

**Te Mana o Te Reo Māori:
Analysing Word Choice in
Assessments Written in Māori**

by
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A Research Paper completed as part of the Ngā Pae o te Māramatanga Raumati Internship Programme 2025-26 and as part of a project titled 'Te Mana o Te Reo Māori: Analysing Word Choice in Assessments Written in Māori'. The internship was supervised Dr Julia Wilson and funded by the Ngā Pae o te Māramatanga 2025-26 Internship Grant.

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Table of Contents

| | |
|--|-----------|
| Executive Summary | 5 |
| He Mihi | 7 |
| Introduction | 8 |
| <i>Kaupapa and Positioning</i> | 8 |
| <i>Institutional and Disciplinary Context</i> | 8 |
| <i>Research focus</i> | 10 |
| Theoretical & Methodological Framework | 10 |
| <i>Building a Research Praxis</i> | 10 |
| <i>Te Tūāpapa: Rangahau Kaupapa Māori</i> | 11 |
| <i>Sociolinguistic Theory</i> | 13 |
| Analytical Approach | 14 |
| <i>Dataset and Scope</i> | 14 |
| <i>Familiarising with the data</i> | 15 |
| <i>Quirkos: Qualitative Analysis Tool</i> | 15 |
| <i>The Coding Process</i> | 16 |
| <i>Producing a Terminology Table</i> | 16 |
| Findings | 17 |
| <i>Direct Usage of English Technical Terms</i> | 17 |
| <i>Use of Parentheses to Clarify Meaning</i> | 18 |
| <i>Semantic Expansion of Simple Māori Terms</i> | 18 |
| <i>Morphological Productivity</i> | 19 |
| <i>Contrastive Framing</i> | 20 |
| <i>System Mapping</i> | 20 |
| <i>Structural Framing</i> | 21 |
| Discussion | 21 |
| <i>Strategic Translanguaging</i> | 21 |
| <i>Centring Taurira Voices</i> | 23 |
| <i>Writers' preparations and reflections</i> | 23 |
| <i>Implications for Language Planning and Corpus Development</i> | 25 |
| Final Comments | 26 |
| <i>Relational Positioning</i> | 26 |
| <i>Reflections</i> | 27 |
| Conclusion | 28 |
| References | 30 |

| | |
|---|----|
| <i>Appendix A</i> | 32 |
| Writer Tuatahi : HUBS Mock Response | 32 |
| <i>Appendix B</i> | 35 |
| Writer Tuarua : HUBS Mock Response | 35 |

Executive Summary

Introduction

This report presents the findings of Te Mana o te Reo Māori: Analysing Word Choice in Assessments Written in Māori, a qualitative sociolinguistic study undertaken as part of the Ngā Pae o te Māramatanga Māori Futures Programme (2025–2026). The project sits within the broader initiative Manaakitia Te Reo: How Do We Support Assessments in Te Reo Māori? at Ōtākou Whakaihu Waka and contributes to ongoing efforts to strengthen institutional support for Māori-medium assessment in tertiary education.

Theological and Methodological Framework

The study analyses two handwritten mock health sciences exam responses produced in te reo Māori under timed conditions. Rather than evaluating correctness or terminological accuracy, the research focuses on patterns of lexical choice, translanguaging, and register negotiation. Grounded in kaupapa Māori methodology and qualitative sociolinguistics, the analysis treats te reo Māori as a living, adaptive language actively engaged in contemporary knowledge production. This research advocates for Tino Rangatiratanga over Māori linguistic analysis and operates in accordance with Te Mana Raraunga principles.

Analytical Approach

Analysis started with a close lexical analysis and transitioned to coding using Quirkos Software. A qualitative analysis approach identifying and tagging lexical items by their function. The multi-layered coding identified patterns of translanguaging, morphological productivity, contrastive framing, and structural organisation.

Findings

Findings demonstrate that both writers strategically mobilised their full bilingual (Māori and English) repertoires to communicate specialised biomedical knowledge. English technical terminology was retained in cases requiring disciplinary precision

(e.g., *osteoclast*, *cancellous*, *calcified*), functioning as a technical anchor within biomedical discourse. Te reo Māori, meanwhile, carried much of the relational, explanatory, and structural work of the responses. Writers employed semantic expansion of familiar Māori terms (e.g., *whakakaha*, *whakamāmā*, *tipu*, *pakeketanga*), contrastive framing, sequential system mapping, and productive morphological strategies describe scientific processes without constructing entirely new lexical items.

The analysis identifies a functional division of linguistic labour: English stabilises technical naming, while Māori structures relationships, causality, and explanation. This pattern reflects translanguaging as an integrated and strategic practice. The writers' own reflections confirm that these lexical choices were intentional and shaped by preparation strategies, disciplinary training, and the structural dominance of English-medium instruction in Health Sciences education.

Discussion & Conclusion

Importantly, the study highlights the cognitive labour required of taura Māori who learn disciplinary content in English and re-mobilise it in Māori for assessment. Writing in te reo Māori is not indicative of lexical deficit; rather, it reflects high-level bilingual negotiation shaped by register expectations. Supporting Māori-medium assessment therefore requires more than permitting submission in Māori. It requires recognition of bilingual cognitive load, acknowledgement of Māori academic registers, and structural adjustments that enable equitable demonstration of knowledge.

In terms of language planning and corpus development, the findings suggest that student writing provides valuable evidence of emerging disciplinary registers in mātai hauora. Rather than pursuing full lexical replacement of English biomedical terminology, future corpus development may benefit from recognising translanguaging as a legitimate and productive indicator of linguistic expansion. Ultimately, this research affirms te reo Māori as an adaptive and intellectually capable medium for specialised academic discourse. It positions taura Māori as active agents shaping the evolving register of te reo Māori.

He Mihi

E ngā mana, e ngā reo, e ngā karangatanga maha e huihui mai nei, tēnā koutou katoa

Me mihi tuatahi ki a rātou kua wheturangitia i taku wā e rangahau ana i te kaupapa nei, ki a rātou mā hoki i waiho mai i te ara nei ma tātou. Haere atu rā koutou i te ara whānui a Tāne, ki te kāhui whetū i te rangi. Moe mai rā koutou i te poho o papatuanuku ki te moengaroa.

E tū ana au i raro i te kahu o aku tūpuna, e tatai atu ana ki ngā tōpito e whā o Te-Ika-a-Māui.

He uri tēnei i nō ngā wai o te Tai Tokerau i raro i te maru o Whangatauatia me Te Rarawa iwi. Ka whai te ara o te Tama-nui-te-rā ki te rāwhiti ki reira tū ai te maunga tipua a Pukehapopo me tana iwi a Te Aitanga a Hauiti. Ka huri atu ki te puku o te ika ki Motutawa me Ngāti Pīkiao, ā, ka tae ki te Tai hauāuru ki te koroua e tū mai rā, a Taranaki maunga me ōna iwi.

Ko Mareikura Hinematiaro Haapu Waiti tēnei e mihi atu nei.

Ki ngā poutokomanawa me ngā kaiwhakahaere o Ngā Pae o te Māramatanga, ka kore e mimiti nga mihi maioha ki a koutou mō te kaha poipoi me te taunaki i te kaupapa nei.

Ki aku hoa mahi. Ki a Julia, koutou ko Tautemaria, ko Te Arikirangi, ko Raukura, ko Rebecca, ko Alana. Nā te mahi ngātahi ka hua mai ēnei kōrero. Tēnā koutou mō te whakawhanaungatanga me te wairua i tōhia ki roto i ā tātou huihuinga.

E ngā mokopuna whānui o te ao Māori, puritia kia ū ki ngā pūkenga me ngā tikanga a ō tātou tūpuna. Maharatia tēnei: ehara te reo i te mea hei whakamātautau, he taonga tuku iho mai rā nō. Kei a koutou te mana hei poipoi, hei whakapakari i tēnei taonga, kia ora ai te reo i roto i ngā whakatupuranga kei te heke mai.

Introduction

Kaupapa and Positioning

This research project was undertaken as part of the Ngā Pae o te Māramatanga Māori Futures Programme - New Horizons Summer Internships 2025/2026. The purpose of the internship is to support emerging Māori researchers in developing practical research skills, especially for those considering postgraduate and doctoral pathways. The Māori futures programme connects tauira with experienced academics across Aotearoa and encourages the co-creation of knowledge that contributes to Māori scholarship. Each internship recipient is matched with a senior academic and takes on a focused ten-week research project.

This report presents the experience and outcomes of the project Te Mana o Te Reo Māori: Analysing Word Choice in Assessments Written In Māori, completed under the supervision of Dr Julia Wilson from the Social Anthropology Programme at Ōtākou Whakaihu Waka. The project is grounded in a commitment to the ongoing revitalisation and maintenance of te reo Māori as a living language. A commitment I share both personally and academically.

I am part of the emerging generation of mokopuna, raised strongly in te ao Māori. The path paved for me by my tūpuna has seen that I am also a proud raukura of kōhanga reo and kura kaupapa Māori. I have been fortunate to have a solid tūrangawaewae in te ao Māori, and because of it, I am a strong advocate for te reo me ōna tikanga. It inspired me to pursue an undergraduate degree in linguistics at the University of Sydney, from which I can now draw on technical analytical skills. As I transition into a Master of Indigenous Studies at Waipapa Taumata Rau in the upcoming academic year, my research aims to contribute to the study of te reo Māori as it continues to develop and mobilise within te ao hurihuri.

Institutional and Disciplinary Context

This research is an interdisciplinary collaboration between linguistics and health sciences. The study sits within a broader research initiative at Ōtākou Whakaihu Waka titled Manaakitia Te Reo: How Do We Support Assessments in Te Reo Māori?. This initiative

focuses on improving staff training and processes related to marking assessments submitted in te reo Māori. The wider project responds to growing recognition that taura Māori in tertiary spaces may choose to express disciplinary knowledge in te reo Māori, and how staff can ensure assessment and marking structures are better designed to accommodate this practice.

As part of this initiative, two taura produced multiple handwritten mock responses in te reo Māori to selected Health Sciences assessment questions. These responses addressed different disciplinary prompts and were used in mock marking hui with academic staff to observe marking interactions and gather feedback. From this larger body of writing, a defined subset of responses produced by the same two taura was selected as the primary dataset for the present study.

The team I had the honour of meeting and consulting was made up of a group of Wāhine toa. Te Mana o Te Reo Māori project, as it is reported in this paper, was built on the mahi of Dr Julia Wilson (Te Arawa), Tautemaria Silva (Waikato/Tainui), Dr Alana Alexander (Ngāpuhi), Dr Rebecca Bird, Te Arikirangi Paekau (Waikato, Ngāti Mahuta, Ngāti Māhanga) and Raukura Ruha-Hiraka (Ngāti Awa, Te Arawa, Tuwharetoa). All to whom I remain grateful for including me in such a meaningful kaupapa.

Why this study matters

This study contributes to ongoing discussions of epistemological justice by foregrounding te reo Māori as a living language actively engaged in contemporary knowledge production. Revitalisation is about preservation, but it is also about looking ahead. As language use expands into new domains, including specialised academic fields, active production becomes part of the revitalisation process itself. The writing of high-level academic work in te reo Māori has been shown to carry both symbolic and structural significance for Indigenous scholarship (Stewart, 2019).

As increasing numbers of taura emerge from kura kaupapa Māori and wharekura and transition into tertiary education, they will bring their own linguistic repertoires. It is important that they can navigate these multilingual environments in ways that are

linguistically and culturally affirming. This study helps identify where institutional and pedagogical support may be required to ensure that Māori students are not constrained in demonstrating disciplinary understanding through their chosen language.

Drawing on student writing samples as data is not new within Māori language planning. Studies such as King et al. (2017) on Tuhinga Mahorahora demonstrate the value of analysing written production in documenting language development and maintenance. In a similar spirit, this project treats tauira writing as evidence of linguistic usage and expansion.

Research focus

This paper examines how two writers mobilised te reo Māori to express health sciences concepts under specific exam conditions. Through close qualitative analysis of lexical choice and multilingual practice, it asks: how do writers draw on Māori and English to communicate disciplinary knowledge, and what do these choices reveal about register negotiation in a specialised academic domain?

Theoretical & Methodological Framework

Building a Research Praxis

Establishing the foundation of this analysis required consulting scholarly texts and a commitment to ethical research principles. As this is my first real experience in linguistic analysis and formal reporting, I wanted to ensure that my skills are demonstrated responsibly. The primary objective of this internship was to cultivate a research habit of mind rather than striving to make major breakthroughs. Central to this is ensuring I have a robust body of literature to ground my theories.

Before approaching the data, I spent significant time ensuring my methodology was responsible and culturally safe. This involved a comprehensive review of Indigenous scholarship, specifically through publications such as the MAI Journal and AlterNative. Indigenous voices and publications were prioritised where possible. I continued my search through Te Tumu Herenga, with student access to publications worldwide. All extracted

literature was managed and stored securely via RefWorks to maintain an organised and traceable intellectual genealogy.

Te Tūāpapa: Rangahau Kaupapa Māori

This study is grounded in kaupapa Māori, which informs both its methodology and its purpose. I acknowledge my elders and the academics who came before me, for normalising these principles in my upbringing within te ao Māori. So much so that I name them here as “methodology”, but live it daily as tikanga. The experiences and findings presented in this paper are heavily grounded in the following four guiding tikanga:

1. He Taonga tuku iho te reo Māori

When engaging with te reo Māori in this project, it is always regarded and treated as a taonga tuku iho. This approach actively upholds the mana of te reo as the project’s focus. Practically, this means moving away from deficit-based narratives that focus on what Māori lack or what te reo cannot do, focusing instead on active corpus building. This principle recognises the linguistic and cultural capacities that te reo embodies and the pathways it bridges for te iwi Māori. Writers are not judged by or measured to lack terminology; the analysis takes to nurturing te reo and noticing, without judgement, how it impacts communication. The reo itself is neither restricted to its current vocabulary, and this paper affirms the capability of te reo Māori to build meaningful terminology that contributes to Māori expression.

2. Whakawhanaungatanga

Central to this project were weekly Zoom hui on Tuesdays, during which I met with Dr Julia Wilson and members of the wider team. These sessions allowed us to come together to discuss thinking, share new insights, and ask questions. Building these connections with the team deeply influenced my analysis and conclusions. This approach consciously steps away from the anonymity bias often found in Western linguistics, where the researcher is expected to be an objective observer. Instead, I lean into relationality, recognising that research is collaborative and reflexivity is essential (Wilson, 2008). My understanding of whakawhanaungatanga instils in me

the belief that relationships should always be prioritised before seeking the wisdom of others.

3. Tino Rangatiratanga

This study embodies Māori sovereignty over the analysis and interpretation of our own language. It is guided by a Māori-led research team and grounded in data interpreted through a Māori lens. It ensures that rangahau Māori remains in Māori hands and serves Māori purposes. Central to this work is the aim to foster positive attitudes towards te reo Māori and actively support its use and revitalisation.

It seeks to improve attitudes towards te reo Māori and encourage its mobilisation. It actively contributes to the discourse of language revitalisation by moving beyond it, extending it to consider its living status and future status. I channelled this throughout the reading stage by making a conscious effort to prioritise Indigenous voices in my bibliography. This is done to leverage indigenous voices in the creation of new knowledge and academic theory. It is a conscious effort to consider what matauranga might influence the findings of this paper.

Equally important is the accessibility of this report. Technical jargon has been minimised wherever possible, replaced with clear and approachable language so that the knowledge presented is understandable and usable by a wide audience. The matauranga conveyed here is meant to be freely accessible, not restricted by academic discipline, language, or social status. Making this knowledge open and easy to read is central to the principles of Tino Rangatiratanga. It matters that people can engage with it, understand it, and use it to support the vitality of te reo Māori.

4. Mana Raraunga

Acknowledging te reo Māori as a taonga necessitates treating it as tapu. This means the handling and storage of our reo, which is the primary dataset here, must be done with extreme care to protect its mana. Our reo carries historical and cultural weight that must be protected from harm, particularly from digital exposure. I had to

be incredibly mindful of this, which has become increasingly difficult given the rapid evolution of technology, especially artificial intelligence.

In line with the principles of Te Mana Raraunga (Royal Society Te Apārangi, 2023). I was very intentional about avoiding the use of any open-access AI in this project. While Google Gemini was sometimes used for formatting, this was done only through my University of Auckland account to ensure the data was under strict privacy policies. All data from Dr Julia Wilson was shared securely via OneDrive to my university account, and I downloaded only the necessary files to my personal laptop so I could work offline as much as possible. Even the qualitative analysis tool I used, Quirkos, was licensed and could operate offline without any embedded cloud-sharing features. This commitment to safety extended to the conclusion of the work, ensuring all physical and digital materials were disposed of in a way that respects and protects the matauranga we hold.

Sociolinguistic Theory

This analysis draws on a qualitative sociolinguistic framework, looking at te reo as it is in social practice as opposed to a systematic organisation of words (Holmes & Wilson, 2022). Throughout this report, I use the term mobilisation to describe how language is used. This is a deliberate choice as it emphasises agency. This positions writers as active language creators who are mobilising their linguistic resources in academic spaces. Within this framework, I focus on three key technical areas:

Word Choice is simply the act of choosing words to use. Lexical items include full words, parts of words or a combination of words. In this project, a lexical choice is defined as any instance where a writer could reasonably have drawn on an alternative strategy to say the same thing. This includes the decision to retain English technical terminology, to extend existing Māori terms, or to construct descriptive phrases in place of specialised labels. The focus is not on correctness, but on what these selections reveal about meaning-making and what patterns can be observed.

Translanguaging process by which bilingual speakers draw on their full linguistic repertoire to make meaning (García & Wei, 2014). Unlike code-switching, which treats languages as separate systems, translanguaging understands bilingual language use as integrated. Writers draw fluidly from all their linguistic resources as a single communicative repertoire. Translanguaging has been conceptualised as a decolonising pedagogical approach that can validate Indigenous epistemologies within dominant education systems (Wang, 2022). In this study, translanguaging describes how the writers use Māori and English together to meet the demands of academic writing under constraints.

Register is the way language changes depending on the setting. We speak differently in a lecture theatre than we do on a marae, and differently again with friends. In academic health sciences writing, there are expectations around precision and technical vocabulary. In Māori-medium contexts, there are also expectations around coherence, rhythm, and relational meaning. Register negotiation refers to the adjustments writers make as they balance these expectations. It highlights the active work they are doing to make their writing fit both the disciplinary context and their own linguistic identity.

Analytical Approach

Dataset and Scope

The dataset for this project consists of two mock exam responses handwritten by two individual taura Māori studying in health-related disciplines at Ōtākou Whakaihu Waka. Both writers responded to the same set of four questions. They were given a 30-minute time limit, without access to dictionaries or reference materials. The two sets of data are initially referred to as writer Tuatahi and writer Tuarua respectively, and later by the writers' names once contextual information is introduced into the discussion. The complete handwritten answers are included in Appendix A and Appendix B. These written responses form the primary data from which the findings are drawn. Supplementary material, including written reflections from the writers, was consulted later in the project to deepen the discussion and to ensure that the analysis remained aligned with their own experiences and intentions. These reflections are used to contextualise the linguistic patterns observed, rather than redefine them.

The scope of this study is deliberately limited to keep the analytical findings concise. I do not evaluate terminological accuracy or assign rank to any of the word choices demonstrated in the responses. There is no marking component to this study. Instead, this paper only seeks to examine patterns of lexical choice, translanguaging, and sentence-level organisation within the responses. The unit of analysis is the multilingual choices as they appear in the texts. This project does not make broad claims about the overall development of te reo Māori. The findings are limited to these two mock responses and their specific constraints. Any wider sociolinguistic reflections are made cautiously and remain grounded in this particular context.

Familiarising with the data

My engagement with the dataset began with close familiarisation. I started with a word-by-word reading of each handwritten response. The aim at this stage was twofold: to understand the general flow of the writing and to attend carefully to individual lexical items. Where I encountered unfamiliar terms or specialised expressions, I created a working glossary for myself. This allowed me to learn discipline-specific terms that occurred and develop a basic understanding of each writer's vocabulary.

Quirkos: Qualitative Analysis Tool

For the coding and thematic analysis of the data, [Quirkos Software](#) was employed. Quirkos is Computer Assisted Qualitative Data Analysis Software (CAQDA), chosen for its secure privacy features and alignment with this project's commitment to Mana Raraunga. Quirkos has a paid licence that can operate offline, ensuring sensitive linguistic data remains stored locally. Due to the handwritten nature of the responses, each answer was transcribed verbatim into plain text (.txt) format to ensure compatibility and accuracy during the import process. The text imported to Quirkos did not include the questions, as these were not considered part of the writers' own word choices. Within the software, files were duplicated and organized into discrete datasets, allowing me to merge sources and compare different aspects of the language use across the data.

The Coding Process

The analysis followed a multi-layered coding process that moved from broad categories to specific functions. Lexical items were first coded according to language, Māori or English, using a drag-and-drop interface where codes are represented visually as "Quirks." These interactive bubbles fluctuate in size based on coding density, providing a satisfying visual representation of the data. Following this, each lexical item was tagged according to its function within the sentence, using the "Properties" (metadata) feature in Quirkos. This allowed me to identify the strategic purpose behind a word choice, such as whether it was performing a naming function, explaining a process, reinforcing a contrast, or stabilising relationships between ideas. By layering the analysis in this way, I was able to see which words were used and the overlap in meaning-making across languages.

Producing a Terminology Table

Once coding was complete, I produced a comprehensive terminology table to consolidate and visualise the patterns identified during the close lexical analysis. The table functioned as an analytic tool rather than as a primary source. Its purpose was to map individual lexical items according to their function within context and to group words demonstrating similar strategic patterns.

To construct the table, I used Quirkos' export function to extract all coded segments into Excel, where they were consolidated into a single master spreadsheet. I then manually refined and reorganised the columns to ensure clarity and consistency. The original usage patterns were preserved verbatim in a dedicated column, and row numbering was added to enable precise cross-referencing during analysis.

The table catalogues each identifiable lexical item as it appears in the texts. For each item, it records language classification (English or Māori), functional role, surrounding excerpt, and the writer(s) who used it. Functional categories include English technical terminology, Māori relational framing, contrastive description, process explanation, and structural naming.

Due to its size, the terminology table is not included as an appendix to this report. It serves as supplementary analytical documentation and is securely stored in accordance with Mana Raraunga principles. The table is available from the author upon reasonable request. All references within this report are therefore grounded directly in the original handwritten responses provided in Appendix A and Appendix B.

Findings

This section will outline specific linguistic strategies used to mobilise both Māori and English to express specific health science concepts. It draws on both the raw data and the terminology table to ground each example.

Direct Usage of English Technical Terms

Both writers' responses show clear examples where English biomedical terms are kept as they are, without translation into Māori.

Examples include:

- *cancellous*
- *osteoclast*
- *osteoblast*
- *calcified*
- *osteons*
- *Volkman's systems*
- *osteocytes*
- *canaliculi*
- *chondrocytes*
- *Volkman canal*

There is no attempt to translate or reword these into Māori. Instead, the English terms are retained in their original form.

Use of Parentheses to Clarify Meaning

Both writers use parentheses to clarify meaning. This helps readers understand the scientific concept while still using Māori as the main language.

Writer Tuatahi presents the Māori word first, followed by the English equivalent in brackets:

- *whakaititanga (contraction)*
- *whakatewaho (width)*
- *whakawehe (mitosis)*
- *pūtautau (tissue)*
- *hiko (shock)*

Writer Tuarua uses the same strategy:

- *kirihai (cartilage)*
- *io (cells)*

This approach helps bridge both languages and supports understanding without fully shifting into English.

Semantic Expansion of Simple Māori Terms

Both writers use familiar Māori words and extend their meaning to describe scientific processes. Instead of creating entirely new words, they adapt existing ones to fit a health science context. Examples include:

- *whakakaha (to strengthen)* used to describe cellular activity during bone development.
- *whakamāmā (to make easier)* used to explain movement between structures:
 - *ka noho ki waenga kia whakamāmā ake ngā nekehanga*
- *tipu (to grow)* used to refer to cellular growth.
 - *E 3 ngā io matua e tipu ake ai i ngā koiw.*

- *pana* (to push) used to describe mechanical changes within the body:
 - *ka pana i ngā ends o te wheua*
- *tautoko* (to support) used to describe biological function:
 - *he tautoko i ngā nekehanga*

In addition, terms associated with communication are extended into physiological contexts; *whakawhiti kōrero* and *whakawhiti pānui*, typically referring to the exchange or transmission of information, are used to describe communication between parts of the body.

The term *pakeketanga*, commonly associated with maturity or adulthood, is used by writer Tuarua to describe stages of bone development, further illustrating how existing life-stage vocabulary is mapped onto biological growth processes.

Morphological Productivity

A clear pattern across the texts is the repeated use of the causative prefix *whaka-*. This prefix is consistently used to convert nouns and adjectives into verbs that express action, transformation, or process, which are central to scientific explanation. This is seen in the following lexical items:

- *whakakaha*
- *whakamāmā*
- *whakawehe*
- *whakawhānui*
- *whakatewaho*

In each instance, *whaka-* shifts a descriptive or stative base (e.g., *kaha*, *māmā*, *wehe*) into a verb form that expresses action. This pattern allows writers to describe biological mechanisms, such as strengthening, separating, or widening without introducing entirely new lexical items.

A similar strategy used with the nominalising suffix *-tanga*, which converts verbs or adjectives into abstract nouns. In this context it explain scientific states, qualities, or processes. Examples include:

- *whakaititanga (contraction)*
- *taumahatanga*
- *mārōtanga*
- *pakeketanga*

In these cases, *-tanga* transforms a descriptive base into conceptual terms. Rather than describing something that becomes small, for example, *whakaititanga* frames contraction as a named process. Similarly, *pakeketanga* shifts from the quality of being mature (*pakeke*) to the abstract state of maturity or developmental stage.

Contrastive Framing

Writer Tuatahi expresses functional differences in accessible descriptive contrast words.

Examples include:

- *koiwi kaha vs koiwi māmā*
- *he tino pātata vs he rūma ki waenga*
- *he orite te takotoranga o ngā cells. vs he rereke te noho o ngā momo cells.*
- *Ko te cartilage he ngāwari ake i te wheua*

These contrastive constructions allow complex anatomical distinctions to be expressed through relational and comparative framing that readers are likely to be familiar with already.

System Mapping

Writer Tuarua demonstrates clear process mapping through sequential structuring and listing. Scientific information is organised in a step-by-step progression, creating a structured narrative of development and function. For example:

- *Ka tīmata ai i te pito o ngā kōiwi i te tīmatanga ka timata ai hei kirihai (cartilage), ā ka puta i te kōopu ka timata ai ki te whakamaaro.*
- *e toru ngā io mātua koia nga osteoclast, osteoblasts, me ngā osteocytes*

In the first example, the explanation follows a chronological sequence, mapping biological development over time. In the second, classification is made explicit through listing. This approach organises complex information into defined stages and categories.

Structural Framing

Both writers frequently demonstrate repeated explanatory frames to maintain clarity and cohesion, this is done distinctively by each writer.

Writer Tuatahi:

- *Ko te mahi o tēnei momo...*
- *Ko ngā cells o te wheua...*

These structures are used twice by Writer Tuatahi.

Writer Tuarua:

- *Ka noho ngā koiwi kaha i ngā wāhanga...*
- *Ka noho puta noa i te tinana...*
- *Ka noho ngā io i roto...*
- *Ka noho ngā osteocytes i ngā...*

These recurring sentence structures function as the foundation for scientific explanation. By signalling definition, function, or description at the beginning of a sentence, they guide the reader through complex material in a predictable and accessible way. The structured framing reduces ambiguity and supports comprehension without relying solely on technical terminology.

Discussion

Strategic Translanguaging

The analysis demonstrates that translanguaging functions as a strategic, patterned practice in these responses. English lexical items appear primarily where terminological

precision is critical for demonstrating disciplinary knowledge. In these instances, English operates as a technical anchor: it stabilises the scientific referent and signals alignment with biomedical discourse. Te reo Māori, in contrast, carries much of the relational and explanatory work that frames the sentences. Te reo acts in structuring causality, comparison, and process. This distribution suggests a functional division of labour between the two languages. English stabilises disciplinary naming for accuracy, while Māori organises relationships between concepts. This pattern demonstrates the adaptive use of linguistic resources under constraint.

Two contrasting mobilisation strategies were identified in the dataset:

In Writer Tuarua's responses, the discourse accepts lexical weight in order to demonstrate disciplinary knowledge. Māori relational verbs remain present but are subordinated to system naming. Fewer English technical terms are deployed in an attempt to use as many Māori terms as possible. This included the use of parentheses to indicate moments where meaning needed to be more direct.

In contrast, Writer Tuatahi stabilises meaning through repetition and contrastive description. English terms are inserted purposely for accuracy. Cohesion is achieved through an accessible comparative framing.

Code-switching is common behaviour among bilingual speakers (Barbour et al., 2025). However, translanguaging provides a more accurate lens here. The writers are do simply alternating between two separate language systems. Rather, they are mobilising both languages as an integrated linguistic repertoire to manage coherence and time constraints. English lexical items appear primarily where terminological precision is necessary for semantic reasoning, while Māori structures the explanatory framework. Indigenous translanguaging practices have similarly been documented in other settler-colonial contexts, where bilingual speakers mobilise linguistic resources strategically within institutional constraints (Hannagan et al., 2025).

Centring Tauria Voices

A key strength of this project was the ability to interpret the scripts alongside the writers' own reflections. Kaupapa Māori methodology asks that their voices remain central to the analysis. The writer's accounts did not replace textual analysis but rather strengthened the patterns already identified.

When I presented the two mobilisation logics during our Tuesday hui, it was revealed that Writer Tuatahi was Te Arikirangi, my fellow summer intern. The team, including Te Arikirangi herself, immediately recognised the alignment between the linguistic patterns I'd described from the script and her natural spoken communication style. This affirmed that the textual strategies identified were consistent with her broader communicative identity. The mobilisation patterns showed, in part, an extension of her established discourse habits.

Similarly, understanding that Writer Tuarua was Raukura, a Medical student, helped contextualise the higher terminological density in her script. Medical training is generally concept-heavy and lexically compressed. The syntactic weight in her responses aligns with her disciplinary learning. The differences identified in the analysis, therefore, reflect the distinct cognitive and disciplinary positioning of both writers.

Writers' preparations and reflections

While the linguistic patterns were first identified through close textual analysis, they were later tested and enriched with reflective material gathered from the project. Following the mock assessment, the project team conducted interviews with the writers that captured their reflections on their strategies. To ensure the writers' perspectives remained primary, I then contacted each writer directly by email to invite any further reflections for this specific report. My request was purposefully open-ended and grounded in the aims of this report; I asked:

Reflecting on your experience as a tauria Māori in the Health/Medical space at university. For my report, I want to clearly convey the importance of supporting tauria Māori in submitting assignments and exams to their best ability, particularly in ways

that account for bilingualism and most importantly, the recognition of Māori registers. I'd really value your whakaaro on this. You can share as little or as much as you'd like: What do you think would best support students like you, especially those who have come from kura Māori into a space that is heavily influenced by Western medicine, including the dominance of English medical terminology?

Both writers emailed back with practical reflections about revision practices and their resource use. Supplementary documentation relating to this stage of the project is securely stored in accordance with Mana Raraunga principles and is available from the author upon request.

Te Arikirangi described deliberately using Paekupu to prepare Māori terminology she anticipated would appear in the assessment. While Raukura, similarly, spoke of consulting whānau and Te Aka dictionary when seeking Māori equivalents or contextual understanding. These direct accounts confirmed that many of the lexical choices observed in the scripts were the product of intentional preparation rather than improvised substitutions. The writers' revision strategies concur that the lexical patterns identified in the dataset were shaped by intentional resource mobilisation and are not accurately reflective of lexical gaps or language proficiency.

The writers' reflections also clarified the cognitive dimensions of translanguaging. Both writers described the dominance of English-medium instruction as creating additional labour when writing in Māori. Learning disciplinary content in English and then re-mobilising it in Māori can feel essentially like "double the work."

Raukura described a natural inclination toward metaphorical and layered expression in Māori, noting that te reo readily accommodates depth and multiple levels of meaning. However, in academic contexts, she felt uncertain whether markers would interpret metaphors as she intended. She would often question whether her writing was being understood for its meaning or judged primarily by its structural conformity. The pressure to adopt a more rigid academic style, she suggested, risks discouraging expressive Māori registers and may influence assessment outcomes. This concern speaks directly to the study's broader focus on register negotiation and institutional expectations.

Raukura additionally noted that while the assessment criteria allowed the use of English terminology, inserting these terms disrupted the natural flow of her Māori writing. It felt, in her words, like “switching between two different worlds,” attempting to preserve the integrity of te reo while simultaneously meeting academic expectations. This aligns closely with the textual moments of lexical shift identified in the analysis. This showed me that although language can appear structurally efficient on paper, the realities of construction can be cognitively demanding in practice.

Te Arikirangi’s reflections ground these findings within the structural realities of health sciences education. She noted that the dominance of English instruction often discourages students from submitting assessments in Māori. Because foundational knowledge is established in English, transitioning to te reo Māori in later years feels like additional labour on top of an already demanding workload. This creates a double-edged sword: writing in English can feel culturally isolating, yet learning and writing in Māori can lead to academic isolation if peers cannot engage in reciprocal dialogue.

Ultimately, these reflections confirm the study’s central finding: translanguaging in health sciences is a strategic, cognitively demanding response to structural conditions. The linguistic patterns found in student scripts are inseparable from institutional design, disciplinary training, and identity.

Implications for Language Planning and Corpus Development

These findings contribute to discussions of corpus development in mātai hauora. Rather than asking how Māori terminology can fully replace English biomedical vocabulary, a more productive question may be how it can better encompass Aotearoa’s bicultural intellectual landscape. The dataset demonstrates that Māori language and scientific discourse can be co-constitutive in spaces of adaptation.

Translanguaging here has created a space for te reo Māori to operate within scientific discourse, while disciplinary vocabulary continues to develop over time. Until then, this is the perfect time to reflect on attitudes and psychology towards bilingualism and Aotearoa’s bilingual identity. Linguistic influence is a natural occurrence within bilingual communities

and a natural part of sound change over time. This challenges both Māori and Non-Māori to consider the language purism we might retain in our attitudes (Albury & Carter, 2018). As discussed by Rewi (2013) the survival and flourishing of te reo Māori cannot be separated from its place within national identity and public life.

Māori has historically created new technical vocabulary through semantic recombination and compounding, as seen in terms such as hangarite, a combination of hanga and rite. (Trinick & May, 2013). The health sciences disciplines may similarly benefit from structured corpus development in mātai hauora. Any creation of new terminology should be guided by Māori linguistic experts to ensure that the mana, history, and cultural integrity of te reo Māori are respected. This helps to avoid colonial influence and agency over the language. This underscores the importance for linguists, policymakers, and others with influence over language to recognise how taurira are already mobilising te reo in practice.

Final Comments

Relational Positioning

My positionality is inseparable from this kaupapa. As someone who transitioned from kura kaupapa Māori into English-medium education, I know what it feels like to move between linguistic and epistemological worlds. I have lived that negotiation myself, and my own multilingual abilities shape the way I communicate every day. This inevitably influenced how I approached the texts, particularly the sensitivity I brought to analysing moments of translanguaging and register negotiation. It also shaped the rapport I was able to build with both writers when seeking their reflections on their experiences. In many ways, I see myself in both of these wāhine.

I initially came to know Te Arikirangi simply as a fellow summer student. That was how she was first introduced to me. I was told by my supervisor shortly thereafter that she was one of the two writers. It was only later, after completing my initial analysis, that I discovered she was Writer Tuatahi. Making this connection deepened and enriched my discussion. Having regular contact with Te Arikirangi throughout the summer via Zoom and observing how she communicated her whakaaro across different audiences may have given

me additional insight into how she organises and expresses her thinking. This likely shaped my interpretations. While I believe that familiarity strengthened my sociolinguistic reading, I also recognise it as part of my relational positioning within this project.

Our regular whakawhanaungatanga during Tuesday Zui sessions also heightened my awareness of my own use of linguistic and academic terminology. When reporting back on my findings, I was sometimes met with blank faces in response to my more complex disciplinary language. In an interdisciplinary space, this was an important reminder that analysis can quickly become inaccessible through excessive jargon. Learning to adjust my own language and practise conscious register negotiation became an integral part of my personal development. I have tried to apply that same awareness in the writing of this paper, with the hope that it remains accessible to readers. This is in essence of Tino Rangatiratanga that grounds this project.

Reflections

The timeframe for this project was brief. The work presented here was completed within a ten-week period over the raumati months. Although the programme was well structured and strongly supported, I quickly learned that research does not occur in isolation from everyday life. As Ella Pēpi Tarawa-Dewes reminded us during the programme, “life doesn’t pause for research.” That truth became very real over the course of the internship. Personal challenges during this period required resilience and adjustment. While these experiences shaped me in meaningful ways, they also meant that my time and energy were often divided. Maintaining accountability for my output required discipline and self-reflection. I did not always manage that balance easily, but the struggle itself has become part of my growth as an emerging researcher. I often wonder how much more I might have developed this report had the timeframe been longer.

I also reflect on how the experience may have differed had I been able to meet the wider team *kanohi ki te kanohi*. Physical presence shifts energy; it deepens connection in ways that are difficult to replicate online. While Zoom hui allowed for effective collaboration, I sense that in-person engagement may have brought a different level of relational depth. At times, the research did not feel as embodied as Kaupapa Māori Research

as Smith (2021) describes it. I think about how the findings may have evolved if I had been able to meet these people ā-tinana.

My takiwātanga means my focus is constantly being shifted. There were many moments where I'd have to redirect my thinking. This was done with gentle encouragement from my supervisor, Julia, too. Julia supported my progress and, more importantly, gave me the space to develop my thinking independently. This resulted in many smaller analytical pathways I would have liked to explore further. The handwritten nature of the scripts raised questions about readability, time pressure, and the influence of exam conditions on written expression. Handwriting itself may shape how meaning is interpreted in linguistic analysis. While this fell outside the scope of the current project, it remains an area of curiosity for future research. This experience has broadened my sense of where linguistic inquiry can travel.

Overall, this experience challenged and stretched me in ways I never knew possible. I learned a great deal about myself and what I can bring to the research space. It sparked a deeper sense of reflectivity and deep thinking. I was not the perfect summer intern, but I will always be grateful to this programme and everyone involved for nurturing my foundational skills in rangahau.

Conclusion

This research has demonstrated te reo Māori as an adaptive tool actively mobilised to navigate the complexities of contemporary health sciences. Through the qualitative analysis of the mock responses, it is clear that the writers utilised a functional division of linguistic labour, in which English served as a technical anchor for biomedical precision, while Māori provided the necessary relational and explanatory framework. Strategies such as semantic expansion and the productive use of the causative prefix whaka- show that taurira are not facing lexical gaps, and are instead intentionally adapting their linguistic repertoire to meet disciplinary demands.

However, the reflections from Te Arikirangi and Raukura reveal that this linguistic mobilisation comes at a high cognitive cost. Acknowledging the additional labour required to translate foundational knowledge from English-medium instruction into Māori-medium

expression. This burden is exacerbated by the pressure to conform to rigid Western academic registers, which Raukura noted can risk silencing the more expressive or metaphorical modes of communication that are inherent to the reo. For the tertiary environment to achieve true epistemological justice, institutions must move beyond incorporating te reo Māori in isolation. Institutions must seek to understand the high-level academic register inseparable from a student's identity and belonging.

Looking ahead, several measures can be taken to support tauira. This can be as simple as providing flexible assessment timeframes and normalising Māori-medium submissions across all departments. By recognising and valuing the ways tauira are already successfully navigating bilingual academic spaces, linguists and educators can foster a truly bicultural intellectual environment. This research ultimately affirms te reo Māori's capacity to connect traditional knowledge with contemporary science and highlights Māori students' active role in shaping the language and culture of their disciplines.

For readers seeking a deeper understanding of the broader kaupapa within which this project sits, Wilson et al. (2024) provides foundational context for the Manaakitia Te Reo initiative. That publication serves as the intellectual whakapapa for the present study and situates this work within a wider citational framing. Ultimately, it grounds this study in the citational whakawhanaungatanga that is foundational to Kaupapa Māori Research.

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Appendix A

Writer Tuatahi : HUBS Mock Response

Handwritten scribble

Mini-Essay 1 (7 marks)

- a. Describe the key structural and functional differences between compact and cancellous bone. (3 marks)

~~Ko te wheua compact he paku~~
Ko ngā cells o ~~te~~ wheua compact ~~he~~ he tino pātata, ā, he orite ~~he~~ te takotoranga o ngā cells. Ko te mahi o tēnei momo wheua he taunaki i te whakaititanga (contraction) o ngā ua e hono ana, ā, he guide mo te shock ka pāngia ki te wheua / wāhanga o te tinana.
Ko ngā cells o te wheua cancellous he rūma ki waenga, ā, kōore i te tino pātata, ~~ko te~~ he rereke te hoko o ngā momo cells. Ko te mahi o tēnei momo wheua he absorb ite hiko (shock) ka haria e ngā wheua compact.

- b. Briefly describe the process of endochondral ossification. (2 marks)

Ko te ossification te whakakaha i ngā cells oroto i ngā wheua, ā, ka harden i ngā cells kia pai ai te hahi o ngā wheua i te taumaha o te ngā ~~ua~~, o te tinana aro heki.

- c. Outline briefly how bones grow in both length and width. (2 marks)

Ko ngā ~~osteoblast~~ osteoblast ngā cells ka hanga i te wheua. Ka tipu ngā osteoblasts mā te whakawehē (mi kōi)
i te wā ka tipu whakatewaho (width) ka wehe ngā osteoblast, ā, ko te wheua o roto ka whakamata mā ngā osteoclast kia kōua e tino taumaha te waenga o te wheua. Ko te tipu tāroa o te wheua ka
* Rest on the back

— = don't know spelling

*Rest of part c

Ka tipu tāroa ngā wheua mā te tipu mai te waenganui o te wheua, \neq ā, ka pana i ngā ends o te wheua kia tāroa ake. Ko ngā osteoblast ngā cells e tautoko/mahi ana i te wehewehe kia tipu ai te wheua.

Mini-Essay 2 (7 marks)

Compare the structure and function of bone and cartilage. Include in your answer reference to both the microstructure and macroscopic characteristics of these tissues, as well as considering how each tissue's structure contributes to the role it has in the body. (7 marks)

Ko te hanga o te wheua he kaha, he ~~hanga~~ calcified
ngā cells ano hoki. Ko ngā wāhanga compact o te
wheua he kaha, he maha ngā cells e noho pātata, e
noho tōtika ano hoki. Ko te mahi o te wheua
he tuara mo ngā nekehanga o ngā ua o te tinana.

Ko te cartilage he ngāwari ake i te wheua, ā,
~~kāore~~ kāore ngā cells kua calcified. Ko te
mahī o tēnei momo pūtautau (tissue) he ~~not~~ honohono,
he taunaki i ngā wheua me ētahi atu ~~te~~ wāhanga
o te tinana. I te nuinga o te wā ka kitea te
cartilage e taunaki ana i ngā wheua i te mea
he ngāwari te cartilage, ā, he tino uaua te ngā
wheua, no reira ka ~~no~~ noho hei kaitautoko i ngā
wheua e piri ana pēnei i ~~te~~ te pona turi.
He pātata te noho o ngā cells o te cartilage ano hoki.

Appendix B

Writer Tuarua : HUBS Mock Response

Mini-Essay 1 (7 marks)

- a. Describe the key structural and functional differences between compact and cancellous bone. (3 marks)

Ka noho ngā kōiwi kaha i ngā wāhanga he maha ngā taumahatanga o te tinana pēra ki ngā turi, ā, he maha ake te collagen i ēnei momo kōiwi. Kei a tātau ngā osteons / volkmans systems kia taea te whakawhiti pānui ngā io. Ngā kōiwi māmā ka noho i ngā wāhanga maha ake ngā nekehanga ka noho i ngā pito o ngā kōiwi, hei whakamōna ake te taumahatanga kia kore hoki ai e whati pēra ki ngā kōiwi mārā e tauloko ai i te tinana. Karekau he osteons i ēnei wāhanga, kua wāwāhi ngā kōiwi kia taea ai te kaha ki te puta taurea ai i te tinana. He maha ake ngā elastin

- b. Briefly describe the process of endochondral ossification. (2 marks)

Kā timata ai i te ^{pito} o ngā kōiwi i te timatanga ka timata ai hei kirihai, ā ka puta i te kōopu ka timata ai ki te whakamaaro. Katahi ka neke ēnei io (cells) ki te mutunga o te kōiwi, ka noho māmā kia āhei te tipu.

- c. Outline briefly how bones grow in both length and width. (2 marks)

E 3 ngā io matua e lipu ake ai i ngā kōiwi. Ka whakatakoto ngā osteoclast i ngā kōiwi hei whakawhānui i te kōiwi i waho, ā, mā ngā osteoblast e whakaha / wetewete i te kōiwi ina kaha ai te mahi a ngā osteoclasts. Mā ngā osteocytes e whakahaere i wā tātau nekehanga. ~~Ke pakeketanga~~ ka lipu hoki ai mā runga ^{mā} osteoclasts ēngari ka noho ngāwari kia taea ki te tipu, ka hono i tāna pakeketanga.

Mini-Essay 2 (7 marks)

Compare the structure and function of bone and cartilage. Include in your answer reference to both the microstructure and macroscopic characteristics of these tissues, as well as considering how each tissue's structure contributes to the role it has in the body. (7 marks)

Ko te mahi a ngā kōiwi he tautoko i te taumohatanga o te tinana. Ka noho puta noa i te tinana hei tautoko i ngā nekehanga whānau ā ngā uaua. Ka noho ngā io i roto i tētahi osteon, e ^{toru} nā ngā io mātua koia ngā osteoclast, osteoblasts, me ngā osteocytes. Mānā he porowhita te ahua o enei osteons ka whiwhi toto mai te wai kōiwi. Ka noho ngā osteocytes i ngā lacunae e whakawhiti kōrero mai ngā canaliculi ki te hanga, te wetewete rānei i te kōiwi. Kei ngā kōiwi he Volkmann canal hoki kia whakawhiti pānui ngā osteons.

Ki ngā kirihai (cartilage) karekau he whiwhinga toto. Ka riro mai te taumohatanga o te tinana e pana ana i ngā hua kai i ngā kirihai e noho ana i waenga i ngā kōiwi. He kōpū wai tā te kirihai e ohei ana i ngā nekehanga maha i ngā hononga, kāre e titea i te kōiwi. He maha ngā chondrocytes e nanga ana i ngā kirihai o te kirihai hei whakakaha ake i tā rātau mahi. Ko tētahi mahi ānō a te kirihai kia kore ai ngā kōiwi e wetewete ai ia rātau ano nō tā rātau maarotanga, ka noho ki waenga kia whakamāmā ake ngā nekehanga kua hangai o te kivi ngohengohē.