Arno, A. (2003). Aesthetics, Intuition, and Reference in Fijian Ritual Communication: Modularity in and out of Language. *American Anthropologist*, 105(4), 807-819. <https://doi.org/https://doi.org/10.1525/aa.2003.105.4.807>
- Astaburuaga, J., Martin, M. E., Leszczynski, A., & Gaillard, J. C. (2022). Maps, volunteered geographic information (VGI) and the spatio-discursive construction of nature. *Digital Geography and Society*, 3, 100029. <https://doi.org/https://doi.org/10.1016/j.diggeo.2022.100029>

- Atkinson, W. E., & Atkinson, E. F. (1937). *Ai vola lailai ni vosa vakaperitania: me yaga vei ira na kai viti*. H.R Craigie, Acting Government Printer, 1937.
- Ayton, D., Berkovic, D., & Tsindos, T. (2023). *Qualitative research: A practical guide for health and social care researchers and practitioners*. Monash University.
- Balay-As, M., Marlowe, J., & Gaillard, J. C. (2018). Deconstructing the binary between indigenous and scientific knowledge in disaster risk reduction: Approaches to high impact weather hazards. *International Journal of Disaster Risk Reduction*, 30, 18-24. <https://doi.org/https://doi.org/10.1016/j.ijdr.2018.03.013>
- Bauer, M., Gaskell, G., & Bauer, M. W. (2000). Classical Content Analysis: a Review. In. SAGE Publications Ltd. <https://doi.org/10.4135/9781849209731>
- Becker, J. S., Paton, D., Johnston, D. M., Ronan, K. R., & McClure, J. (2017). The role of prior experience in informing and motivating earthquake preparedness. *International Journal of Disaster Risk Reduction*, 22, 179-193. <https://doi.org/https://doi.org/10.1016/j.ijdr.2017.03.006>
- Becker, J. S., Potter, S. H., McBride, S. K., Wein, A., Doyle, E. E. H., & Paton, D. (2019). When the earth doesn't stop shaking: How experiences over time influenced information needs, communication, and interpretation of aftershock information during the Canterbury Earthquake Sequence, New Zealand. *International Journal of Disaster Risk Reduction*, 34, 397-411. <https://doi.org/https://doi.org/10.1016/j.ijdr.2018.12.009>
- Benavides, C. C., Khavidak, H. S., Mc Dermott, R., & van den Berg, C. (2024). Indigenous communities and climate-related hazards: A protocol for a systematic review. *MethodsX*, 12, 102514. <https://doi.org/https://doi.org/10.1016/j.mex.2023.102514>
- Birkmann, J., Buckle, P., Jaeger, J., Pelling, M., Setiadi, N., Garschagen, M., Fernando, N., & Kropp, J. (2010). Extreme events and disasters: a window of opportunity for change? Analysis of organizational, institutional and political changes, formal and informal responses after mega-disasters. *Natural Hazards*, 55(3), 637-655. <https://doi.org/10.1007/s11069-008-9319-2>
- Bishop, R. (2011). Freeing Ourselves from Neo-Colonial Domination in Research. In R. Bishop (Ed.), *Freeing Ourselves* (pp. 1-30). SensePublishers. https://doi.org/10.1007/978-94-6091-415-7_1
- Bohle, H. G., Downing, T. E., & Watts, M. J. (1994). Climate change and social vulnerability: Toward a sociology and geography of food insecurity. *Global Environmental Change*, 4(1), 37-48. [https://doi.org/https://doi.org/10.1016/0959-3780\(94\)90020-5](https://doi.org/https://doi.org/10.1016/0959-3780(94)90020-5)
- Bonfanti, R. C., Oberti, B., Ravazzoli, E., Rinaldi, A., Ruggieri, S., & Schimmenti, A. (2024). The Role of Trust in Disaster Risk Reduction: A Critical Review. *International Journal of Environmental Research and Public Health*, 21(1), 29. <https://www.mdpi.com/1660-4601/21/1/29>
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77-101. <https://doi.org/10.1191/1478088706qp063oa>

- Braun, V., & Clarke, V. (2021a). Can I use TA? Should I use TA? Should I not use TA? Comparing reflexive thematic analysis and other pattern-based qualitative analytic approaches. *Counselling and Psychotherapy Research*, 21(1), 37-47. <https://doi.org/https://doi.org/10.1002/capr.12360>
- Braun, V., & Clarke, V. (2021b). One size fits all? What counts as quality practice in (reflexive) thematic analysis? *Qualitative Research in Psychology*, 18(3), 328-352. <https://doi.org/10.1080/14780887.2020.1769238>
- Braun, V., Clarke, V., Hayfield, N., & Terry, G. (2019). Thematic Analysis. In P. Liamputtong (Ed.), *Handbook of Research Methods in Health Social Sciences* (pp. 843-860). Springer Singapore. https://doi.org/10.1007/978-981-10-5251-4_103
- Bryman, A. (2015). *Social Research Methods - 5th Edition*. OXFORD University Press.
- Bush International Consulting. (2024). *Hawke's Bay Civil Defence and Emergency Management Group Response to Cyclone Gabrielle*. <https://www.hbemergency.govt.nz/assets/Uploads/HBCDEM-Response-to-Cyclone-Gabrielle-Final-Report.pdf>
- Cammock, R., & Andrews, M. (2023). Revisioning the Fijian research paradigm [Journal Article]. *Waka Kuaka: The Journal of the Polynesian Society*, 132(1/2), 129-146. <https://doi.org/10.15286/jps.132.1-2.129-146>
- Cammock, R., Pousini, T., & Andrews, M. (2024). Reflections on using Talanoa methodology to engage with Pacific youth in Aotearoa New Zealand about their sexual and reproductive health. *Sexual and Reproductive Health Matters*, 32(1). <https://doi.org/10.1080/26410397.2024.2445934>
- Capell, A. (1968). *A new Fijian dictionary / Compiled by A. Capell for the government of Fiji (3rd ed)* (3rd ed.). Obtainable from the Govt. Printer. <https://research.ebsco.com/linkprocessor/plink?id=935fb73a-82a2-33f6-916c-ed3e9adc7411>
- Chambers, H. (1936). *Handbook of Fijian language; a simple introduction to the grammar and construction of Fijian, with lists of useful sentences and phrases, sets of exercises, and a comprehensive vocabulary / compiled by Harold Chambers, Methodist missionary*. <https://research.ebsco.com/linkprocessor/plink?id=1ad6a4a5-b488-38f8-830a-bcd6b9352476>
- Chiblow, S., & Meighan, P. J. (2022). Language is land, land is language: The importance of Indigenous languages. *Human Geography*, 15(2), 206-210. <https://doi.org/10.1177/19427786211022899>
- Chilisa, B. (2020). *Indigenous research methodologies / Bagele Chilisa (Second edition)* (Second edition ed.). SAGE Publications, Inc. <https://research.ebsco.com/linkprocessor/plink?id=1a26e55d-0a03-3c62-870c-5cb489c3b3d2>
- Ching, A., Morrison, L., & Kelley, M. (2020). Living with natural hazards: Tropical storms, lava flows and the resilience of island residents. *International Journal of Disaster Risk Reduction*, 47, 101546. <https://doi.org/https://doi.org/10.1016/j.ijdrr.2020.101546>

- Chmutina, K., & von Meding, J. (2019). A Dilemma of Language: "Natural Disasters" in Academic Literature. *International Journal of Disaster Risk Science*, 10(3), 283-292. <https://doi.org/10.1007/s13753-019-00232-2>
- Cook, V., & Li, W. (2016). *The Cambridge Handbook of Linguistic Multi-Competence*. <https://doi.org/10.1017/CBO9781107425965>
- Coppola, D. P. (2020). *Introduction to international disaster management* (Fourth edition ed.). Butterworth-Heinemann. <https://ezproxy.massey.ac.nz/login?url=https://www.sciencedirect.com/science/book/9780128173688>
- Cuatón, G. P., & Su, Y. (2020). Local-indigenous knowledge on disaster risk reduction: Insights from the Mamanwa indigenous peoples in Basey, Samar after Typhoon Haiyan in the Philippines. *International Journal of Disaster Risk Reduction*, 48, 101596. <https://doi.org/https://doi.org/10.1016/j.ijdr.2020.101596>
- Cunningham, D. I., David E.; Sumbuk, Kenneth. (2006). *Language Diversity in the Pacific*. Multilingual Matters. <https://doi.org/doi:10.21832/9781853598685>
- Curd, A., Vinnell, L., & Prasanna, R. (2025). From lessons identified to lessons learnt: systemic patterns in Aotearoa New Zealand's search and rescue exercise evaluations. *Disaster Prevention and Management: An International Journal*, 35(6), 97-112. <https://doi.org/https://doi.org/10.1108/DPM-02-2026-0058>
- Damayanthi, S. (2019). *Thematic Analysis of Interview Data in the Context of Management Controls Research*. SAGE Publications, Ltd. <https://doi.org/10.4135/9781526474858>
- Datta, R. (2017). Decolonizing both researcher and research and its effectiveness in Indigenous research. *Research Ethics*, 14. <https://doi.org/10.1177/1747016117733296>
- Denzin, N., Lincoln, Y., & Smith, L. (2008). *Handbook of Critical and Indigenous Methodologies*. SAGE Publications, Inc. <https://doi.org/10.4135/9781483385686>
- Dinku, Y., Markham, F., Angelo, D., & Simpson, J. (2025). The connection between social and emotional wellbeing and Indigenous language use varies across language ecologies in Australia. *Social Science & Medicine*, 364, 117547. <https://doi.org/https://doi.org/10.1016/j.socscimed.2024.117547>
- Dorji, T., Rinchen, K., Morrison-Saunders, A., Blake, D., Banham, V., & Pelden, S. (2024). Understanding How Indigenous Knowledge Contributes to Climate Change Adaptation and Resilience: A Systematic Literature Review. *Environmental Management*. <https://doi.org/10.1007/s00267-024-02032-x>
- Doyle, D. M. J. J. M. D. P. E. E. H. (2011). The Communication of Uncertain Scientific Advice During Natural Hazard Events. *New Zealand Journal of Psychology*, 40(4).
- Doyle, E. E. H., Thompson, J., Hill, S., Williams, M., Paton, D., Harrison, S., Bostrom, A., & Becker, J. (2023). Where does scientific uncertainty come from, and from whom? Mapping perspectives of natural hazards science advice. *International Journal of Disaster Risk Reduction*, 96, 103948. <https://doi.org/https://doi.org/10.1016/j.ijdr.2023.103948>

- Elkharboutly, M., & Wilkinson, S. (2022). Cyclone resistant housing in Fiji: The forgotten features of traditional housing. *International Journal of Disaster Risk Reduction*, 82, 103301. <https://doi.org/https://doi.org/10.1016/j.ijdr.2022.103301>
- Erlingsson, C., & Brysiewicz, P. (2017). A hands-on guide to doing content analysis. *African Journal of Emergency Medicine*, 7(3), 93-99. <https://doi.org/https://doi.org/10.1016/j.afjem.2017.08.001>
- Ewart, J., McLean, H., & Ames, K. (2016). Political communication and disasters: A four-country analysis of how politicians should talk before, during and after disasters. *Discourse, Context & Media*, 11, 3-11. <https://doi.org/https://doi.org/10.1016/j.dcm.2015.12.004>
- Fairclough, N., & Fairclough, I. (2015). Textual Analysis. In M. Bevir & R. A. W. Rhodes (Eds.), *Routledge Handbook of Interpretive Political Science* (1st ed.). Routledge.
- Federici, F. M. (2022). Translating hazards: multilingual concerns in risk and emergency communication. *The Translator*, 28(4), 375-398. <https://doi.org/10.1080/13556509.2023.2203998>
- Fill, A., & Mühlhäusler, P. (2001). *Ecolinguistics Reader : Language, Ecology and Environment*. Continuum. <https://research.ebsco.com/linkprocessor/plink?id=24c98cc2-94ba-310f-8f06-da5ce92fe659>
- Finau, G., & Chand, S. (2023). Resistance is fertile: A Bourdieusian analysis of accounting and land reform in Fiji. *Critical Perspectives on Accounting*, 91, 102435. <https://doi.org/https://doi.org/10.1016/j.cpa.2022.102435>
- Fine, J. C., Love-Nichols, J., & Perley, B. C. (2023). Climate & Language: An Entangled Crisis. *Daedalus*, 152(3), 84-98. https://doi.org/10.1162/daed_a_02019
- Fisher, S., Goff, J., Cundy, A., Sear, D., Terry, J., LeVeque, R. J., Adams, L. M., & Sahy, D. (2024). Hawaiian legends of coastal devastation and paleotsunami reconstruction, Nu'u, Kaupō, Maui, Hawai'i. *Marine Geology*, 477, 107408. <https://doi.org/https://doi.org/10.1016/j.margeo.2024.107408>
- Gabrielsen, H., Procter, J., Rainforth, H., Black, T., Harmsworth, G., & Pardo, N. (2018). Reflections from an Indigenous Community on Volcanic Event Management, Communications and Resilience. In C. J. Fearnley, D. K. Bird, K. Haynes, W. J. McGuire, & G. Jolly (Eds.), *Observing the Volcano World: Volcano Crisis Communication* (pp. 463-479). Springer International Publishing. https://doi.org/10.1007/11157_2016_44
- Gaillard, J. C. (2007). Resilience of traditional societies in facing natural hazards. *Disaster Prevention and Management: An International Journal*, 16(4), 522-544. <https://doi.org/10.1108/09653560710817011>
- Gaillard, J. C., & Mercer, J. (2013). From knowledge to action: Bridging gaps in disaster risk reduction. *Progress in Human Geography*, 37(1), 93-114. <https://doi.org/10.1177/0309132512446717>
- Galla, C. K., Holmes, A., Schwab Cartas, J., & Rowluck, W. (2023). Community-centered Indigenous language recovery, restoration, revitalization, and renewal. In R. J. Tierney,

- F. Rizvi, & K. Ercikan (Eds.), *International Encyclopedia of Education (Fourth Edition)* (pp. 786-796). Elsevier. <https://doi.org/https://doi.org/10.1016/B978-0-12-818630-5.07038-X>
- Galletta, A., & Cross, W. E. (2013). *Mastering the Semi-Structured Interview and Beyond From Research Design to Analysis and Publication*. NYU Press. <http://www.jstor.org.ezproxy.otago.ac.nz/stable/j.ctt9qgh5x>
- Gatty, R. (2009). *Fijian-English Dictionary: with notes on Fijian culture and natural history*. In: Southeast Asia Program (SEAP) Publications.
- Gaviola, J. H., Beaven, S. J., & Wilson, T. M. (2024). Filipino migrant worker organisations, social capital and disaster resilience: An Aotearoa-New Zealand case study. *International Journal of Disaster Risk Reduction*, 108, 104523. <https://doi.org/https://doi.org/10.1016/j.ijdr.2024.104523>
- Gentil, G., & Séror, J. (2014). Canada has two official languages—Or does it? Case studies of Canadian scholars' language choices and practices in disseminating knowledge. *Journal of English for Academic Purposes*, 13, 17-30. <https://doi.org/https://doi.org/10.1016/j.jeap.2013.10.005>
- Geraghty, P. A. (1983). The History of the Fijian Languages. *Oceanic Linguistics Special Publications*(19), i-483. <http://www.jstor.org.ezproxy.otago.ac.nz/stable/20006700>
- Gilbert, S. (2021). Embedding Indigenous epistemologies and ontologies whilst interacting with academic norms. *The Australian Journal of Indigenous Education*, 50(1), 55-61. <https://doi.org/10.1017/jie.2019.18>
- GISGeography. (2026). *Map of Fiji Islands*. Retrieved 30 May from <https://gisgeography.com/fiji-map/>
- Gougsa, S., Pratt, V., George, B., Vilela, C., Kobei, D., Kokunda, S., Kelman, I., Eaton, B., Maina, L., Luari, S., Autti, O., Kerätär, K., Laiti, J., Baxendale, C., Raj, R., Deshpande, R., Gokharu, R., Singh, N., Ghelani, S.,...Ahmad, A. (2023). Land Body Ecologies: A case study for global transdisciplinary collaboration at the intersections of environment and mental health. *The Journal of Climate Change and Health*, 10, 100206. <https://doi.org/https://doi.org/10.1016/j.joclim.2023.100206>
- Harding, L., DeCaire, R., Ellis, U., Delaurier-Lyle, K., Schillo, J., & Turin, M. (2025). Language improves health and wellbeing in Indigenous communities: A scoping review. *Language and Health*, 3(1), 100047. <https://doi.org/https://doi.org/10.1016/j.laheal.2025.100047>
- Hautzinger, S. (2024). Continuing to Talanoa: storytelling dialogues for youth engagement in climate action and justice. *Sustainable Earth Reviews*, 7(1), 6. <https://doi.org/10.1186/s42055-023-00070-7>
- Hazlewood, D. (1979). *A Fijian and English and an English and Fijian dictionary : with examples of common and peculiar modes of expression and uses of words, also, containing brief hints on native customs, proverbs, the native names of natural productions, and notices of the islands of Fiji, and a grammar of the language, with*

- examples of native idioms / by David Hazlewood (2d ed., with map /) (2d , with map / edited by James Calvert. 1st AMS ed.). AMS Press. <https://research.ebsco.com/linkprocessor/plink?id=5d699cdf-f237-3773-b5ad-f2f5799d05cb>*
- Held, M. B. (2019). Decolonizing research paradigms in the context of settler colonialism: An unsettling, mutual, and collaborative effort. *International Journal of Qualitative Methods*, 18, 1609406918821574.
- Hicks, D. L., Santacreu-Vasut, E., & Shoham, A. (2015). Does mother tongue make for women's work? Linguistics, household labor, and gender identity. *Journal of Economic Behavior & Organization*, 110, 19-44. <https://doi.org/https://doi.org/10.1016/j.jebo.2014.11.010>
- Hopf, S. C., McLeod, S., & McDonagh, S. H. (2016). Fiji School Students' Multilingual Language Choices When Talking with Friends. In *Friendship and Peer Culture in Multilingual Settings* (Vol. 21, pp. 55-88). Emerald Group Publishing Limited. <https://doi.org/10.1108/S1537-466120160000021005>
- Hopf, S. C., Sharynne, M., & and McDonagh, S. H. (2018). Linguistic multi-competence of Fiji school students and their conversational partners. *International Journal of Multilingualism*, 15(1), 72-91. <https://doi.org/10.1080/14790718.2016.1241256>
- Hsieh, H.-F., & Shannon, S. E. (2005). Three Approaches to Qualitative Content Analysis. *Qualitative Health Research*, 15(9), 1277-1288. <https://doi.org/10.1177/1049732305276687>
- Hyndman, D., & Hyndman, D. (2024). *Natural Hazards and Disasters* (6th ed.). Cengage.
- Isik, O. (2025). Qualitative Research Approaches and Data Collection Methods: Understanding Meaning and Experience. *Journal of Humanities and Education Development*, 7, 19-32. <https://doi.org/10.22161/jhed.7.6.3>
- iTaukei Trust Fund. (2026). *iVolavosa Dictionary*. Ministry of iTaukei Affairs. <https://itaukeitrustfund.com.fj/ivolavosa-app/>
- Jayawardena, I., Mannakkara, S., Wang, G., & Wen, L. (2026). Why we see risk differently: Socioeconomic dimensions of climate hazard and risk perceptions in Auckland, New Zealand. *International Journal of Disaster Risk Reduction*, 133, 106011. <https://doi.org/https://doi.org/10.1016/j.ijdr.2026.106011>
- Jia Li, J. Z., Ingrid Piller. (2023). Multilingualism During Disasters and Emergencies. In P. M. Carolyn McKinney, Virginia Zavala (Ed.), *The Routledge Handbook of Multilingualism* (2nd ed.). Routledge.
- Jirak, D., Menz, M. M., Buccino, G., Borghi, A. M., & Binkofski, F. (2010). Grasping language – A short story on embodiment. *Consciousness and Cognition*, 19(3), 711-720. <https://doi.org/https://doi.org/10.1016/j.concog.2010.06.020>
- Jourdan, C. (2010). *Linguistic Paths to Urban Self in Postcolonial Solomon Islands*. Oxford University Press. <https://doi.org/10.1093/acprof:oso/9780195324983.003.0002>
- Kahika-Foote, T., Reweti, A., Breheny, M., & Severinsen, C. (2026). "They think they know me without listening": Restoring relational care and authority in Māori health

- encounters. *Social Science & Medicine*, 400, 119295. <https://doi.org/https://doi.org/10.1016/j.socscimed.2026.119295>
- Kaiser, L. H., Kenney, C. M., & Phibbs, S. R. (2025). Indigeneity and emergency management: an emic 'gaze' on the role of traditional knowledges and cultural practices in emergency management contexts. *AlterNative*, 21(2), 285-297. <https://doi.org/10.1177/11771801251334297>
- Kakilla, C. (2021). *Strengths and Weaknesses of Semi-Structured Interviews in Qualitative Research: A Critical Essay*. <https://doi.org/10.20944/preprints202106.0491.v1>
- Kelman, I. (2018). Lost for Words Amongst Disaster Risk Science Vocabulary? *International Journal of Disaster Risk Science*, 9(3), 281-291. <https://doi.org/10.1007/s13753-018-0188-3>
- Kelman, I. (2020). *Disaster by choice : how our actions turn natural hazards into catastrophes / Ilan Kelman (First edition)* (First edition ed.). Oxford University Press. <https://research.ebsco.com/linkprocessor/plink?id=953f0e97-7f7f-39dc-9659-95f2f443a312>
- Kelman, I., Lewis, J., Gaillard, J. C., & Mercer, J. (2015). Island contributions to disaster research. *Global Environment*, 8(1), 16-37. <https://doi.org/doi:10.3197/ge.2015.080102>
- Kepa, M., & Manu'atu, L. (2006). Indigenous Maori and Tongan Perspectives on the Role of Tongan Language and Culture in the Community and in the University in Aotearoa-New Zealand. *American Indian Quarterly*, 30(1/2), 11-27. <http://www.jstor.org.ezproxy.otago.ac.nz/stable/4138909>
- Keswick, M., Sim, T., Suarez, L., Echeverri, D., Mather, T. A., & Pyle, D. M. (2025). From storytelling to resilience: A transdisciplinary approach to empowering children in disaster risk reduction. *International Journal of Disaster Risk Reduction*, 131, 105881. <https://doi.org/https://doi.org/10.1016/j.ijdr.2025.105881>
- King, R., Koch, S., Burns, R., Cupp, C., Lindell, M., London, S., Bunch, J., Fretts, A., Ali, T., Umans, J., & Nelson, L. (2025). Content analysis of factors related to sleep health among American Indian peoples. *Sleep Health*, 11(2), 140-148. <https://doi.org/https://doi.org/10.1016/j.sleh.2025.01.006>
- Knowles, J., Cole, A., & Archibald, J.-a. (2008). An Indigenous Storywork Methodology. In *Handbook of the Arts in Qualitative Research: Perspectives, Methodologies, Examples, and Issues* (pp. 371-385). SAGE Publications, Inc. <https://doi.org/10.4135/9781452226545.n31>
- Komorowski, J.-C., Morin, J., Jenkins, S., & Kelman, I. (2018). Challenges of Volcanic Crises on Small Islands States. In C. J. Fearnley, D. K. Bird, K. Haynes, W. J. McGuire, & G. Jolly (Eds.), *Observing the Volcano World: Volcano Crisis Communication* (pp. 353-371). Springer International Publishing. https://doi.org/10.1007/11157_2015_15
- Korobiau, S. (2026, 21 May). Identity term sparks debate. *Fiji Sun*. <https://www.pressreader.com/fiji/fiji-sun/20260521/281633901883112>

- Ksenofontov, S. S., Kuklina, V., Kholodov, A., & Petrov, A. (2025). On good terms: pathways to decolonizing science-appropriated Indigenous terminologies in Arctic research. *Arctic Science*, 11, 1-9. <https://doi.org/https://doi.org/10.1139/as-2025-0025>
- Kwok, A. H., Doyle, E. E. H., Becker, J., Johnston, D., & Paton, D. (2016). What is 'social resilience'? Perspectives of disaster researchers, emergency management practitioners, and policymakers in New Zealand. *International Journal of Disaster Risk Reduction*, 19, 197-211. <https://doi.org/https://doi.org/10.1016/j.ijdr.2016.08.013>
- Lane, C. (1993). Yes, I don't understand: Yes, no and European-Polynesian miscommunication in New Zealand. *Journal of Pragmatics*, 20(2), 163-188. [https://doi.org/https://doi.org/10.1016/0378-2166\(93\)90081-Y](https://doi.org/https://doi.org/10.1016/0378-2166(93)90081-Y)
- Langer, L., & McGee, T. (2017). Wildfire risk awareness and prevention by predominantly Maori rural residents, Karikari Peninsula, Aotearoa New Zealand. *International Journal of Wildland Fire*, 26. <https://doi.org/10.1071/WF16133>
- Latai-Niusulu, A., Taua'a, S., Lelaulu, T., Pedersen Zari, M., & Bloomfield, S. (2024). Working with nature, working with Indigenous knowledge: Community priorities for climate adaptation in Samoa. *Nature-Based Solutions*, 6, 100144. <https://doi.org/https://doi.org/10.1016/j.nbsj.2024.100144>
- Le De, L., & Gaillard, J. C. (2022). Whose views matter? For a pluralistic approach to understanding disasters. In. <https://doi.org/10.4337/9781839100307.00018>
- Lee, G. (1990). *Civil defence in New Zealand: A short history*.
- Li, J., Zhang, J., & Piller, I. (2023). Multilingualism During Disasters and Emergencies. In P. M. Carolyn McKinney, Virginia Zavala (Ed.), *The Routledge Handbook of Multilingualism* (2nd ed.). Routledge.
- Lovo, E., Woodward, L., Larkins, S., Preston, R., & Baba, U. N. (2021). Indigenous knowledge around the ethics of human research from the Oceania region: A scoping literature review. *Philosophy, Ethics, and Humanities in Medicine*, 16(1), 12. <https://doi.org/10.1186/s13010-021-00108-8>
- Lune, H., & Berg, B. L. (2017). *Qualitative research methods for the social sciences / Howard Lune, Bruce L. Berg (Ninth edition. Global edition) (Ninth edition. Global edition ed.)*. Pearson. <https://research.ebsco.com/linkprocessor/plink?id=45e9b786-82ea-3cf5-b80b-78dbde152dda>
- Lupyan, G., Abdel Rahman, R., Boroditsky, L., & Clark, A. (2020). Effects of Language on Visual Perception. *Trends in Cognitive Sciences*, 24(11), 930-944. <https://doi.org/10.1016/j.tics.2020.08.005>
- MacIntyre, E., Khanna, S., Darychuk, A., Copes, R., & Schwartz, B. (2019). Evidence synthesis - Evaluating risk communication during extreme weather and climate change: a scoping review. *Health Promot Chronic Dis Prev Can*, 39(4), 142-156. <https://doi.org/10.24095/hpcdp.39.4.06> (Synthèse des données probantes - Évaluation de la communication des risques en présence de changements climatiques et de phénomènes météorologiques extrêmes : examen de la portée.)

- Mafile'o, T., Alofa, P., Kauongo, T., Saguba, L., Steven, H., Filoa, A., Sanga, F. a., Toloa, T., Isaako-Toloa, L., Halatuituia, S. N., & Hauma, T. P. (2026). 'We do in the spirit of togetherness': stories of collective resilience, wellbeing and climate (im)mobility in the Pacific. *Climate and Development*, 18(3), 280-291. <https://doi.org/10.1080/17565529.2025.2524421>
- Mafile'o, T., Vaka, S., Leau, K., Satele, P., & Alefaio-Tugia, S. (2024). Decolonising Qualitative Analysis: Collectively Weaving Understanding Using Talanoa and Fa'afaletui Pacific-Indigenous Research Methods. *International Journal of Qualitative Methods*, 23, 16094069241272241. <https://doi.org/10.1177/16094069241272241>
- Magaldi, D., & Berler, M. (2020). Semi-structured Interviews. In V. Zeigler-Hill & T. K. Shackelford (Eds.), *Encyclopedia of Personality and Individual Differences* (pp. 4825-4830). Springer International Publishing. https://doi.org/10.1007/978-3-319-24612-3_857
- Maguire, M., & Delahunt, B. (2017). Doing a Thematic Analysis: A Practical, Step-by-Step Guide. *All Ireland Journal of Higher Education*, 9, Article 13.
- Manawatū People's Radio. (2026). *Radio Viti Manawatū*. Retrieved 22 May from <https://mpr.nz/show/radioviti>
- Mandiopera, W. D., Ndlovu, T., & Kai, G. (2023). Indigenous knowledge systems and drought preparedness in rural Umzingwane in Zimbabwe. *International Journal of Disaster Risk Reduction*, 99, 104128. <https://doi.org/https://doi.org/10.1016/j.ijdr.2023.104128>
- Mariani, M., Connor, S. E., Theuerkauf, M., Herbert, A., Kuneš, P., Bowman, D., Fletcher, M.-S., Head, L., Kershaw, A. P., Haberle, S. G., Stevenson, J., Adeleye, M., Cadd, H., Hopf, F., & Briles, C. (2022). Disruption of cultural burning promotes shrub encroachment and unprecedented wildfires. *Frontiers in Ecology and the Environment*, 20(5), 292-300. <https://doi.org/https://doi.org/10.1002/fee.2395>
- Mashuri, S., Rasak, M. S. A., Alhabsyi, F., & Syam, H. (2022). Semi-structured Interview: A Methodological Reflection on the Development of a Qualitative Research Instrument in Educational Studies.
- Mercer, J., Ilan, K., Sandie, S. p., & and Lloyd, K. (2009). Integrating indigenous and scientific knowledge bases for disaster risk reduction in papua new guinea. *Geografiska Annaler: Series B, Human Geography*, 91(2), 157-183. <https://doi.org/10.1111/j.1468-0467.2009.00312.x>
- Mikulecký, P., Punčochářová, A., Babič, F., Bureš, V., Čech, P., Husáková, M., Mls, K., Nacházel, T., Ponce, D., Štekerová, K., Triantafyllou, I., Tučník, P., Sunanda, V., & Zanker, M. (2023). Dealing with risks associated with tsunamis using indigenous knowledge approaches. *International Journal of Disaster Risk Reduction*, 86, 103534. <https://doi.org/https://doi.org/10.1016/j.ijdr.2023.103534>
- Moeller, S. R. (2014). SayMore, a tool for Language Documentation Productivity. *Language Documentation & Conservation*, 8, 66-74.

- Morgan, E. H., Vatucawaqa, P., Snowdon, W., Worsley, A., Dangour, A. D., & Lock, K. (2016). Factors influencing fruit and vegetable intake among urban Fijians: A qualitative study. *Appetite*, 101, 114-118. <https://doi.org/https://doi.org/10.1016/j.appet.2016.03.003>
- MPI Nijmegen. (2026). *ELAN*. In (Version 7.1) Max Planck Institute for Psycholinguistics, The Language Archive. <https://archive.mpi.nl/tla/elan>
- Nabobo-Baba, U. (2008). Decolonising Framings in Pacific Research: Indigenous Fijian Vanua Research Framework as an Organic Response. *AlterNative: An International Journal of Indigenous Peoples*, 4(2), 140-154. <https://doi.org/10.1177/117718010800400210>
- Nakata, M. (2007). The Cultural Interface. *The Australian Journal of Indigenous Education*, 36, 7-14. <https://doi.org/10.1017/S1326011100004646>
- National Emergency Management Agency Te Rākau Whakamarumarū. (2026). *Get Ready (NZ Civil Defence) - Emergency preparedness in New Zealand*. Retrieved 22 May from <https://getready.govt.nz/>
- Natural Hazards Portal. (2026). *Past natural hazard events*. Retrieved 22 May from <https://www.naturalhazardsportal.govt.nz/s/natural-hazard-risk/past-natural-hazard-events>
- Neef, A., Bengé, L., Boruff, B., Pauli, N., Weber, E., & Varea, R. (2018). Climate adaptation strategies in Fiji: The role of social norms and cultural values. *World Development*, 107, 125-137. <https://doi.org/https://doi.org/10.1016/j.worlddev.2018.02.029>
- Nopriyasman, N., Asnan, G., Fauzi, A., Hastuti, I. P., Ritonga, A. H., Kurniawan, V., & Mairiska, R. (2024). Reading indigenous signs: The wisdom of nagari communities toward natural disaster in Pasaman Barat. *International Journal of Disaster Risk Reduction*, 107, 104497. <https://doi.org/https://doi.org/10.1016/j.ijdr.2024.104497>
- Pakendorf, B., Dobrushina, N., & Khanina, O. (2021). A typology of small-scale multilingualism. *International Journal of Bilingualism*, 25(4), 835-859. <https://doi.org/10.1177/13670069211023137>
- Parsons, M. (2026). Rewriting the climate social contract: adaptation, equity, and indigenous rights in Aotearoa New Zealand. *Global Environmental Change*, 98, 103161. <https://doi.org/https://doi.org/10.1016/j.gloenvcha.2026.103161>
- Parsons, M., May, G., Waller, B., Makey, L., Jayawardena, I., Fisher, K. T., & Brown, C. (2026). Climate adaptation justice as lived experience: insights from Aotearoa New Zealand. *Global Environmental Change*, 97, 103134. <https://doi.org/https://doi.org/10.1016/j.gloenvcha.2026.103134>
- Parter, C., Brown, S., Rix, E. F., & Wilson, S. (2025). An Indigenous data analysis framework of practice and Carmen's Theory. *AlterNative: An International Journal of Indigenous Peoples*, 21(4), 740-753. <https://doi.org/10.1177/11771801251360106>
- Pearce, T., Currenti, R., Doran, B., Sidle, R., Ford, J., & Leon, J. (2020). "Even if it doesn't come, you should be prepared": Natural hazard perception, remoteness, and

implications for disaster risk reduction in rural Fiji. *International Journal of Disaster Risk Reduction*, 48, 101591. <https://doi.org/https://doi.org/10.1016/j.ijdrr.2020.101591>

Petterson, M., Cronin, S., Taylor, P., Tolia, D., Papabatu, A., Toba, T., & Qopoto, C. (2003). The eruptive history and volcanic hazards of Savo, Solomon Islands. *Bulletin of Volcanology*, 65(2), 165-181. <https://doi.org/10.1007/s00445-002-0251-0>

Petzold, J., Joe, E., Kelman, I., Magnan, A., Mirbach, C., Nagle Alverio, G., Nunn, P., Ratter, B., & Team, T. (2023). Between tinkering and transformation: A contemporary appraisal of climate change adaptation research on the world's islands. *Frontiers in Climate*, 4, 1072231. <https://doi.org/10.3389/fclim.2022.1072231>

Pickering, K., Galappaththi, E., Ford, J., Pearce, T., Manuel, L., Dauniwaqalevu, E., Bavel, B. v., Arotoma-Rojas, I., Zavaleta, C., Perera, C., Dharmasiri, I., Hyams, K., Chi, G., Nkalubo, J., Bezerra, J., Togarepi, C., Hangula, M., Awafo, F., & Amukugo, H. (2024). Fiji's policy response to COVID-19 and the integration of Indigenous voices. *Environmental Science & Policy*, 158, 103791. <https://doi.org/https://doi.org/10.1016/j.envsci.2024.103791>

Rampengan, M. M. F., Boedhihartono, A. K., Law, L., Gaillard, J. C., & Sayer, J. (2014). Capacities in Facing Natural Hazards: A Small Island Perspective. *International Journal of Disaster Risk Science*, 5(4), 247-264. <https://doi.org/10.1007/s13753-014-0031-4>

Rangiwai, B., Enari, D., Masae, C., Paea, D., Tahilanu-Mapili, L., & Vailahi, V. (2021). Lost in translation: Reflexive thematic analysis in research with Pacific peoples. *Te Kaharoa*, 17. <https://doi.org/10.24135/tekaharoa.v17i1.354>

Ridge, E. (2025). What does lanwis mean? Parallels between Indigenous languages of Vanuatu for young people in Mele Maat. *Te Reo*, 68(2), 133-161.

Rishbeth, C., & Powell, M. (2013). Place Attachment and Memory: Landscapes of Belonging as Experienced Post-migration. *Landscape Research*, 38(2), 160-178. <https://doi.org/10.1080/01426397.2011.642344>

Ruslin, R., Mashuri, S., Sarib, M., Alhabsyi, F., & Syam, H. (2022). Semi-structured Interview: A Methodological Reflection on the Development of a Qualitative Research Instrument in Educational Studies Ruslin. Vol. 12, 22-29. <https://doi.org/10.9790/7388-1201052229>

Sanga, K., Martyn, R., Grace, R., & and Hiele, G. Enhancing oralities methodology: ontological framing and cultural principles in research. *International Journal of Social Research Methodology*, 1-16. <https://doi.org/10.1080/13645579.2024.2448969>

Sangha, K. K., Madegowda, C., & Balasubramanian, M. (2024). Reshaping conservation incorporating Indigenous perspectives. *Global Ecology and Conservation*, 54, e03197. <https://doi.org/https://doi.org/10.1016/j.gecco.2024.e03197>

Schütz, A. J. (1985). *The Fijian language / Albert J. Schütz*. University of Hawaii Press. <https://manifold.uhpress.hawaii.edu/projects/the-fijian-language>

- Shameem, N. (2007). Language education needs for multilingualism in Fiji primary schools. *International Journal of Educational Development*, 27(1), 39-60. <https://doi.org/https://doi.org/10.1016/j.ijedudev.2006.04.015>
- Siawsh, N., Peszynski, K., Vo-Tran, H., & Young, L. (2023). Toward the creation of disaster-resilient communities: The Machizukuri initiative – The 2011 Tōhoku Great East Japan Earthquake and Tsunami. *International Journal of Disaster Risk Reduction*, 96, 103961. <https://doi.org/https://doi.org/10.1016/j.ijdr.2023.103961>
- Singh, P., Tabe, T., & Martin, T. (2022). The role of women in community resilience to climate change: A case study of an Indigenous Fijian community. *Women's Studies International Forum*, 90, 102550. <https://doi.org/https://doi.org/10.1016/j.wsif.2021.102550>
- Slotta, J. (2012). Dialect, trope, and enregisterment in a Melanesian speech community. *Language and Communication*, 32(1), 1-13. <https://doi.org/10.1016/j.langcom.2011.11.003>
- Smith, L. T. (2015). Kaupapa Māori research- Some Kaupapa Māori principles. Kaupapa Rangahau A Reader: A Collection of Readings from the Kaupapa Maori Research Workshop Series Led, Te Kotahi Research Institute.
- Starks, D. (2006). The Changing Roles of Language and Identity in the New Zealand Niuean Community: Findings from the Pasifika Languages of Manukau Project. *International Journal of Bilingual Education and Bilingualism*, 9(3), 374-391. <https://doi.org/10.1080/13670050608668655>
- Starks, D., Taumoevalau, M., Bell, A., & Davis, K. (2005, 01/05/2005). *Language as a Marker of Ethnic Identity in New Zealand's Pasifika Communities* 4th International Symposium on Bilingualism, Arizona State University, Tempe, AZ, USA.
- Stewart-Withers, R., Sewabu, K., & Richardson, S. (2017). Talanoa: A contemporary qualitative methodology for sport management. *Sport Management Review*, 20(1), 55-68. <https://doi.org/10.1016/j.smr.2016.11.001>
- Sutton, S. A., Paton, D., Buergelt, P., Sagala, S., & Meilianda, E. (2021). Nandong smong and tsunami lullabies: Song and music as an effective communication tool in disaster risk reduction. *International Journal of Disaster Risk Reduction*, 65, 102527. <https://doi.org/https://doi.org/10.1016/j.ijdr.2021.102527>
- Tagicakiverata, I., & Nilan, P. (2018). Veivosaki-yaga: a culturally appropriate Indigenous research method in Fiji. *International Journal of Qualitative Studies in Education*, 31, 1-12. <https://doi.org/10.1080/09518398.2017.1422293>
- Tatauranga Aotearoa Stats NZ. (2023a). *Census 2023: Pacific Peoples*. Retrieved 21 May from <https://tools.summaries.stats.govt.nz/ethnic-group/pacific-peoples>
- Tatauranga Aotearoa Stats NZ. (2023b). *Fijian, Place and ethnic group summaries* | Stats NZ. Retrieved 22 May from <https://tools.summaries.stats.govt.nz/ethnic-group/fijian#languages-spoken>

- Te Tari Mātāwaka Ministry for Ethnic Communities. (2018). *Who speaks what?* Retrieved 22 May from <https://www.ethniccommunities.govt.nz/resources/our-languages-o-tatou-reo/who-speaks-what>
- Thaman, K. H. (2003). Decolonizing Pacific Studies: Indigenous Perspectives, Knowledge, and Wisdom in Higher Education. In *The Contemporary Pacific* (Vol. 15, pp. 1-17): University of Hawai'i Press.
- Thierry, G., Rahman, R. A., & Athanasopoulos, P. (2024). An Introduction to the Cognitive Neuroscience of Language Embodiment and Relativity Special Issue of the Language Learning Cognitive Neuroscience Series. *Language Learning*, 74(S1), 5-19. <https://doi.org/https://doi.org/10.1111/lang.12643>
- Thomas, D. R. (2006). A General Inductive Approach for Analyzing Qualitative Evaluation Data. *American Journal of Evaluation*, 27(2), 237-246. <https://doi.org/10.1177/1098214005283748>
- Trainor, L. R., & Bundon, A. (2021). Developing the craft: reflexive accounts of doing reflexive thematic analysis. *Qualitative Research in Sport, Exercise and Health*, 13(5), 705-726. <https://doi.org/10.1080/2159676X.2020.1840423>
- Tripathy, S. (2020). Farmers, Climate and Disaster Management in a Coastal Region. In A. Singh, R. L. S. Fernando, & N. P. Haran (Eds.), *Development in Coastal Zones and Disaster Management* (pp. 101-117). Springer Singapore. https://doi.org/10.1007/978-981-15-4294-7_7
- Tuhiwai Smith, L. (2021). Decolonizing Methodologies : Research and Indigenous Peoples. In L. Tuhiwai Smith (Ed.), *Decolonizing Methodologies : Research and Indigenous Peoples* (1 ed.). Zed Books. <https://www.bloomsburycollections.com/monograph?docid=b-9781350225282>
- Turin, M. (2012). Voices of vanishing worlds: Endangered languages, orality, and cognition. *Analise Social*, 47, 846-869.
- Uekusa, S. (2019). Disaster linguicism: Linguistic minorities in disasters. *Language in Society*, 48(3), 353-375. <https://doi.org/10.1017/S0047404519000150>
- Uekusa, S., & Matthewman, S. (2023). Preparing multilingual disaster communication for the crises of tomorrow: A conceptual discussion. *International Journal of Disaster Risk Reduction*, 87, 103589. <https://doi.org/https://doi.org/10.1016/j.ijdr.2023.103589>
- Vaiolati, T. M. (2006). Talanoa Research Methodology: A Developing Position on Pacific Research. *Waikato Journal of Education*, 12(1). <https://doi.org/10.15663/wje.v12i1.296>
- Vaiolati, T. M. (2016). Talanoa Research Methodology: A Developing Position on Pacific Research. *Waikato Journal of Education*, 12(1). <https://doi.org/10.15663/wje.v12i1.296>
- Völkel, S., & Nassenstein, N. (2025). Language, Culture, and Their Relationship. In *Reference Module in Social Sciences*. Elsevier. <https://doi.org/https://doi.org/10.1016/B978-0-323-95504-1.00605-0>
- Weerasinghe, A. P., Chapple, L., & Williamson, A. K. (2022). Indigenous directorship pathways through transformative leadership: a content analysis of reconciliation action

- plans (RAPs). *Accounting, Auditing & Accountability Journal*, 36(5), 1319-1349. <https://doi.org/https://doi.org/10.1108/AAAJ-10-2021-5511>
- Wehi, P. M., Whaanga, H., Roa, T., & Cox, M. P. (2024). Woven languages: understanding Indigenous socioecological systems. *Trends in Ecology & Evolution*, 39(10), 881-884. <https://doi.org/https://doi.org/10.1016/j.tree.2024.08.004>
- White, C. M. (2002). Language, Authenticity and Identity: Indigenous Fijian Students and Language Use in Schools. *Language, Culture and Curriculum*, 15(1), 16-29. <https://doi.org/10.1080/07908310208666630>
- Whyte, K. P. (2013). On the role of traditional ecological knowledge as a collaborative concept: a philosophical study. *Ecological Processes*, 2(1), 7. <https://doi.org/10.1186/2192-1709-2-7>
- Williams, R. (2020). The Paradigm Wars: Is MMR Really a Solution? *American Journal of Trade and Policy*, 7, 79-84. <https://doi.org/10.18034/ajtp.v7i3.507>
- Wilson, C. (2025, 25 December). Power of storytelling and its role in shaping Fiji's identity. *The Fiji Times*.
- Yee, M., McNamara, K., Piggott-McKellar, A., & McMichael, C. (2022). The role of Vanua in climate-related voluntary immobility in Fiji. *Frontiers in Climate*, 4, 1034765. <https://doi.org/10.3389/fclim.2022.1034765>
- Young Okotai, N. J. (2023). Reflections on applying the Fijian Vanua research framework in Indigenous anthropological practice [Journal Article]. *Waka Kuaka: The Journal of the Polynesian Society*, 132(1/2), 111-128. <https://doi.org/10.15286/jps.132.1.111-128>
- Zhi, Y., Zhang, K., Jiang, C., & Shang, X. (2026). Subjective perception matters: The impact of contact with nature on creative thinking in tourism versus everyday contexts. *Tourism Management*, 113, 105334. <https://doi.org/https://doi.org/10.1016/j.tourman.2025.105334>
- Zobule, A. G., & McDougall, D. (2026). Grammar as a bridge: Empowering Indigenous learners in a Solomon Islands language school. *Language Documentation & Conservation*, 20, 52-67.

Appendices

Appendix A - Semi-structured Interview Guide

INTERVIEW GUIDE - SEMI-STRUCTURED INTERVIEW

Date: Interviewer:
Archival #: In person ☐ / Teleconference ☐
Start Time: End Time:

Opening introduction

1. [Thanks to the participant and introduction to the research premise]
2. Tell me about yourself — where are you and your family from? [Includes interviewer self-introduction and background]

Languages

1. What languages do you speak?
2. Do you have a preferred language?
 - 2.1.If so, what do you like about it?
3. Have you always known these languages from when you were as a child?
 - 3.1.Which, if any, did you learn as an adult?
4. Can you tell me about an experience using either Fijian or English that made you think about the differences or similarities between the languages?
 - 4.1.What kind of things did you think about it?
5. Have you thought about these kinds of topics before?
 - 5.1.If so, please tell me about that.

Nature and natural events

1. What kind of natural environment do you live in now?
2. Have you always lived there?
 - 2.1.If not, what kinds of natural environments have you lived in previously?
3. Do you have a preferred natural environment, weather, or season?
 - 3.1.What do you like about it?
4. Can you tell me about an experience with the natural world that made an impact on you?
5. How do you feel about the natural world (vanua/draki)?

5.1. Do you feel connected to it, distant from it, or otherwise?

Veivosaki-yaga (specific topic conversation)

1. When you think about talking about the natural world in Fijian, what comes to mind?
2. I would like to discuss some specific Fijian words for nature and natural events with you. I have some in mind, but tell me — what are some of the words you think of when you describe the natural environment in Fijian?
3. [*Wasawasa, vanua, uneune, ualoka, cagilaba, uca, waluvu* etc] - *laminated and laid out on the table*
4. [Choose 1 word] When you speak about [word], what is it describing to you?
4.1. Continue for 1-5 words depending on participant, time
5. And when you think about talking about the natural world in English, what comes to mind?
6. I'd like to also discuss specific English words to describe nature and natural events. Do any come to your mind as we have been talking?
7. [*Ocean, land, earthquake, landslide, tsunami, cyclone, rain, floods, volcano* etc] - *laminated and laid out on the table*
8. [Choose 1 word] And when you speak about [word], what is that describing to you?
8.1. Continue for 1-5 words depending on participant, time
9. Have you ever received official communications about natural and natural events?
9.1. If so, can you tell me about that? If it was part of a difficult experience, do you feel comfortable talking just about the specific communications themselves?
9.2. When you received these communications, were the terms used in English or Fijian? Were these communications written, or spoken?
9.3. How did the language that was used affect your perception of the message it was trying to convey?
10. Have you ever received a communication that was translated from English into Fijian?
10.1. If so, how effective do you think the translation was? What makes you say that?
11. What do you think about the process of translation? How do you think it affects communications?

Closing section

1. [Any questions raised from the talanoa section]
2. Is there anything that we've talked about that you'd like to discuss further?

Appendix B - Talanoa Guide

INTERVIEW GUIDE - TALANOA SESSION

Date: Interviewer:
Archival #:
Start Time: End Time:

Opening introduction

1. [Thanks to the participants and introduction to the research premise]
2. Introduction of the researcher and their connection to the Wairarapa and the Fijian community
3. This discussion is a safe space to talk about ideas, and what we discuss should stay within this group.
 1. Does anyone have questions about the study itself and how it was created and approved?
4. Let's begin with introductions - *introductions of the group to researcher and other participants*
5. Are you all familiar with each other already?
 1. If so, how do you know each other?
 2. If not, what is your connection to the Wairarapa and to Fiji? Where are you and your family from?

Languages

1. What languages does the group speak? What are the most common languages spoken within the group?
2. Do you have a preferred language?
 - 2.1. If so, what do you like about it?
3. Can you tell me about an experience using either Fijian or English that made you think about the differences or similarities between the languages?

Nature and natural events

1. What kind of natural environment do you live in now?
2. Have you always lived there?
 - 2.1. If not, what kinds of natural environments have you lived in previously?
3. Do you have a preferred natural environment, weather, or season?
4. How do you feel about the natural world (vanua/draki) [connected to it, distant from

it, or otherwise]?

Veivosaki-yaga (specific topic conversation)

1. I would like to discuss some specific Fijian words for nature and natural events with you all. I have some in mind, but tell me — what are some of the words you think of for the natural environment in Fijian?
2. [*Wasawasa, vanua, uneune, ualoka, cagilaba, covulaca, sisi ni qele, uca, waluvu etc*] - *laminated and laid out on the table*
3. [Choose 1 word] When you speak about [word], what is it describing to you?
3.1. Continue for 1-5 words depending on participants, time
4. And when you think about talking about the natural world in English, what comes to mind?
5. I'd like to also discuss specific English words to describe nature and natural events. Do any come to your mind as we have been talking?
6. [*Ocean, land, earthquake, landslide, tsunami, cyclone, rain, floods, volcano etc*] - *laminated and laid out on the table*
7. [Choose 1 word] And when you speak about [word], what is that describing to you?
7.1. Continue for 1-5 words depending on participants, time
8. Have you ever received official communications about natural and natural events?
8.1. When you received these communications, were the terms used in English or Fijian? Were these communications written, or spoken?
8.2. How did the language that was used affect your perception of the message it was trying to convey?
9. Have you ever received a communication that was translated from English into Fijian?
9.1. If so, how effective do you think it was and why?
10. How do you think translation affects communications?

Closing section

1. [Any questions raised from the introductory section]
2. Is there anything that we've talked about that you'd like to discuss further?
3. Is there anyone else you think it would be good for me to talk to?

Appendix C - Advertisement Flyer

Exploring the effect and meaning of Fijian (vosa Vakaviti) and English language terms for nature and natural events

Seeking participants for research interviews:

A Master's research project at **Massey University** is looking for people to participate in research which explores the meaning of terms for nature and natural events in the Indigenous Fijian language (also known as vosa Vakaviti) and the English language.

We are seeking members of the public who are fluent in both English and Fijian who would be willing to participate in interviews about this topic. The interviews would be scheduled with participants via video call or in person at a time convenient for each participant.

A \$40 grocery store voucher will be provided in compensation for your time.

To find out more, please contact:

Clare French



Clare.French.1@uni.massey.ac.nz

Joint Centre for Disaster Research, School of Psychology
Wellington Campus, Massey University, P.O. Box 756, Wellington 6140, N.Z.
Telephone: +64-4-801-5799 x 62458, <http://disasters.massey.ac.nz>

Exploring the effect and meaning of Fijian and English language terms for nature and natural events

Information Sheet

Ni sa bula vinaka, na yacaqu ko **Clare French**. Au gonevuli ena Univesiti mai Massey. Thank you for responding to our invitation to participate in interviews that will explore the meaning of vosa vaka-Viti (Fijian) and English language terms for nature and natural events. Please take the time to read the information below carefully, and consider whether you would be willing to take part in this interview.

What is the research, and who are the researchers?

This research is designed to help emergency management scientists get a better understanding of how Fijians in New Zealand who speak both Fijian and English use and understand words about nature and natural events. Different languages and cultures talk about nature and natural events differently, and individual words and phrases do not always have a clear counterpart in other languages. Findings from this research will help emergency management scientists better understand the differences and similarities between Fijian and English when talking about nature and natural events, and help create emergency management communications that are meaningful and useful to the Fijian community within New Zealand.

I am the Lead Investigator, and Professor Emma Hudson-Doyle and Dr Eleanor Ridge, both at Massey University, are my thesis advisors.

Who can take part in this research?

We are seeking participants who are Fijian, speak both Fijian and English, and who are living in New Zealand. You must be 18 years or over to participate.

What will the interviews involve?

Each individual interview will be conducted in person, in either a public place like a library, park, or café, or at a place that is comfortable to you such as your home or the home of someone in your family. The interview will last between 40 to 60 minutes and will include a segment for introduction and establishment of shared understanding of the conversation topics, a discussion of language itself, a discussion of natural and natural events, and a veivosaki yaga segment with discussion of the words used to talk about nature and natural events. During interviews I will take notes, and record audio. I will then personally transcribe those audio recordings after the interviews.

After the interviews, I will contact you once to follow up and find out if you are interested in continuing the conversation for another session. There is no requirement that you do so. If you are interested in continuing the conversation for another session, we will arrange to meet in person as we have previously. This second meeting will also be recorded and the recording will be transcribed as above. Any relevant information from the second meeting will also be included in the research.

Light refreshments will be provided during in-person interviews. As a thank you, all participants will

receive a supermarket voucher valued at \$40 given to the participants at the interview.

What are my rights as a participant?

Whilst your contribution would be most appreciated, **you are under no obligation to participate in this research**. Following the Massey University Code of Ethical Conduct, if you choose to participate:

- you may choose for your identity to be anonymous in the published results, or for acknowledgment of your participation
- you may decline to answer any questions
- you may withdraw from the study at any time
- you may ask any questions about the study
- you will be given access to a summary of the project findings when it is concluded.

All information and data provided will be anonymous and will be stored in a secure location at either the Joint Centre for Disaster Research (School of Psychology, Massey University, Wellington, NZ), or via a password protected encrypted online data storage facility (Massey University OneDrive). All data will be held in this secure location for five years post research completion, and stored by methods that comply with the Massey University Code of Ethical Conduct. The only persons with access to this data will be the current research team. No individuals or organisations will be named in any reports or publications.

What happens to the research findings?

The findings will be used to develop the effectiveness of nature and natural events-related communications regarding emergencies and disasters. These findings will be communicated to the participants and the local Fijian community, as well as to the national and international science research community and emergency management sectors via publication of this thesis. In addition, the data may be used for publications in journals and magazines.

If you have any questions, please feel free to contact:

Clare French, Master's candidate, School of Psychology, Massey University, Wellington. Email: Clare.French.1@uni.massey.ac.nz Phone: +64 [REDACTED]

Prof Emma Hudson-Doyle, Senior Lecturer, Joint Centre for Disaster Research, Massey University, Wellington. Email: E.E.Hudson-Doyle@massey.ac.nz, Phone: +64 (04) 801 5799 ext. 63616

Dr Eleanor Ridge, Senior Lecturer, School of Psychology, Massey University, Palmertson North. Email: S.R.Hill@massey.ac.nz, Phone: +64 (06) 356 9099 ext. 85083

This project has been evaluated by peer review and judged to be low risk. Consequently, it has not been reviewed by one of the University's Human Ethics Committees. The researcher(s) named in this document are responsible for the ethical conduct of this research.

If you have any concerns about the conduct of this research that you want to raise with someone other than the researcher(s), please contact Professor Craig Johnson, Director - Ethics, telephone 06 3569099 ext 85271, email humanethics@massey.ac.nz.

Participant Consent form—Individual Interview

I have read the Information Sheet and have had the details of the study explained to me. My questions have been answered to my satisfaction, and I understand that I may ask further questions at any time.

- I agree to my interview being recorded.
- I agree to the use of anonymous quotations in any publication that comes of this research. I may request for my contributions to be acknowledged in the publication.
- I agree to participate in this study under the conditions set out in the Information Sheet.

Signature:

Date:

Full Name
(printed):

Exploring the effect and meaning of Fijian and English language terms for nature and natural events Information Sheet

Ni sa bula vinaka, na yacaqu ko **Clare French**. Au gonevuli ena Univesiti mai Massey. Thank you for responding to our invitation to participate in interviews that will explore the meaning of vosa vaka-Viti (Fijian) and English language terms for nature and natural events. Please take the time to read the information below carefully, and consider whether you would be willing to take part in this interview.

What is the research, and who are the researchers?

This research is designed to help emergency management scientists get a better understanding of how Fijians in New Zealand who speak both Fijian and English use and understand words about nature and natural events. Different languages and cultures talk about nature and natural events differently, and individual words and phrases do not always have a clear counterpart in other languages. Findings from this research will help emergency management scientists better understand the differences and similarities between Fijian and English when talking about nature and natural events, and help create emergency management communications that are meaningful and useful to the Fijian community within New Zealand.

I am the Lead Investigator, and Professor Emma Hudson-Doyle and Dr Eleanor Ridge, both at Massey

University, are my thesis advisors.

Who can take part in this research?

We are seeking participants who are Fijian, speak both Fijian and English, and who are living in New Zealand. You must be 18 years or over to participate.

What will the interviews involve?

The talanoa (group discussion) will be conducted in person and will include between 4-10 participants. The talanoa session will last between 60 and 120 minutes and will include a segment for introduction and establishment of shared understanding of the conversation topics, a discussion of language itself, a discussion of natural and natural events, and a veivosaki yaga segment with discussion of the words used to talk about nature and natural events. During the talanoa session I will ask guiding questions and ensure all participants are able to take part equitably. I will take notes, and record audio. I will then personally transcribe those audio recordings after the interviews.

After the talanoa session, I will contact you once to follow up and find out if you are interested in engaging in an individual interview. There is no requirement that you do so. If you are interested in an individual interview, we will arrange to meet in person in a public place such as a library, cafe, or community centre. This interview will also be recorded and the recording will be transcribed as above. Any relevant information from the interview will also be included in the research.

Light refreshments will be provided during the talanoa session. As a thank you, all participants will receive a supermarket voucher valued at \$40 given to the participants at the interview.

What are my rights as a participant?

Whilst your contribution would be most appreciated, **you are under no obligation to participate in this research.** Following the Massey University Code of Ethical Conduct, if you choose to participate:

- you may choose for your identity to be anonymous in the published results, or for acknowledgment of your participation
- you may decline to answer any questions
- you may withdraw from the study at any time
- you may ask any questions about the study
- you will be given access to a summary of the project findings when it is concluded.

All information and data provided will be anonymous and will be stored in a secure location at either the Joint Centre for Disaster Research (School of Psychology, Massey University, Wellington, NZ), or via a password protected encrypted online data storage facility (Massey University OneDrive). All data will be held in this secure location for five years post research completion, and stored by methods that comply with the Massey University Code of Ethical Conduct. The only persons with access to this data will be the current research team. No individuals or organisations will be named in any reports or publications.

What happens to the research findings?

The findings will be used to develop the effectiveness of nature and natural events-related communications regarding emergencies and disasters. These findings will be communicated to the participants and the local Fijian community, as well as to the national and international science research

community and emergency management sectors via publication of this thesis. In addition, the data may be used for publications in journals and magazines.

If you have any questions, please feel free to contact:

Clare French, Master's candidate, School of Psychology, Massey University, Wellington. Email: Clare.French.1@uni.massey.ac.nz Phone: +64 [REDACTED]

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This project has been evaluated by peer review and judged to be low risk. Consequently, it has not been reviewed by one of the University's Human Ethics Committees. The researcher(s) named in this document are responsible for the ethical conduct of this research.

If you have any concerns about the conduct of this research that you want to raise with someone other than the researcher(s), please contact Professor Craig Johnson, Director - Ethics, telephone 06 3569099 ext 85271, email humanethics@massey.ac.nz.

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- I agree to my interview being recorded.
- I agree to the use of anonymous quotations in any publication that comes of this research. I may request for my contributions to be acknowledged in the publication.
- I agree to participate in this study under the conditions set out in the Information Sheet.

Signature:

Date:

**Full Name
(printed):**

Appendix E - Ethics Application

[HE028] – Human Ethics Low Risk Approval 4000031443

Human Ethics Project Detail and Risk Assessment Form

1. Project Title:
The impact of language on perception of nature and natural events within the Fijian/
English-speaking diaspora in New Zealand
2. Recruitment / Data collection start date:
1 October 2025
3. What date do you expect data collection and analysis activities to be completed?
19 June 2025
4. Project Type:
 - Master's student research
5. Project Funding:
 - Scholarship - application pending for Massey University Master's Scholarship;
potential JCDR funding
 - Self-funded - if no funding available via the above student will self fund
6. Describe the knowledge, experience and skills of the applicants, including
supervisors for student research, in relation to the proposed research, teaching, or
evaluation activity.
The co-supervisors, Emma Hudson-Doyle and Eleanor Ridge, are Associated
Professor and Senior Lecturer, respectively, at Massey University. They both have
extensive experience in conducting research on emergency management and
Pacific linguistics as well as supervising and advising on Master's and PhD level
research projects. The student, Clare French, is a Master's candidate in Emergency
Management at Massey University and has completed the required courses for
thesis enrollment. She has had experience with qualitative and quantitative
research, including on animal and human subjects, throughout her education and
career as a general surgeon. She has completed Introduction to vosa vaka-Viti and
Everyday Conversation in vosa vaka-Viti at Centre for Pacific Languages and has
recent experience working and teaching in Suva, Fiji as a general surgeon.
7. Aim(s) of the project:
This thesis proposes to investigate the effect and meaning of Fijian and English
language terms for nature and natural events (classically termed "natural hazards"

in the English-dominated discipline of emergency management) within the Fijian- and English-speaking diaspora in New Zealand, for the purpose of improving the effectiveness and quality of nature- and natural events-related risk awareness messaging design for the studied population.

8. Project Summary:

The goal of this study is to explore the impact of language and culture on the perceptions of nature and natural events (NNE) in the Fijian- and English-speaking population within New Zealand. The hypothesis is that due to differences in language and cultural perspectives, current assumed translations and parallels in nature- and natural events-related risk awareness messaging are not in fact interpreted as equivalent or identical to the identified audience.

Language and culture affect communications, both interpersonal and institutional (Hopf et al., 2016; Hopf et al., 2018; Shameem, 2007; White, 2002). Multilingual communities present unique communications challenges and opportunities in the discipline of emergency management, including in regards what the discipline of emergency management refers to as natural hazards (Doyle et al., 2023; Federici, 2022; Gougsa et al., 2023). Language barriers and conflicting or discordant cultural understandings have been found to affect outcomes in communications between Pacific Islands communities and English-dominated social and political structures (Cunningham, 2006; Lane, 1993). Pacific Islands and specifically Fijian Indigenous knowledge contributes significant benefits to emergency management regarding disasters related to NNE (Gaillard, 2007; Kelman et al., 2015; Mercer et al., 2009; Petzold et al., 2023). Perception of nature and the natural world is inherently affected by language, and Pacific Islands and specifically Fijian Indigenous beliefs regarding nature and the natural world affect perception of what the discipline of emergency management terms “natural hazards” (Arno, 2003; Benavides et al., 2024; Fill & Mühlhäusler, 2001; Neef et al., 2018; Rampengan et al., 2014).

The proposed method is in-depth semi-structured interviews, ideally engaging participants for repeated discussion over the course of days to weeks. The interview structure is expected to include: A) an opening talanoa (meaning inclusive, participatory, and transparent dialogue) segment, with generalized discussion of participant perspectives on their experiences with vanua (land, natural environment) and/or draki (weather), their experiences with NNE in New Zealand and/or Fiji, and/or their experiences with the Fijian and English languages; B) topic-focused conversation exploring the participants’ perspectives on both meaning and translation of Fijian and English words for NNE/hazards; and C) closing section to allow exploration of any other topics raised in A) and/or topics and questions raised by participants if not discussed throughout (Vaiotele, 2016).

This interview guide has been designed with the goal to allow natural development of relationships and conversation about topics specific to this inquiry, namely personal beliefs and understandings of the natural world, and personal perspectives on the utility and meaning of words relating to the natural world in both Fijian and English. Simultaneous with interview guide creation will be the process of identifying the optimal community with whom to engage for this data collection. Potential communities include the Fijian/English-speaking diaspora in the Wairarapa, that diaspora in the greater Wellington region, or even communities in Tairāwhiti and/or Auckland. Consideration will be given to rural communities in the New Zealand context, with potential added discussion of rural communities' relationships to nature. Identification of communities must also involve identification of social entrance into those communities, ideally via established local ties and/or community service. Recruitment is planned to be via engagement with local cultural organizations, with snowball accrual from recommendations of participants for discussions. Optimal numbers for accrual are 6-12 participants depending on recruitment and interview quality. Data collection is proposed to be via audio recording and transcription with participant consent.

9. Peer review and engagement:

This thesis proposal has been reviewed and revised in discussion with Emma Hudson-Doyle and Eleanor Ridge, the co-supervisors of this thesis, for consideration of potential ethical issues. It has then been reviewed by Manomita Das, Research Officer at Massey University, for advice and subsequent revision. This proposal has also been reviewed with the Centre for Pacific Languages (CPL) Cultural Competency team, currently including Gesa Luamanu, Josie Bonnington-Mailisi, and Lynn Lolokini Pavihi, with a specific team to be deployed after establishment of the terms of CPL's involvement. The co-supervisors are to be involved throughout the entire timeline of the thesis, including literature review and creation of semi-structured interview guide using previously-defined and utilized Pacific research methodologies, interviews and data collection, data review, and writing and submission. The researcher, Clare French, has read and will be guided throughout by Massey University's Code of Ethical Conduct for Research, Teaching and Evaluations Involving Human Participants (2017) and Code of Responsible Research Conduct (2015). CPL is to be involved in three phases for review at key milestones, with advice from CPL in terms of necessary areas where additional review and support may be indicated. These three phases are: 1) planning around potential participants, reviewing/revising interview guide, 2) reviewing/revising data analysis approach, 3) final discussion of perceived conclusions and how they may align or depart from expectations. Specific deliverables are to include identifying appropriate methods of engaging with potential participants, reviewing the

interview guide prior to deployment, reviewing the data analysis plan (not reviewing the data, but the plan of how to analyze them), and final talanoa sessions regarding the apparent conclusions reached from the data analysis and how they fit with or diverge from expectations.

10. Ethical issues:

Ethical issues considered include:

Cultural safety: Pre-establishment of the purpose of the interviews and consent will be necessary prior to any segment of the interview process. The interview guide is to be reviewed with CPL and ethics advice prior to deployment. The researcher's personal experience with Fiji, the local Fijian diaspora, and Fijian may play a small role, but understanding of necessary cultural sensitivity and best approaches to create a balanced, inclusive dialogue with participants will be taken from cultural advisors.

Consent: All participants will undergo the informed consent process, with standard written consent forms per the Massey Code of Ethical Conduct for Research and Code of Responsible Research Conduct, as reviewed and advised for cultural safety by the cultural advisors, specifically ensuring that any informational materials and consent form use appropriate, culturally competent language.

Psychological, spiritual, and emotional safety: in order to minimize the risk of psychological, spiritual, or emotional harm either to participants or to the researcher, discussion of NNE will be intentionally general, without review of specific natural disaster events or personal disaster experiences. Interview questions will be tailored to explore participants' thoughts and feelings about NNE, with opportunity for participants to guide the discussion to focus on specific aspects of nature/natural events per their preference. As the interview questionnaire will be in English, reviewed and revised with cultural advisory input, a primary criterion remains that participants will be screened to include those bilingual in Fijian and English. Participants and the researcher may both guide the conversation in choosing which details to discuss. In the event of a difficult or upsetting topic surfacing, the interview will be paused or stopped based on the preference of the participant, and the researcher will connect the participant to local or national support services if desired. The researcher has formal training and experience both in discussing sensitive or distressing news with others, and in personally processing sensitive or distressing news.

Rurality and immigration status of participants and variable experience with research: participants may be citizens, permanent residents, or temporary residents. They may be rural, semi-urban, or urban depending on the population studied. Communication and data must be handled carefully and location may be anonymized to avoid identification of participants within a close-knit community, especially in rural areas with smaller population numbers. Participants must be offered anonymity, though conversely participants shall also be offered to have their contributions acknowledged

in the final work. All participant names will be anonymized, and any potentially identifying information will be removed during data analysis.

Data handling: Data will be securely stored on the researcher's hard drive and on Massey University OneDrive for file sharing. No other cloud program will be used and data privacy will be maintained with anonymized results and limited access to raw data to the researcher and the co-advisors. Optimal data recording and data handling methods are to be reviewed with cultural advisors (planned via the Centre for Pacific Languages Cultural Competency team) prior to deployment. Manual and/or software analysis of themes is to follow data collection. Also necessary will be identification of appropriate recording methods for conversations and culturally appropriate data handling practices regarding retention, classification, and disposal of data. Conversations will be audio recorded with the consent of the participants, and transcribed by the researcher following interview completion.

11. Te Tiriti o Waitangi

While this project is focused on the Fijian diaspora with in Aotearoa New Zealand and therefore speaks to the rights and privileges of Pacific Peoples, the principles the treaty of Waitangi provide valuable guidance. Moreover, participants may whakapapa to more than one culture or place, and participants may be Māori, other Pacific, New Zealand European, or other ethnicity or culture as well as Fijian. Relevant treaty principles that guide this research include those of tino rangatiratanga (self-determination), pātuitanga (partnership), mana taurite (equity), whakamarumarutia (active protection), and kōwhiringa (options). Emergency management in Aotearoa New Zealand is an English-speaking and New Zealand European-dominated field, and the development of a better understanding of the meaning and impact of language on the perception of NNE will hopefully facilitate improvement in equity of messaging and services with in the Fijian- and English-speaking Fijian diaspora and uphold partnership and self-determination. Better understanding of the differences in perspective and language will hopefully influence the approach of the current messaging and services to provide wider, more culturally-appropriate options for the diaspora in place. Data handling will be under advisement from cultural competency professionals to ensure that data are handled, stored, and disposed of in safe and appropriate ways for the participant population.

Appendix F - Participant-provided Vosa vaka-Viti/English Translations

Vosa vaka-Viti | Fijian Language & English

Fijian Language Academy at Viti (NZ) Council e Aotearoa (esw) 20260414

Vosa vaka-Viti	English	Vosa vaka-Viti	English
e dua na, nai	a	ai vau	bandage
Biuta (*sa)	abandon (*ed)	matasawa, sawana, baravi	beach
ketena	abdomen	Luveca, tibika, cokota, lokia	bend
ai tikotiko, a vale	abode	ua, biau	billow
a wai titobu	abyss	manumanu	bird
Voleka kina	about	Yameyame ni buka, caudre	blaze
Sa lakovi rawa, na torovi rawa	accessible	?cula, dra	bleed
Sa tawa nakiti, vakailoa	accident	dra	blood
Kumuna vata, soqona vata	accumulate	velovelo	boat
Dodonu sara	aacurate	yago	body
Sa rarawam sa bibi	Ache	kavoro	broken
Vakayacora, cakava me oti	achieve	waqa, kamam gesa	burn
Wiwi, gaga	acid	kacabote	burst
vakadinadinata	acknowledge	turaga levu, tui ni tikina	chief
wekana	acquaintance	turaga ni mataqali	chieftain
me rawata	acquire	baravi	coast
vakababa	across	butobuto	dark
Vosa kina, vosaka	address (v)	ualuvu, luvuca	deluge
tikotiko	address (n)	titobu	depth
Sa tasere, sa ciri	adrift	veivosaki	dialogue
vakatani	adverse	keli	dig
meca	adversary	rarawa	distress
mo ni kila,	advice	vuniwai	doctor
a tamata bula	adult	Lamata	emerge
a dautataro	advocate	dro bula	escape
Sa rawa, sa ciri	afloat	bukawaqa	fire
Sa rere, domobula	afraid	dakai	firearm
Yakavi, oti na vakasigalevu	afternoon	cagi kaukauwa, cava	gale
kasa	aground	lomalagi	heaven
veivuke	aid	bibi	heavy
cagi	air	ua levu	high water
rere, kidroa	alarm	sala, sala levu	highway
kai tani, alien	alien	ulu ni koro	hill
sa bula	alive	dredre	impossible
mamaca, dravuisiga	arid	yalo dodonu	integrity
me vaka	as	vuku	intelligence
e vanua	ashore	vakarorogo	listen
taroga	ask	bul	To live
sa moce	asleep	rorogo	noise
ceno	asthma	kusakusa (vaka kusakusa)	Rapid (rapidly)
vula i kelikeli	autumn	vakarau tu	ready
draki liliwa batabata	winter	uciwai	river
draki katakata	summer	sala	road
draki ni cagilaba	cyclone season	vadugu	roar
draki ucauca	Rainy weather	ceva	south



Source: Elisapeci Samanunu Waqanivala MRSNZ

(Bequest of Prof R.P. Difou - By One Amongst Them, 1936)

Page 1 | 1



TE KUNENGA | MASSEY
KI PŪREHUROA | UNIVERSITY
UNIVERSITY OF NEW ZEALAND

Exploring the effect and meaning of Fijian and English language terms for nature and natural events

Summary of results

Ni sa bula vinaka, na yacaqu ko Clare French. Au gonevuli ena Univesiti mai Massey. Greetings, my name is Clare French. I am a Master's student at Massey University. Thank you for reading this, and I hope that you find it has some interesting information.

What is this research project about?

The purpose of the project was to look at the effect and meaning of Indigenous Fijian-language (vosa vaka-Viti) and English-language terms for nature and natural events. Nature and natural events means things like the weather, the oceans, and the land, as well as things like storms, landslides, and earthquakes. This project was done with the guidance of my advisors at Massey University as well as Fijian elders, leaders, and community groups in the lower North Island of Aotearoa New Zealand.

Why were we interested in this topic?

The goal of the project was to look for ways to improve the effectiveness and quality of nature and natural events-related messaging for the Fijian community in Aotearoa New Zealand. Most of the messaging about natural and natural events in Aotearoa New Zealand is in English, although the Fijian community often provides its own translated information via radio broadcasts and posts online.

Why is this an important thing to learn about?

The English language and Fijian language are not the same. Fijian words, and the whole Fijian language, is woven in with Fijian culture and Fijian identity. When we talk about things in Fijian, it brings up memories and information that may not come up



when we talk or read in English. When we're communicating about something as significant as nature, it's important that we communicate what we mean to communicate, and also that we use the language that people want to hear and read.

How did we do the research?

This project involved a series of one-on-one interviews and talanoa sessions for collection of information and for analysis of that information. It was important throughout the project to come back to the community and talk to them about what they thought the results might mean, and about what they wanted to get from the project. The community was very welcoming and had a lot of insightful ideas and thoughts about their language and what they would benefit from.

What did we find out?

1. **There is widespread interest in mixed Fijian- and English-language messaging about nature and natural events for the community.** The Fijian community was excited about the idea of Fijian-language messaging. People believe that hearing and reading things in the Fijian language is a good way to gain community engagement. Because the Fijian community has people with all levels of Fijian- and English-language knowledge, people thought that it would be best to have the information in both Fijian and English. The information would be best written in semi-formal Fijian. Overly casual or street language makes it hard to know if it's true or not, and very formal language can be too complicated.
2. **Keeping the Fijian language and culture strong and passing it on is important to the community, and Fijian-language resources are viewed as valuable linguistically and culturally,** as well as for any specific information. People noted that they would like to have Fijian-language messaging that they can read and share to help keep the language strong in the community. Any information should be from a trusted source and must have good-quality translation.
3. **The Fijian community has a lot of knowledge about nature and natural events common in Fiji, like cagilaba/cyclones, and they have traditional ways of learning and teaching through history and storytelling.** Many people in the community have been taught from a young age about how to prepare and how to work together as a community in a disaster. Messaging about nature and natural events should recognize that the Fijian community is quite knowledgeable about some kinds of nature and natural events, especially those common in Fiji.



4. **Many people in the Fijian community are not as familiar with nature and natural events in Aotearoa New Zealand, or with what to expect or do in a disaster here.** There are good opportunities for the community to get more familiar with Aotearoa New Zealand's nature and natural events. People would feel comfortable learning about Aotearoa New Zealand via the same types of history and storytelling that are used to talk about nature and natural events in Fiji.
5. **Work to develop mixed Fijian- and English-language messaging about nature and natural events must be led and guided by the Fijian community.** Approaching it in a culturally Fijian way is important, especially when using the Fijian language. Language and culture are woven together and it is important to look after the language and make sure it's used correctly. Indigenous Fijian ways of doing things and understanding things should be put first when developing and producing information in the Fijian language.

What are we going to do next?

The next step is publication of the research as a Master's thesis, and bringing these results back to the community with what you're reading right now. After that, we will look at publishing the research in journals or other places where it can reach the people whose job it is to create public communications about nature and natural events. The goal is to build relationships between the Fijian community and the people currently helping provide these communications, and then together develop the kind of information the community wants to see.

Can I talk to you more about this?

Yes, I would be happy to hear from you if you have any related thoughts, ideas, stories, or ongoing projects of your own that you would like to share. Please feel free to contact me at clare.french.1@uni.massey.ac.nz, or reach out to Radio Viti Wairarapa or Viti (NZ) Council e Aotearoa on Facebook to get in touch.





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**Vakadikevi na revurevu kei na i balebale ni vei mata
vosa vaka-Viti kei na vosa vaka-Peritania me baleta na
veika bula [nature] kei na veika e dau yaco vakavudua
ka sega ni lokuci [natural events]**

I Soqoni ni Macala ni Vakadidike

Ni sa bula vinaka, na yacaku ko Clare French. Au gonevuli kau caka Masters ena Yunivesiti mai Massey. Vinaka vakalevu na wilika na itukutuku oqo, ka'u vakanuinui ni dou na kunea kina eso na itukutuku e yaga.

Na cava na inaki ni vakadidike oqo?

Na i naki ni vakadidike oqo me dikevi kina na revurevu kei na i balebale ni vei mata-vosa (terms) vaka-Viti kei na vosa vaka-Peritania me baleta na veika bula (nature) kei na veika e dau yaco vakavudua ka sega ni lokuci (natural events). Na i balebale ni veika bula, kei na veika e dau yaco vakavudua ka sega ni lokuci me vaka na draki, na wasawasa, na vanua, vata kei na cagilaba, na sisi ni qele, kei na uneune. Na vakadidike oqo e vakayacori ena nodratou veivuke na noqu dau-ni-vakasala ena Yunivesiti mai Massey, vata kei ira na matua, na liuliu, kei na soqosoqo ena yalayala ki ra ni Vualiku (Lower North Island) e Aotearoa Niu Siladi.

Na cava e vu ni kena gadrevi me dikevi na ulutaga oqo?

Na takete ni vakadidike oqo e gadrevi me kune eso na moimoi me vaka vinakataka na kena yaga kei na tagede-i-cake [quality] ni vei tukutuku vei kau-yaki me baleta na veika bula kei na ka e dau yaco vakavudua ka sega ni lokuci, ka wasei yani na tukutuku ki vei ira na noda lewe ni Komuniti vaka-Viti e Aotearoa Niu Siladi. E levu na i tukutuku me baleta na veika bula kei na veika e dau yaco vakavudua ka sega ni lokuci e



Aotearoa Niu Siladi e [volai] tu ena vosa vaka-Peritania, ia, e dina ni sa dau vakarautaka na komiuniti vaka-Viti na nodra i tukutuku vakadewataki ka kacivaki ena retio se tabaki ena monalivaliva [internet].

Na cava e rui bibi kina na ulutaga oqo?

E duidui na vosa vaka-Peritania kei na vosa vaka-Viti. Na dui mata vosa vaka-Viti, kei na umani ni vosa taucoko vaka-Viti, e vauci vata kei na i tovo, na kila ka, kei na kilai tani se i kacivi vaka-Viti. Ni keda vei talanoataka na ka ena vosa vaka-Viti, e vure cake mai kina eso na vakanananu kei na tukutuku e sega ni dau kune cake mai kevaka e keda vosa se wili vola ena vosa vaka-Peritania. Ni keda vei talanoataka e dua na ka bibi me vaka na veika bula wavoliti keda, e rui bibi me donu na noda veisoli tukutuku, ka bibi talega me vakayagataki na vosa era vinakata na lewenivanua me ra rogoca ka wilika.

E vakayacori vakacava na vakadidike oqo?

Na vakadidike oqo e okati kina na veivakatarogi yadudua kei na vei talanoa me rawa ni kumuni na ka dikevi kina na i tukutuku. E ka bibi ena loma ni tuvatuva oqo me lesu vei ira ki na komiuniti ka vei talanoataki kei ira na nodra dui nanuma me baleta na macala ni vakadidike, na ka e na rawa mai, kei na veika era gadreva me ra rawata mai kina. E laurai ni ra lomasoli vakalevu na lewe ni komiuniti ka levu na nodra vakanananu kei na rai titobu me baleta na nodra vosa kei na veika ena yaga vei ira.

Na cava e kunei ena vakadidike oqo?

1. **E levu era taleitaka me waki vata na vosa vaka-Viti kei na vosa vaka-Peritania ena veisoli i tukutuku me baleta na leqa tubukoso se veika e yaco vakavudua kivei ira na komiuniti.** Era marautaka vakalevu na komiuniti vaka-Viti na vakasama ni veisoli tukutuku ena vosa vaka-Viti. Era vakabauta na lewenivanua ni kena rogoci ka wiliki na veika ena vosa vaka-Viti e sala vinaka duadua me ra sema se kauwai kina na lewe ni komiuniti. Me vaka ni duidui na nodra kila na vosa vaka-Viti kei na vosa vaka-Peritania na lewe ni komiuniti, e levu era nanuma ni vinaka me volai na i tukutuku ena vosa ruarua oqo. Na i tukutuku e dodonu me volai ena vosa vaka-Viti vakarauta se matau (semi-formal). Ke rui vakasivia na kena vakayagataki na vosa ni gaunisala se vaka-varada (vosa rawarawa), ena dredre me vakadinadintaki na i tukutuku ni dina se sega. Na vosa vaka-Viti ruku tu (formal) ke rui vakasivia ena rawa ni dredre sara.
2. **Na kena maroroi na vosa kei na i tovo vaka-Viti me kaukauwa tikoga ka duguci tiko yani e ka bibi sara ki na Komuniti, ka laurai ni ka mareqeti ka yaga vakalevu na vei vola tukutuku e volai e na vosa kei na i tovo vaka-Viti, vaka**



kina na kena kilai na matata ni vei tukutuku. Era vakaraitaka na lewenivanua ni ra vinakata me tiko na i tukutuku ena vosa vaka-Viti e rawa ni ra wilika ka wasea ena i naki me vukea na vaka kaukauwataki ni vosa oqo ena loma ni komiuniti. Na i tukutuku kece e dodonu me lako mai ena dua na i soqosoqo nuitaki ka me tiko i cake sara na tagede ni kena vakadewataki macala ka vakavinaka sara.

3. **E tu na kila-ka uasivi vakalevu sara vei ira na komiuniti vaka-Viti me baleta na veika bula kei na veika e dau yaco vakavudua ka sega ni lokuci kei na veika e dau yaco mai Viti, me vaka na cagilaba, ka tu na nodra i walewale vakavanua ni vuli-ka kei na vei vakatavulici ena tukutuku makawa kei na vei wasei e na i talanoa.** Levu vei ira ena komiuniti era sa vakavulici mai ni ra se gonelailai me baleta na nodra vakarautaki ira kei na nodra cakacaka vata me vaka e dua na i lawalawa ena gauna ni leqa tubukoso. Na i tukutuku me baleta na veika bula kei na veika e yaco vakavudua ka sega ni lokuci e dodonu me ciqomi ka vakadeitaki na nodra kila vinaka tu ko ira na komiuniti vaka-Viti eso na vei ka me baleta na veika bula kei na veika e yaco vakavudua ka sega ni lokuci, vakabibi oqori e dau yaco tu mai Viti.
4. **E levu vei ira na komiuniti vaka-Viti era sega ni kila vinaka na i vakarau ni veika bula kei na veika e yaco vakavudua ka sega ni lokuci e Aotearoa Niu Siladi, se na cava me ra namaka se me ra cakava ena gauna ni leqa tubukoso eke.** E tiko na madigi vinaka me rawa ni ra kila vinaka kina na lewe ni komiuniti na i tuvaki kei Aotearoa Niu Siladi ena veika bula kei na veika e yaco vakavudua ka sega ni lokuci. Era na taleitaka ko ira na lewenivanua me ra vulica na veika baleti Aotearoa Niu Siladi mai na i walewale ni tukutuku makawa kei na vei talanoa vata ga e dau vakayagataki me vei talanoataki kina na veika bula kei na veika e yaco vakavudua ka sega ni lokuci mai Viti.
5. **Na cakacaka me buli kina na veisoli tukutuku makare vaka-Viti waki vata kei na vosa vaka-Peritania e dodonu me liutaki ka dusimaki sara ga mai vei ira na komiuniti vaka-Viti.** E bibi me muria na i vakarau se i tovo vaka-Viti, vakabibi ena kena vakayagataki na vosa. Na vosa kei na i tovo e vauci vata ka rui bibi me qaravi vinaka na vosa me vakadeitaki kina ni vakayataki vakadodonu. Na i walewale ni Matai-ni-Tamata [tabuyani] mai Viti (Indigenous Fijians) kei na kila-ka vakavanua e dodonu me ra vakaliuci taumada ena gauna e bucini-cake kina ka vakarautaki [me tabaki] na i tukutuku ena vosa vaka-Viti.

Na cava ena qai tarava?

Na i kalawa e tarava sa i koya na kena tabaki na vakadidike oqo me i vola ni vuli koro torocake (Master's thesis), kei na kena kau lesu tale ki na komiuniti na macala ni



vakadidike me vaka na veika dou sa wilika tiko oqo. Me oti oya, keitou na qai raica na kena tabaki ki na vei pepa ni vakadidike-torocake (research journals) se na veivanua me rawa ni yacovi ira na tamata e nodra i tavi na vakarautaka raraba na vola tukutuku me baleta na veika bula kei na veika e yaco vakavudua ka sega ni lokuci. Na i naki levu me teivaki na veiwekani vinaka ena komiuniti vaka-Viti kei ira na tamata e ra vukea na kena soli yani na vei tukutuku oqo, ka me qai rawa ni ra cakacaka vata ena kena bucini na vei tukutuku e gadreva me raica na komiuniti.

E rawa ni au veivosaki kei iko vakatitobu me baleta na tikina oqo?

Io, au marau vakalevu me au rogoci iko ke tiko eso tale na nomu vakanananu, vakasama, talanoa, se so na nomu tuvatuva ga ko iko ko gadreva mo wasea mai. Yalovinaka ni veitaratara mai vei au ena meli livaliva [email]:
clare.french.1@uni.massey.ac.nz.

Vosa vaka-Viti translation by Isei Kabuniceva, Elisapeci Samanunu Waqanivala

