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*First and second language speakers in the revitalisation of te reo
Māori: A statistical analysis from Te Kupenga 2018*

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First and second language speakers in the revitalisation of te reo Māori: A statistical analysis from Te Kupenga 2018

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Abstract

Te Kupenga 2018 was a representative survey of Māori adults in Aotearoa (New Zealand), with a focus on culture and wellbeing, as well as language. In this paper, new estimates from Te Kupenga are reported, including the numbers of first and second language speakers of te reo Māori (the Māori language). Large proportions of both first and second language speakers reported learning te reo Māori from family and community interactions, as well as through Māori-medium education. Comparisons of three generations of adult Māori provide evidence of a resurgence in te reo Māori, with the youngest generation accounting for a majority of first language speakers and almost half of more proficient speakers. Differences between first and second language speakers in terms of proficiency, language learning and usage are significant, and need to be taken into account in the study of the revitalisation of Māori and of other languages.

Keywords

Māori language, language revitalisation, Te Kupenga, language statistics, first language, birth cohort

1 Introduction²

1.1 Assessing progress in Māori language revitalisation

A tenet of language revitalisation theory is the key importance of restoring transmission of a threatened language from one generation to the next, so that the next generation are first language speakers. Intergenerational language transmission is one aspect of the crucial Stage 6 on Fishman's (1991: 92) Graded Intergenerational Dislocation Scale: "The attainment of intergenerational informal oracy and its demographic concentration and institutional reinforcement".

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² I am grateful to Stats NZ Tatauranga Aotearoa for the provision of customised data. This paper has benefited greatly from the comments and suggestions of two anonymous reviewers and of the editors.

The New Zealand Council for Educational Research (NZCER) carried out a survey of Māori people in Te Ika-a-Maui, the North Island, in the 1970s. The Survey of Language Use in Māori Households and Communities 1973–1978 (Benton 1991: 234) focused on specific local communities rather than attempting to select a nationally representative sample of Māori. Of the 6,915 adults who were interviewed, 44% indicated that they were first language speakers of te reo Māori (the Māori language) who were still fluent speakers as adults (Benton 1997:15, 23). In contrast, Benton (1997: 24) concluded that, “the proportion of households with proficient and semi-proficient Māori speakers as the youngest member of the new generation came to less than eight percent”.

Benton (1997: 15–23) analysed interviewees’ data by first language and year of birth to estimate, for each locality or iwi studied, the year in which more Māori were born who went on to become first language speakers of English rather than of te reo Māori. This transition took place before 1910 for some localities and iwi³, between 1910 and 1940 for most, and after 1940 only for a small number of isolated rural communities. Language shift was accelerated by the rapid migration of Māori from rural areas, where 76% of Māori lived in 1956, to English-dominant urban areas, where 78% of Māori lived in 1976 (King 2018: 593).

The findings of the NZCER survey were one of the catalysts for the development of language revitalisation efforts in the later 1970s and the 1980s, including Māori-immersion pre-school and schooling. These revitalisation efforts have been well documented (Benton 1991; Benton & Benton 2001; King 2001; 2006; 2014; 2018; Spolsky 2003; 2005).

In her review of literature to 2015 on perceptions of the health of the Māori language for Te Puni Kōkiri (Ministry of Māori Development), Hardman (2018: 30) claims:

Fishman’s (1991) advice is to focus on intergenerational transmission in the home. For Māori, this refers to the “use of te reo Māori at a whānau level ... by the Māori speaking population in the home and in the community” [Te Puni Kōkiri 2006b]. Ideally, this would mean children who are living at home have opportunities to communicate in te reo Māori with their mātua and kaumātua on a regular basis. The reality seems to be that these opportunities are not occurring.

This claim appears to be based on a lack of published reports (up to 2015) of intergenerational language transmission occurring in the home, rather than any literature confirming an absence of such intergenerational language transmission. Hardman’s (2018) claim was contradicted by the results of the research project *Te Ahu o te Reo*, which was designed as a follow-up to the 1970s NZCER survey (Hutchings et al. 2017). *Te Ahu o te Reo* found intergenerational language transmission happening in some whānau in all nine communities across Aotearoa that were studied, and reported that there were significant numbers of first language speakers in those communities, including 27% of those interviewed for the study (Hutchings et al. 2017: 45). Because this project sought interviewees who were Māori speakers or learners, this percentage is not necessarily representative of all Māori in those communities.

Prior to Hutchings et al.’s (2017) study, accounts of the revitalisation of te reo Māori in the academic literature focused largely on the role of Māori-medium education, while the roles of intergenerational transmission at home and in whānau and community contexts were underrated (or had less attention paid to them) until brought to the fore in *Te Ahu o te Reo*.

Given that there are first language speakers in the communities studied, this raises a number of further questions. How many are there at a national level? Are their numbers

³ Māori terms in this paper are ones commonly used in New Zealand English publications and hence are not italicised – a glossary is provided in the Appendix.

declining or increasing? How big a role do they play in the revitalisation of te reo Māori and how does that compare with the role of second language speakers?

It is not possible to answer these questions on the basis of the national censuses, which are the most widely used source of statistical data on te reo Māori. The censuses have included a language question since 1996; however, the census question asks about the language or languages in which one can have a conversation, rather than about one's first language or languages. Stats NZ Tatauranga Aotearoa (Stats NZ) has, however, released results from a number of recent non-census surveys that indicate positive changes in numbers of first language speakers and in Māori adults' speaking proficiency (Stats NZ 2020b; 2022). These results are discussed further below – see §4.3.

This paper concentrates on results from Stats NZ's Māori social survey Te Kupenga 2018. Apart from one brief information release by Stats NZ (2020b), the extensive data on te reo Māori in Te Kupenga 2018 appears not to have been analysed and reported. The key analytic questions addressed are: how many adult Māori first and second language speakers of te reo Māori are there, and how does speaking proficiency in te reo Māori, the use of te reo Māori at home and the learning of te reo Māori vary between first and second language speakers, and by year of birth?

1.2 Policy context

The first Māori Language Act was passed into law in New Zealand in 1987. The Act was seen as being driven by government rather than community, and as focusing on government rather than community decisions and actions. The Act was replaced by Te Ture mō Te Reo Māori (Māori Language Act) 2016, which emphasised a model of partnership between the Crown and iwi Māori, following recommendations of the Māori Language Advisory Group (Te Rōpū Tohutohu Reo Māori 2015: 7):

The Māori Language Advisory Group recommends an approach based on an enduring partnership between the Crown and Māori to prioritise the Māori language as a living language spoken in the home and within communities. The approach highlights the integral need to empower and support language development at the community level, whilst confirming multi-level strategic language development and implementation both for Māori and the Crown through a partnership arrangement.

The purposes of Te Ture mō Te Reo Māori 2016 include:

- (a) to affirm the status of the Māori language as—
 - (i) the indigenous language of New Zealand
 - ...
- (b) to provide means to support and revitalise the Māori language.
(Section 3 (2), English version).

Te Ture mō Te Reo Māori 2016 constituted two bodies to oversee the revitalisation of the Māori language: the Crown's (i.e. government's) Te Taura Whiri i te Reo Māori (Māori Language Commission), and the non-government organisation Te Mātāwai, representing iwi, hapū and whānau Māori. Section 3(3)(b) of the Act (English version) “provides for Te Mātāwai and the Crown to develop Māori language strategies to support the revitalisation of the Māori language, including by promoting an increase in the number of people speaking the Māori language and improving their fluency in that language”.

A key focus of the Te Ture mō Te Reo Māori 2016, as set out in the principles guiding its interpretation (section 8(2)(f), English version) is thus intergenerational language transmission: “knowledge and use of the Māori language are sustained through transmission of the language from generation to generation among whānau and by daily communication in the community”.

Te Mātāwai has elaborated the concept of intergenerational language transmission in its *Statement of Intent 2021–2024*:

Intergenerational transmission is characterised by the multitude of daily exchanges, spontaneous speech, informal and natural use of Māori language primarily used in the home and whānau spaces. That is why whānau are at the heart of our strategic intent. Intergenerational transmission is a top-down and bottom-up approach flowing from parents to children, grandparents to mokopuna, and mokopuna to grandparents and children to parents. This focal point is necessary to stem the decline and potential loss of the Māori language. Te Mātāwai will prioritise Māori language use within targeted activities and environments that allow or promote intergenerational transmission. We will support language communities to understand their respective needs and commit to approaches that transform knowledge into use within whānau. We intend to see increases in the natural transmission of the Māori language within the whānau space across multiple generations and the realisation from whānau that ‘this is the most significant domain of natural reo Māori acquisition and use’. (Te Mātāwai n.d.-b: 22).

Given the intentions expressed in Te Ture mō Te Reo Māori 2016 and by Te Mātāwai, there needs to be a way to answer questions including: Are the numbers of speakers increasing? Is their fluency improving? Is intergenerational language transmission in whānau happening at all, leading to children learning te reo Māori as a first language? Data from Te Kupenga 2018 provide some answers to these important questions.

In this paper, the methodology of Te Kupenga 2018 is explained, and the data analysis procedure is outlined in Section 2. In Section 3, substantive results of the data analysis are presented. These results are discussed in Section 4, followed by concluding remarks in Section 5.

2 Te Kupenga 2018 survey and analysis methodology

2.1 Te Kupenga 2018

Te Kupenga 2013 was the first national Māori social survey with a focus on culture and wellbeing. It was carried out by Stats NZ following the 2013 census. Te Kupenga 2018 was its successor. Stats NZ surveyed 8,472 Māori aged 15 and over following the 2018 census. Te Kupenga 2018 included a number of questions about proficiency and use of te reo Māori, and so provided a basis for extending knowledge of the process of regeneration of te reo Māori.

The respondents to Te Kupenga 2018 were selected from Māori who had filled out the 2018 census forms. Stats NZ had adopted a “digital first” approach to data collection for this census, which raised concerns among Māori demographers that coverage of Māori would be poor (Kukutai & Cormack 2018). The initial census collection did indeed grossly undercount Māori, with an estimated response rate of 74% (External Data Quality Panel 2019a: 10), and thus did not necessarily represent the total Māori population accurately. Stats NZ found information on most of the missing Māori (though not on their iwi affiliations) from government administrative data and from the 2013 census data set and added them into the

final 2018 census data set. But because the respondents to Te Kupenga 2018 were selected from Māori in the initial census count, there was accordingly concern that the respondents to Te Kupenga 2018 might not be representative of Māori adults as a whole; a detailed investigation by Stats NZ found that there was some under-representation of men and of young adults, which had to be adjusted for in making population estimates from the survey (Stats NZ 2020a).

The groups of people sampled from the adult Māori population in Te Kupenga 2018 were not simple random samples, but were selected by “probability sampling” in stages: small geographical areas were selected, then individuals within those areas who had provided census responses were identified. The important point is that at each stage, the probability of selection (of area, of individual) was known or could be calculated. This provided the basis for working backwards from the group of survey respondents in any category to a range of possible estimates of the corresponding population number, usually expressed as a best estimate and a margin of error. The complexity of multistage sampling in general means that the selection probabilities were different for different individuals interviewed in the survey. For the reverse process of making population estimates, each individual respondent in the survey ended up effectively representing a particular number (the “population weight” for that individual) of people in the population. The population weights included adjustments for people selected for the survey but not interviewed, and for the under-representation of men and of young adults among the survey respondents (Groves et al. 2009; de Vaus 2014).

Statistics on te reo Māori from Te Kupenga 2018 are based on responses to questions in which the respondents report their own first language(s), proficiency, use and learning, i.e. self-report data. Self-report questions may raise issues of inconsistency or lack of accuracy, depending very much on how each question is worded (Lane 2020), but it is difficult to see how statistical data on speakers could be obtained otherwise, and I am not aware of any censuses or surveys that collect language data other than self-report data.

Te Kupenga 2018 included a question on first language, allowing for the possibility of two or more first languages (unlike Te Kupenga 2013): “which language or languages did you first learn in childhood and still understand?” (Stats NZ 2021). This question is a variant of a question which has been used in Canadian censuses and international literacy surveys (Lane 2020: 335). Te Kupenga 2018 used the same question on speaking proficiency in te reo Māori that was used in Te Kupenga 2013, and in earlier Māori language surveys. This question asked:

How well are you able to speak Māori in everyday conversation?

- 1 Very well (I can talk about almost anything in Māori)
- 2 Well (I can talk about many things in Māori)
- 3 Fairly well (I can talk about some things in Māori)
- 4 Not very well (I can only talk about simple/basic things in Māori)
- 5 No more than a few words or phrases. (Stats NZ 2021)

Issues around the interpretation of this question and how responses to it compare with responses to the census question and to first language questions have been explored in detail previously (Lane 2020). Respondents with speaking proficiency in the range from 1 “Very well” to 4 “Not very well” were then asked:

In which of these ways did you learn to speak Māori -

- by listening and speaking to parents or other people living in your home?
- by listening or speaking with relatives, friends, or neighbours (not living with you)?
- by going home to your iwi or hapū area(s)?

through kōhanga reo, kura kaupapa or wharekura?
 through other primary, secondary or Māori boarding school?
 through study at Māori wānanga, such as Te Wānanga o Aotearoa?
 through study at another tertiary institution such as university or polytechnic?
 by going to hui and listening to the Māori language being spoken?
 through a class at your work or a community-based course?
 by teaching yourself? (Stats NZ 2021)

Each respondent could select multiple ways of learning.

In addition, Te Kupenga 2018 included questions about “Whether the respondent is a regular speaker of Māori at home”, and the “Highest level of te reo Māori spoken by the respondent at home to someone they live with” (Stats NZ 2021).

2.2 *Survey analysis*

I obtained customised tables of estimates from Stats NZ based on these language questions in Te Kupenga 2018, as well as customised tables based on equivalent first language and speaking proficiency questions from two General Social Surveys (GSS 2018 and GSS 2021: see §4.3). These tables include customised Stats NZ data which are licensed by Stats NZ for re-use under the Creative Commons Attribution 4.0 International licence. The tables included population estimates and margins of error for combinations of variables.

Margins of error are a way of quantifying the effect of “sampling error” on an estimate. Sampling error can be thought of as the variation in estimated values that would be obtained if the survey was run many times with a new sample taken each time. This is simulated in the actual survey by taking subsamples and calculating the estimate for each subsample. How closely the subsample estimates cluster allows the margins of error to be calculated on the reasonable assumption that these estimates follow a “normal” (or bell-curve) distribution. Technically, a margin of error represents the range of values either side of an estimated value that are expected to include 95% of possible estimates (based on that normal assumption), i.e. values that fall within a “95% confidence interval” (Wolter 2007).

There is a trade-off between the way categories are defined for analysis and the size of margins of error: the more narrowly defined a category is, the larger the margins of error tend to be, while broadly defined categories tend to have smaller margins of error. The customised tables are based mainly on broadly defined categories so that differences between categories are more clear-cut. One of these broadly defined categories is that of higher speaking proficiency, which aggregates the categories “Fairly well”, “Well” and “Very well.”

The customised tables were further analysed using Microsoft Excel 365 and RStudio 2021.09.2 (RStudio Team 2021) running R 4.1.2 (R Core Team 2021). R is one of the most widely used programming languages for data and statistical analysis and visualisation internationally, co-created by Ross Ihaka (Ngāti Kahungunu ki Wairarapa, Rangitāne, Pākehā) at Waipapa Taumata Rau/University of Auckland (Ihaka & Gentleman 1996; University of Auckland 2016; Wickham at al. 2023).

2.3 *Analytic approach*

This paper focuses on estimates based on questions about first language, proficiency in speaking te reo Māori, use of te reo Māori in the home and how speakers learned te reo Māori. Because they are based on survey data, the estimates are somewhat imprecise, but they do provide a broad national picture of the state of te reo Māori in 2018.

The numbers of Māori with te reo Māori as first language, and numbers of speakers of te reo Māori were analysed by year of birth in three cohorts: those born up to 1963, who were 55+ at the time of the survey (kaumātua ‘respected elders’), those born from 1964 to 1983, who were 35–54 at the time of the survey (pakeke ‘mature, adults’), and those born 1984 to 2003, who were 15–34 at the time of the survey (rangatahi ‘younger generation’). The choice of these cohorts was mainly for statistical reasons, so that margins of error would not be too large and hence differences between cohorts could emerge reasonably clearly. However, these cohorts do approximate important periods in the language learning of Māori children. The kaumātua cohort corresponds approximately to the adults interviewed in the NZCER survey in the 1970s, with a minority of fluent first language speakers, while most of the pakeke cohort grew up in English-dominant urban environments, and the rangatahi cohort grew up in a period of burgeoning revitalisation efforts, in particular, Māori-medium pre-schools and schools including kōhanga reo, kura kaupapa Māori and wharekura.

Kōhanga reo, in particular, were designed as a way to promote intergenerational language transmission in a pre-school context (King 2001). In Te Kupenga 2013 there was a strong association between having te reo Māori as the only first language and attendance at kōhanga reo, kura kaupapa Māori and/or wharekura (Lane & Earle 2015: 16).

The cohort approach taken in this study follows Benton’s (1997) year of birth analysis. It is also a way of comparing experiences of childhood language learning at different periods within a survey, so that there is consistency of question wording, sampling and interview methodologies. Comparing different surveys can be problematic due to inconsistencies in these factors (Stats NZ 2014a; Lane 2020: 349).

The statistics in this study are based on an estimated total of 557,000 Māori aged 15 and over in 2018, with 117,000 in the kaumātua cohort, 181,000 in the pakeke cohort and 259,000 in the rangatahi cohort.

3 Results of data analysis

3.1 First language

The estimated numbers of Māori with te reo Māori as a first language are shown in Table 1. The largest number, in fact the majority (57%), with te reo Māori as first language was in the rangatahi cohort. Table 1 also shows those estimates as percentages of each birth cohort. The greatest percentage was in the rangatahi cohort, well clear of the percentage in the kaumātua cohort. The fact that the pakeke cohort had the lowest percentage means that the overall pattern was one of decline between the kaumātua cohort and the pakeke cohort followed by a resurgence in the rangatahi cohort. This in itself could be interpreted as evidence of a resurgence in intergenerational language transmission.

Table 1. Estimated number and percentage of Māori in each birth cohort with te reo Māori as first language
(Te Kupenga 2018, Stats NZ customised data)

Cohort	Year of birth	Estimated number	Margin of error	Percentage	Margin of error
Kaumātua	Up to 1963	18,900	1,900	16%	2%
Pakeke	1964–1983	22,600	2,800	12%	2%
Rangatahi	1984–2003	55,100	4,400	21%	2%
	Total born up to 2003	96,500	5,600	17%	1%

Among adult Māori with te reo Māori as a first language, te reo Māori was one of two or more first languages for 80% (by cohort this proportion was approximately 60% for the kaumātua cohort and approximately 85% for the pakeke and rangatahi cohorts). For Māori in the rangatahi cohort, 58% (with a margin of error of 6%) of those with te reo Māori as first language attended kōhanga reo. Of those who did not report te reo Māori as a first language, 14% (with a margin of error of 2%) attended kōhanga reo. In the same cohort, 33% (with a margin of error of 5%) of Māori with te reo Māori as first language attended kura kaupapa Māori and/or wharekura. Of those who did not report te reo Māori as a first language, 4% (with a margin of error of 1%) attended kura kaupapa Māori and/or wharekura.

3.2 *First and second language speakers of te reo Māori*

For the purposes of this analysis, speakers of te reo Māori are defined as including those responding to the speaking proficiency question in the range from “Very well (I can talk about almost anything in Māori)” to “Not very well (I can only talk about simple/basic things in Māori)” but excluding those who can use “No more than a few words or phrases”. Such a broad definition is implicit in Te Kupenga 2018 in that it is members of this group who are asked how they learned to speak te reo Māori.

The estimate of Māori speakers of te reo Māori aged 15 and over in 2018, on this basis, was 53% of the estimated 557,000 Māori in this age range, i.e. approximately 300,000 people. Table 2 shows the estimated numbers of speakers by birth cohort, and these estimates as percentages of Māori in each birth cohort.

The greatest number of speakers was in the rangatahi cohort, and this cohort also had the greatest percentage of speakers – substantially greater than the percentage in the kaumātua cohort, taking the margins of error into account, though not clearly greater than the percentage in the pakeke cohort.

Te Kupenga 2018 provides an estimate of about 80,000 to 90,000 Māori first language speakers of te reo Māori (more precisely 83,700 with a margin of error of 5,700, or 28% of speakers with a margin of error of 2%). This is less than the number of Māori with te reo Māori as a first language because some in that group responded “No more than a few words or phrases” to the speaking proficiency question. The population estimate for Māori with te reo Māori as a first language who were not speakers as adults is in the range 10,000–15,000.

Table 2. Estimated number and percentage of Māori in each birth cohort who were speakers of te reo Māori
(Te Kupenga 2018, Stats NZ customised data)

Cohort	Year of birth	Estimated number	Margin of error	Percentage	Margin of error
Kaumātua	Up to 1963	57,500	2,400	49%	2%
Pakeke	1964–1983	95,500	4,100	53%	2%
Rangatahi	1984–2003	143,500	8,600	55%	3%
	Total born up to 2003	296,500	8,000	53%	1%

Numbers of Māori first and second language speakers of te reo Māori in each birth cohort are shown in Figure 1 and the percentages of speakers in each birth cohort who spoke te reo Māori as a first or as a second language are shown in Figure 2. The greatest numbers of both first and second language speakers were in the rangatahi cohort. Approximately 30% of Māori speakers of te reo Māori in the kaumātua and rangatahi cohorts were first language speakers of te reo Māori, while approximately 20% of Māori speakers of te reo Māori in the pakeke cohort were first language speakers. Conversely, approximately 70% of speakers in the kaumātua and rangatahi cohorts were second language speakers, compared with 80% of speakers in the pakeke cohort.

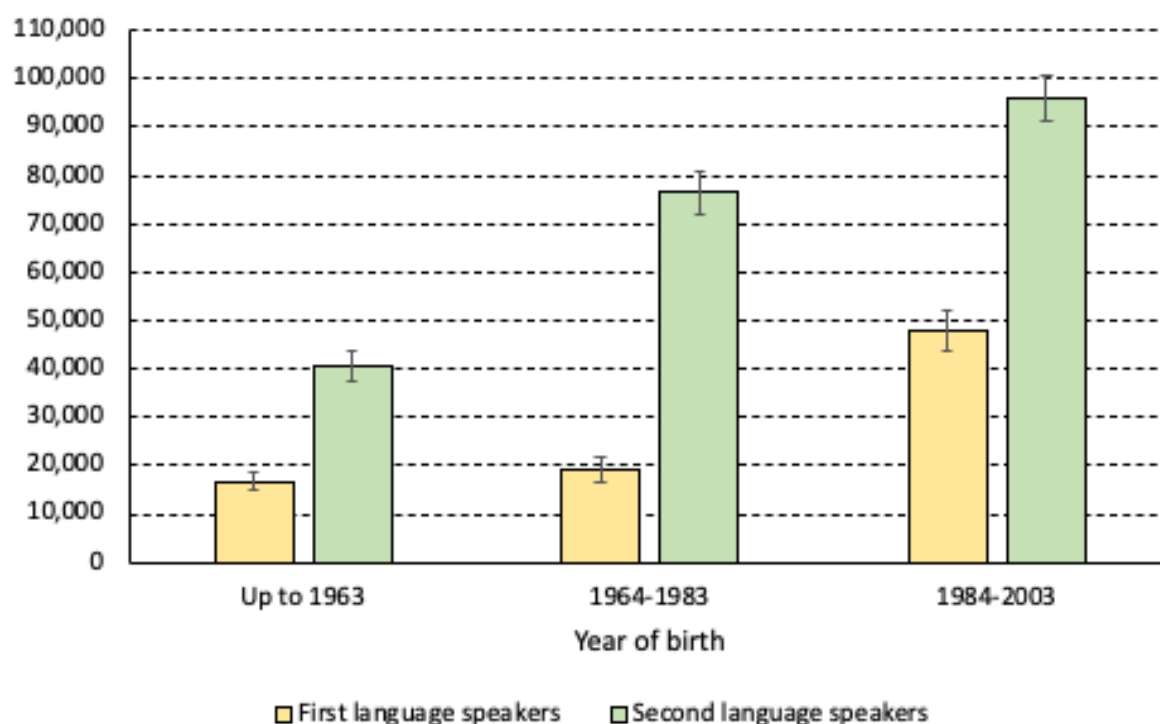


Figure 1. Estimated numbers of Māori first and second language speakers of te reo Māori, by year of birth, with margins of error
(Te Kupenga 2018, Stats NZ customised data)

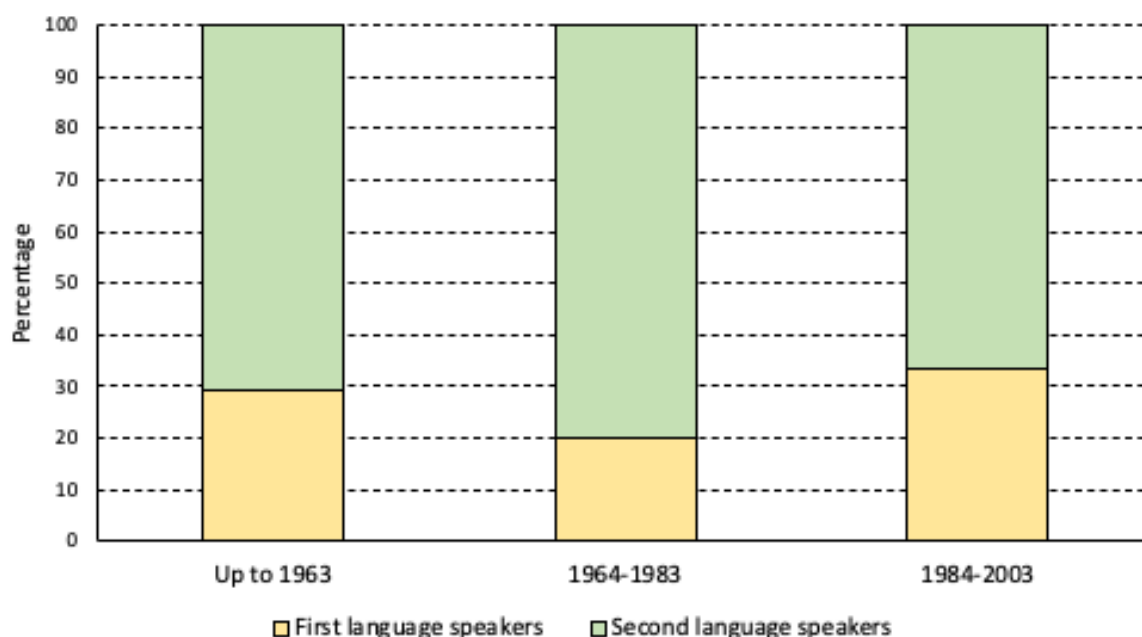


Figure 2. Percentages of Māori speakers of te reo Māori in each birth cohort who were first and second language speakers
(Te Kupenga 2018, Stats NZ customised data)

3.3 *More proficient speakers*

This study has used a broad definition of “speaker”, including those who speak te reo Māori “Not very well (I can only talk about simple/basic things in Māori)”. If we exclude that group and focus on more proficient speakers, i.e. those who reported speaking proficiency in the range from “Fairly well (I can talk about some things in Māori)” to “Very well (I can talk about almost anything in Māori)”, we find somewhat different patterns from those for speakers broadly defined. While it would be interesting to focus just on those who reported speaking te reo Māori “Well” and “Very well”, estimates for that grouping have large margins of error and the analysis becomes inconclusive (see also §2.2). Table 3 shows that the greatest number of Māori who spoke te reo Māori “Fairly well” to “Very well” were in the rangatahi cohort, and this cohort accounted for 48% of the total number of more proficient speakers. Table 3 also shows that similar percentages of the kaumātua and rangatahi cohorts were more proficient speakers, while the percentage of the pakeke cohort who were more proficient speakers was distinctly lower.

Table 3. Estimated number and percentage of Māori in each birth cohort who were more proficient speakers of te reo Māori
(Te Kupenga 2018, Stats NZ customised data)

Cohort	Year of birth	Estimated number	Margin of error	Percentage	Margin of error
Kaumātua	Up to 1963	26,500	2,600	23%	2%
Pakeke	1964–1983	32,700	3,100	18%	2%
Rangatahi	1984–2003	55,700	5,200	22%	2%
	Total born up to 2003	115,000	7,400	21%	1%

Figure 3 shows the estimated numbers of more proficient first and second language speakers in each birth cohort, and Figure 4 shows the percentages of more proficient speakers in each birth cohort who were first and second language speakers. There were similar numbers of more proficient first language speakers in the kaumātua and pakeke cohorts, but a significantly greater number in the rangatahi cohort. On the other hand, there were similar numbers of more proficient second language speakers in the pakeke and rangatahi cohorts, and these were considerably greater than the number in the kaumātua cohort. Among more proficient speakers, the proportion who were first language speakers varied from approximately 50% of the kaumātua cohort, to 30% to 40% of the pakeke cohort and 50% to 60% of the rangatahi cohort, as illustrated in Figure 4.

Overall, first language speakers tended to have relatively high speaking proficiency, with 67% reporting that they could speak te reo Māori “Fairly well” or better, compared with 28% of second language speakers. However, because of the greater number of second language speakers, the numbers of more proficient first and second language speakers were approximately equal (56,000 first language speakers with a margin of error of 5,000 compared with 59,000 second language speakers with a margin of error of 4,000).

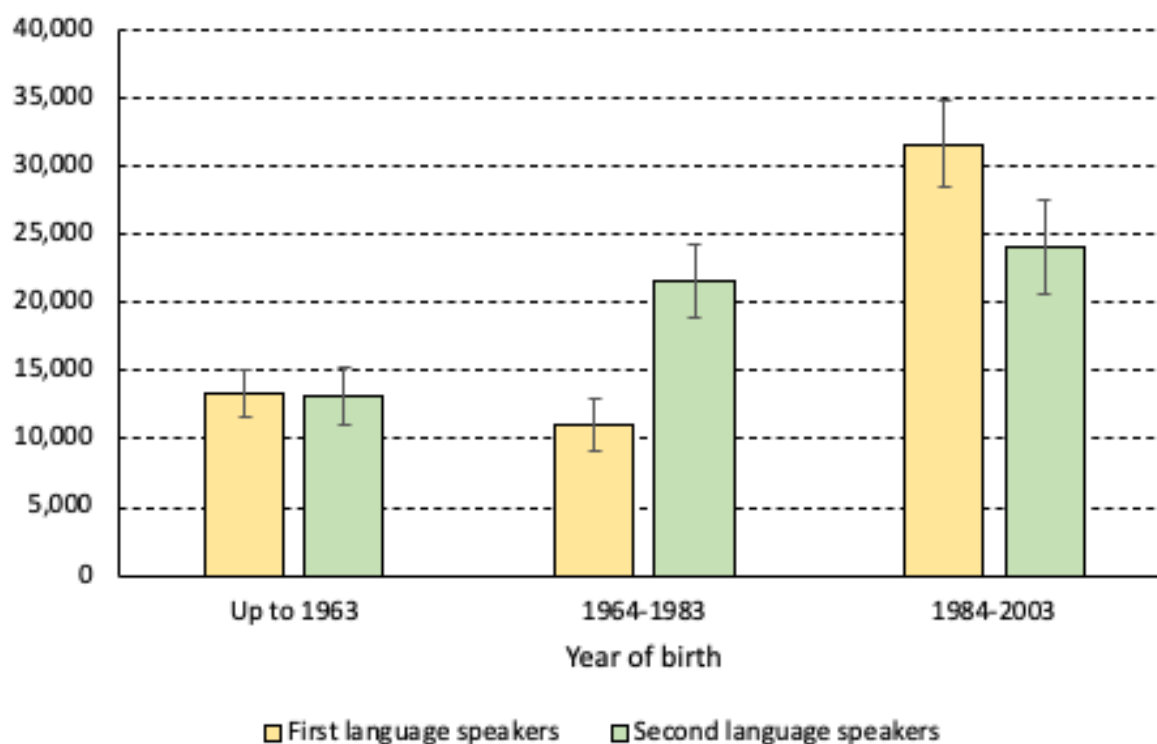


Figure 3. Numbers of Māori first and second language speakers who could speak te reo Māori “Fairly well” or better, by year of birth, with margins of error (Te Kupenga 2018, Stats NZ customised data)

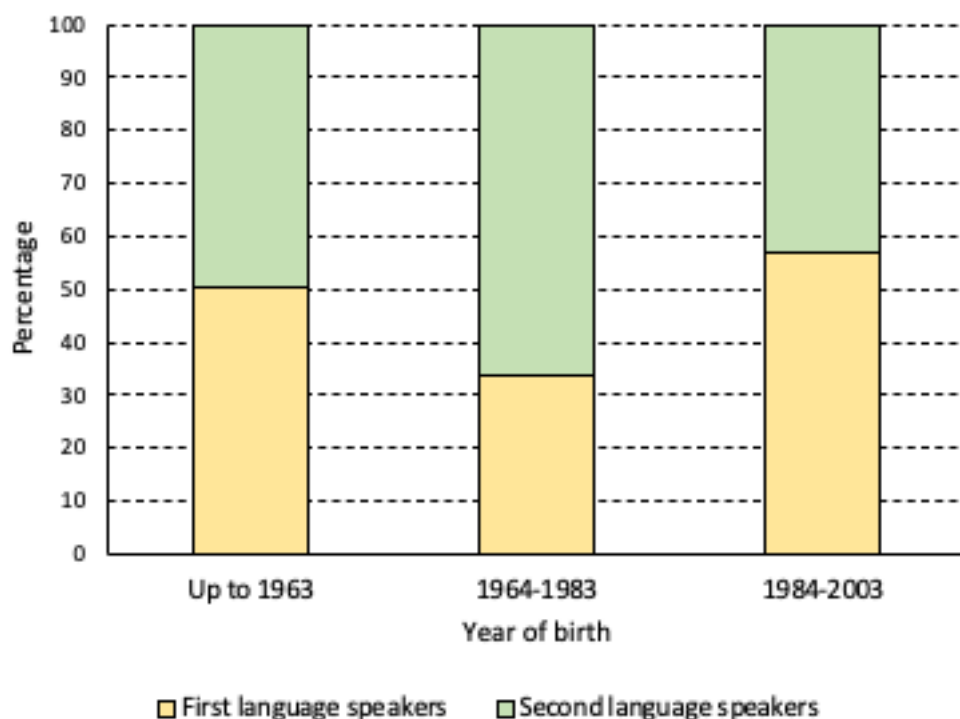


Figure 4. Percentages of more proficient Māori speakers of te reo Māori in each birth cohort who were first and second language speakers (Te Kupenga 2018, Stats NZ customised data)

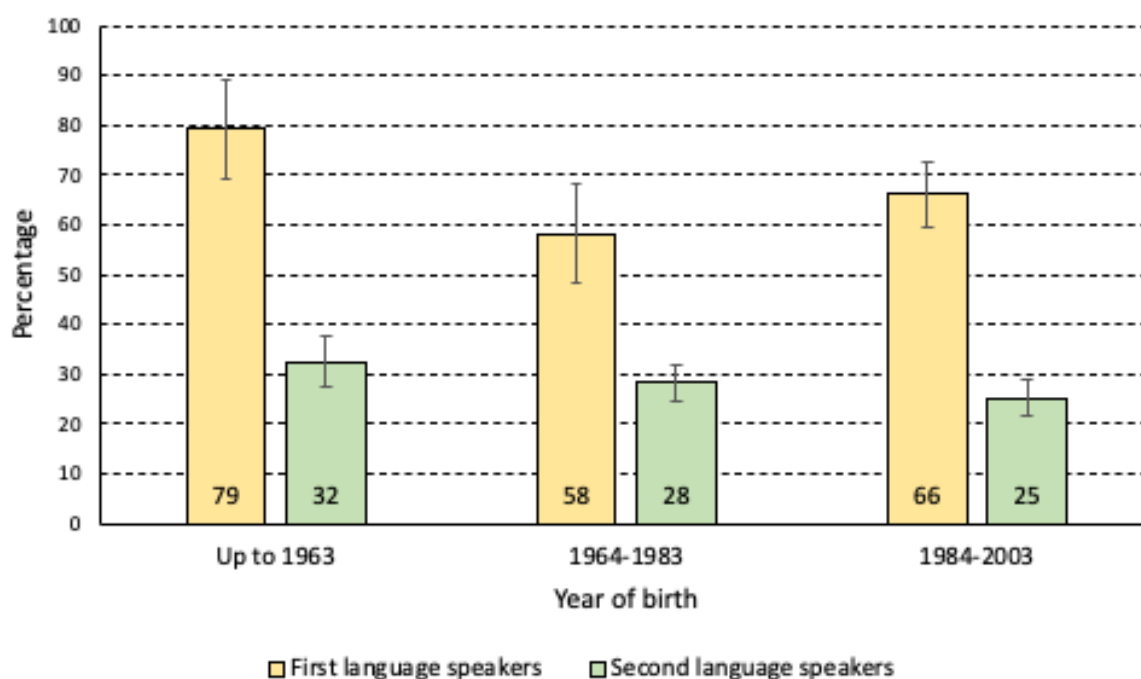


Figure 5. Percentages of Māori first and second language speakers in each birth cohort who could speak te reo Māori "Fairly well" or better, with margins of error (Te Kupenga 2018, Stats NZ customised data)

Figure 5 shows the percentages of Māori first and second language speakers in each birth cohort who were more proficient speakers. In each cohort a much greater percentage of first than second language speakers were in the more proficient category. The difference was greatest in the kaumātua cohort.

3.4 Use of te reo Māori at home

While the question about speaking proficiency relates to an individual's self-reported skill in te reo Māori, questions about use are a little more complex because they relate to more than one person: the speaker needs someone to speak to. In Te Kupenga 2018, "home" just refers to the household that a person lives in. The cohorts differed in the proportions who lived in one-person households (who were not asked about home language use): 20% of the kaumātua cohort, 6% of the pakeke cohort and only 1% of the rangatahi cohort.

Te Kupenga 2018 provides an estimate that, for 6% of Māori adults (with a margin of error of 1%), te reo Māori was either the main language spoken in the home or was spoken equally with English or another language. However, many more spoke te reo Māori in the home on a regular basis. Table 4 shows the number and percentage in each birth cohort who were regular speakers of te reo Māori at home. The largest number was in the rangatahi cohort, but the largest percentage was in the pakeke cohort. A somewhat similar percentage difference between cohorts in regular home use was found in Te Kupenga 2013 (Lane & Earle 2015: 17–18) – see §4.5 for further comment.

Table 4. Estimated number and percentage of Māori speakers in each birth cohort who were regular speakers of te reo Māori at home
(Te Kupenga 2018, Stats NZ customised data)

Cohort	Year of birth	Estimated number	Margin of error	Percentage	Margin of error
Kaumātua	Up to 1963	19,400	2,500	34%	4%
Pakeke	1964–1983	40,300	3,300	42%	3%
Rangatahi	1984–2003	48,800	5,100	34%	4%
	Total born up to 2003	108,400	7,200	36%	2%

Figure 6 shows the numbers of first and second language speakers in each birth cohort who spoke te reo Māori regularly at home, and Figure 7 represents those numbers as percentages of first and second language speakers in each birth cohort. There were more second language speakers who spoke te reo Māori regularly at home in the kaumātua and pakeke cohorts, but, in all three cohorts, a greater percentage of first language speakers than second language speakers spoke te reo Māori regularly at home. Overall, 55% of first language speakers (with a margin of error of 5%) and 29% of second language speakers (with a margin of error of 3%) were regular speakers of te reo Māori at home.

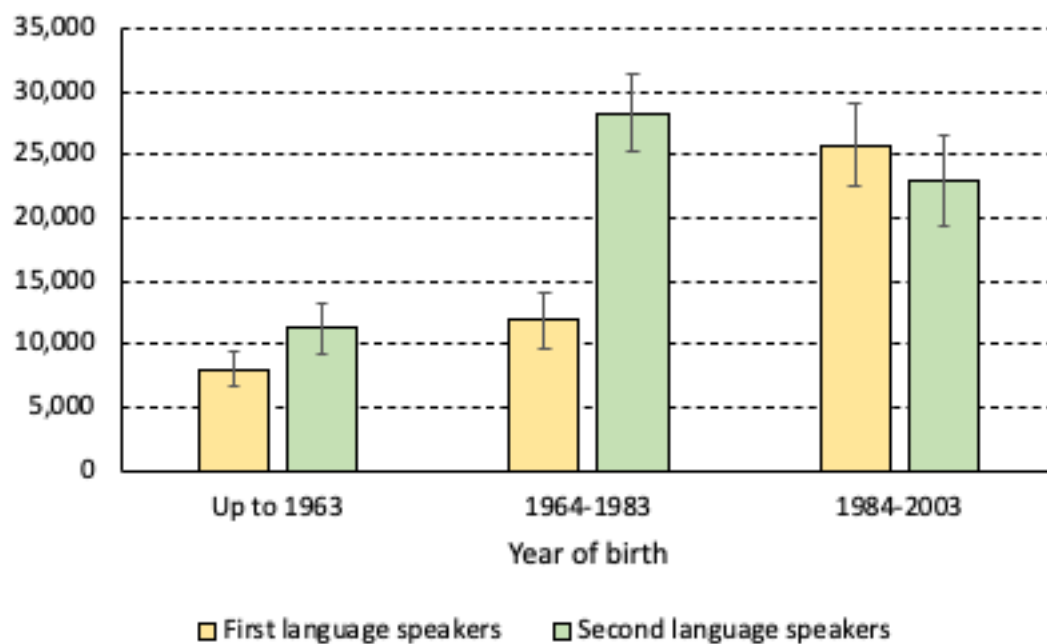


Figure 6. Numbers of Māori first and second language speakers who were regular speakers of te reo Māori at home, by year of birth, with margins of error (Te Kupenga 2018, Stats NZ customised data)

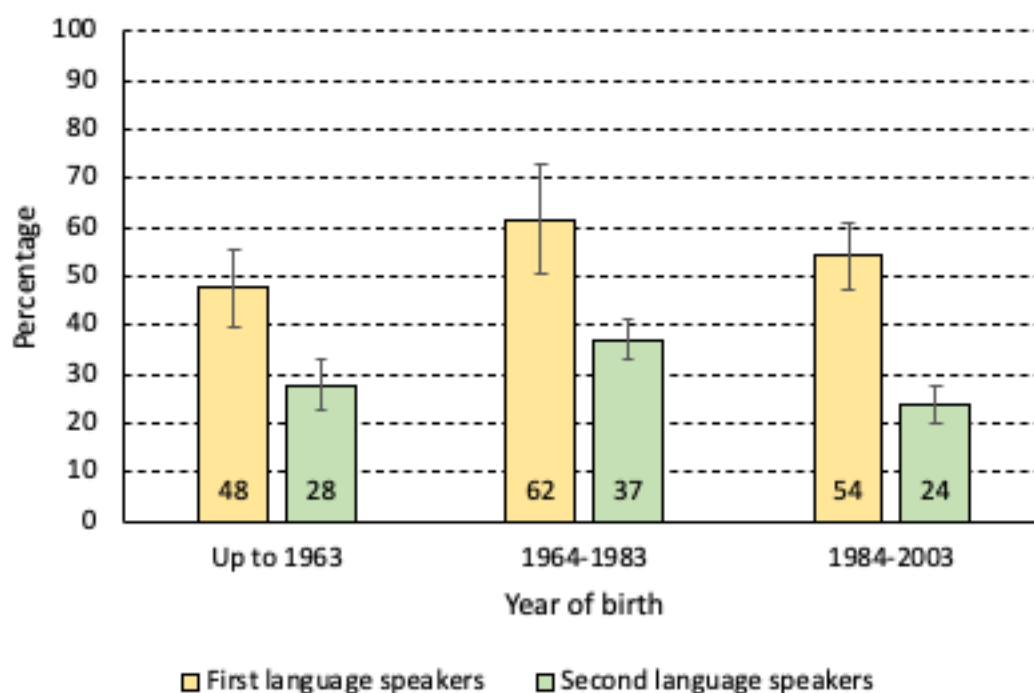


Figure 7. Percentages of Māori first and second language speakers in each birth cohort who were regular speakers of te reo Māori at home, with margins of error (Te Kupenga 2018, Stats NZ customised data)

3.5 *How first and second language speakers learned te reo Māori*

Respondents to Te Kupenga 2018 could each select multiple ways they had learned te reo Māori. Note also that “learning” was not further defined and could refer to informal acquisition or to formal learning as a child, adolescent or adult. Approximately 80% of adult first language speakers and 50% of second language speakers learned te reo Māori, at least in part, from interacting with parents or others at home. This was only one of many means of learning te reo Māori for both first and second language speakers.

The percentages of first and second language speakers learning through various means are presented in Figure 8. The most common means for both groups were from parents or others at home; from relatives, friends, or neighbours; by going to hui; by self-study; by going home to iwi/hapū areas; and through Māori boarding school or through primary or secondary schooling (other than kura kaupapa Māori or wharekura). A minority of both first and second language speakers reported learning te reo Māori through study at wānanga or other tertiary institutions, or through classes at work or community courses.

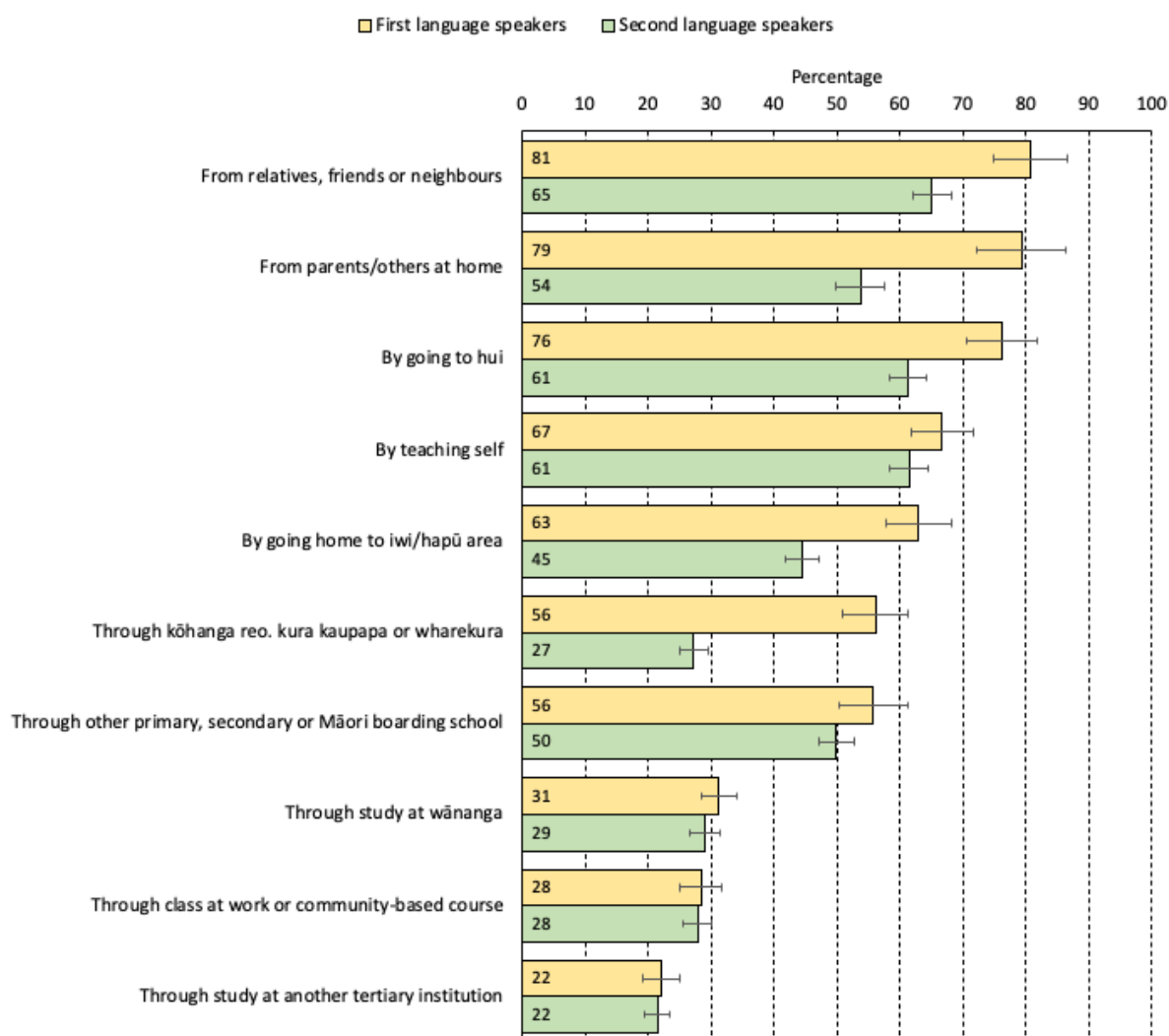


Figure 8. How kaumatua and pakeke first and second language speakers learned te reo Māori, with margins of error
(Te Kupenga 2018, Stats NZ customised data)

Substantially greater percentages of first language speakers than second language speakers learned from parents or others at home; from relatives, friends, or neighbours; by going to hui; by going home to iwi/hapū areas; and through kōhanga reo, kura kaupapa Māori and wharekura.

The percentages of first and second language speakers in the rangatahi cohort who learned to reo Māori in different ways are presented in Figure 9. Substantially greater percentages of first language speakers than second language speakers in the rangatahi cohort learned from parents or others at home; from relatives, friends, or neighbours; by going to hui; by self-study; by going home to iwi/hapū areas; through classes at work or community-based courses; through study at wānanga; and through kōhanga reo, kura kaupapa Māori and wharekura.

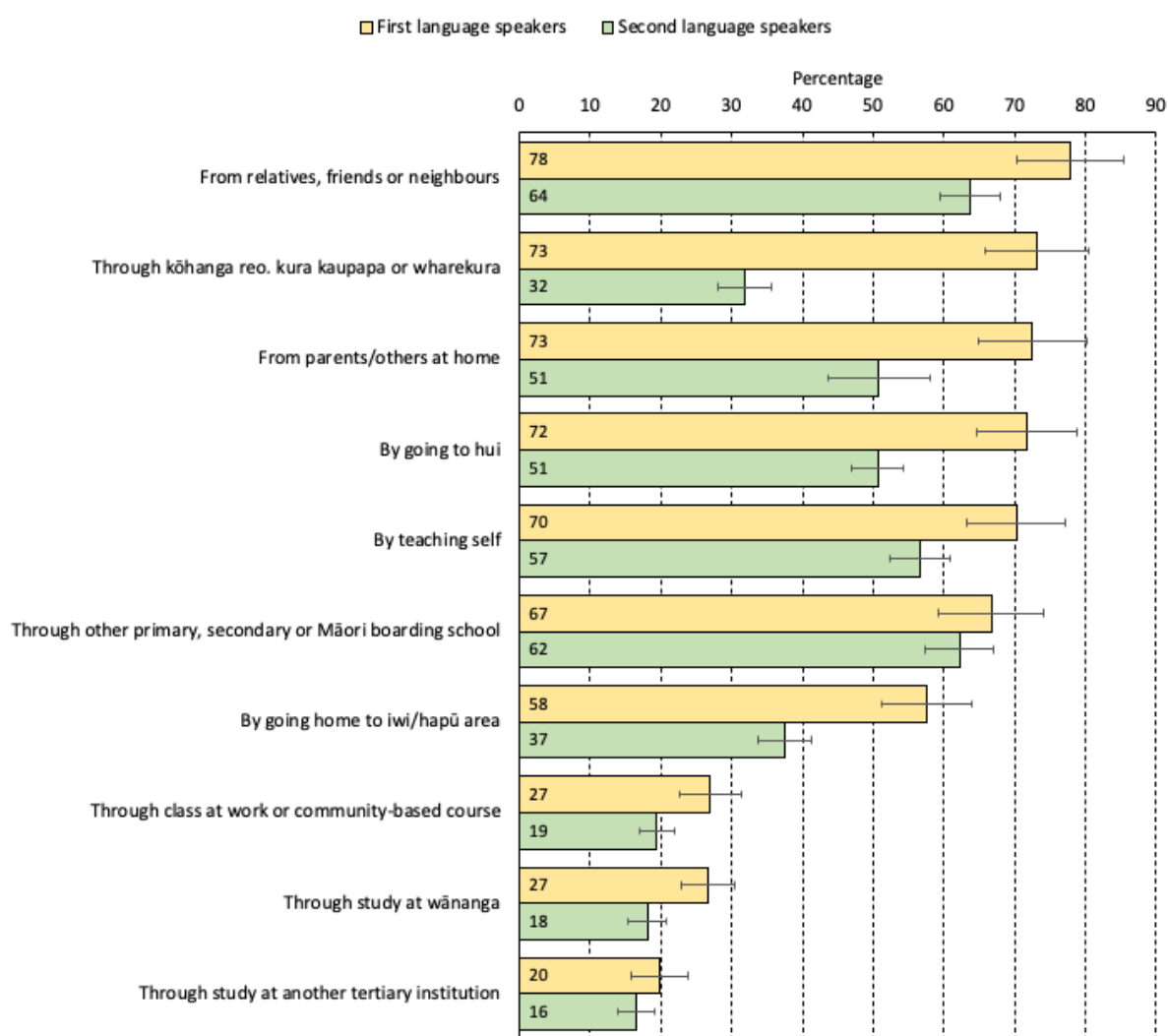


Figure 9. How rangatahi first and second language speakers born 1984–2003 learned te reo Māori, with margins of error
(Te Kupenga 2018, Stats NZ customised data)

First and second language speakers differed greatly in the role of te kōhanga reo, kura kaupapa Māori and wharekura in learning te reo Māori. In particular, approximately 70% of first language speakers in the rangatahi cohort learned through one or more of these Māori-

immersion educational institutions, compared with approximately 30% of second language speakers.

In this cohort, approximately 60% of first language speakers attended *kōhanga reo* (more specifically 63% with a margin of error of 7%), compared with approximately 20% (20% with a margin of error of 3%) of second language speakers. About 40% (37% with a margin of error of 5%) of first language speakers attended *kura kaupapa Māori* and/or *wharekura*, compared with about 6% (6% with a margin of error of 1%) of second language speakers.

Figures 10 and 11 below focus on learning at home and/or learning through *kōhanga reo*, *kura kaupapa Māori* and/or *wharekura* (*kōhanga/kura/wharekura*) to see what proportions of first and second language speakers learned through either means or through the combination of both of these means, or through neither. First language speakers in the *kaumātua* and *pakeke* cohorts (see Figure 10) learned largely at home or through the combination of home and *kōhanga/kura/wharekura*, while second language speakers in these cohorts (see Figure 11) mainly learned at home or through neither of these means (bearing in mind that first and second language speakers also learned in multiple other ways).

Of first language speakers in the *rangatahi* cohort (see Figure 10), about 50% learned te reo Māori both from parents or others at home and through *kōhanga/kura/wharekura*; about 20% learned from parents or others at home but not *kōhanga/kura/wharekura*; about 20% learned from *kōhanga/kura/wharekura* but not from parents or others at home; and about 10% learned by other means. In contrast, about 20% of second language speakers (see Figure 11) learned both at home and through *kōhanga/kura/wharekura*; about 30% at home but not through *kōhanga/kura/wharekura*; about 10% through *kōhanga/kura/wharekura* but not at home; and about 40% learned by other means.

3.6 *He pā tūwatawata – Language vitality*

Te Mātāwai (n.d.-a) has compiled a set of indicators of Māori language vitality, including the “*whakatipuranga*” indicators of intergenerational transmission, which can be graded “low”, “developing” or “good.” Two of the Māori adult indicators are based on statistics from Te Kupenga reported here, namely the indicator “Māori Language Proficiency Levels”, based on the speaking proficiency question, and the indicator “Māori Language Use in the Home”, based mainly on the question on regular use of te reo Māori at home.

In respect of the proficiency indicator, with the estimate from Te Kupenga 2018 of 53% of adult Māori able to speak more than a few words or phrases, the overall level was “developing”, meaning exceeding 50% but less than 75%. The level was also “developing” for the *pakeke* (53%) and *rangatahi* (55%) cohorts specifically, but low for the *kaumātua* cohort (49%).

In respect of the home use indicator, with the estimate from Te Kupenga 2018 of 36% of adult Māori using te reo Māori regularly at home, the overall level was “developing”, meaning exceeding 25% but less than 50%. The level was “developing” for each cohort: *kaumātua* (34%), *pakeke* (42%) and *rangatahi* (34%). For first language speakers as a group, 55% used te reo Māori regularly at home and so the level was “good,” meaning greater than 50%. The level was also “good” for the *pakeke* (62%) and *rangatahi* (54%) first language speakers, but “developing” for the *kaumātua* cohort (28%). For adult Māori who were second language speakers, the overall level was “developing” at 29%, and “developing” for the *kaumātua* (28%) and *pakeke* (37%) cohorts, but “low” for the *rangatahi* cohort (24%).

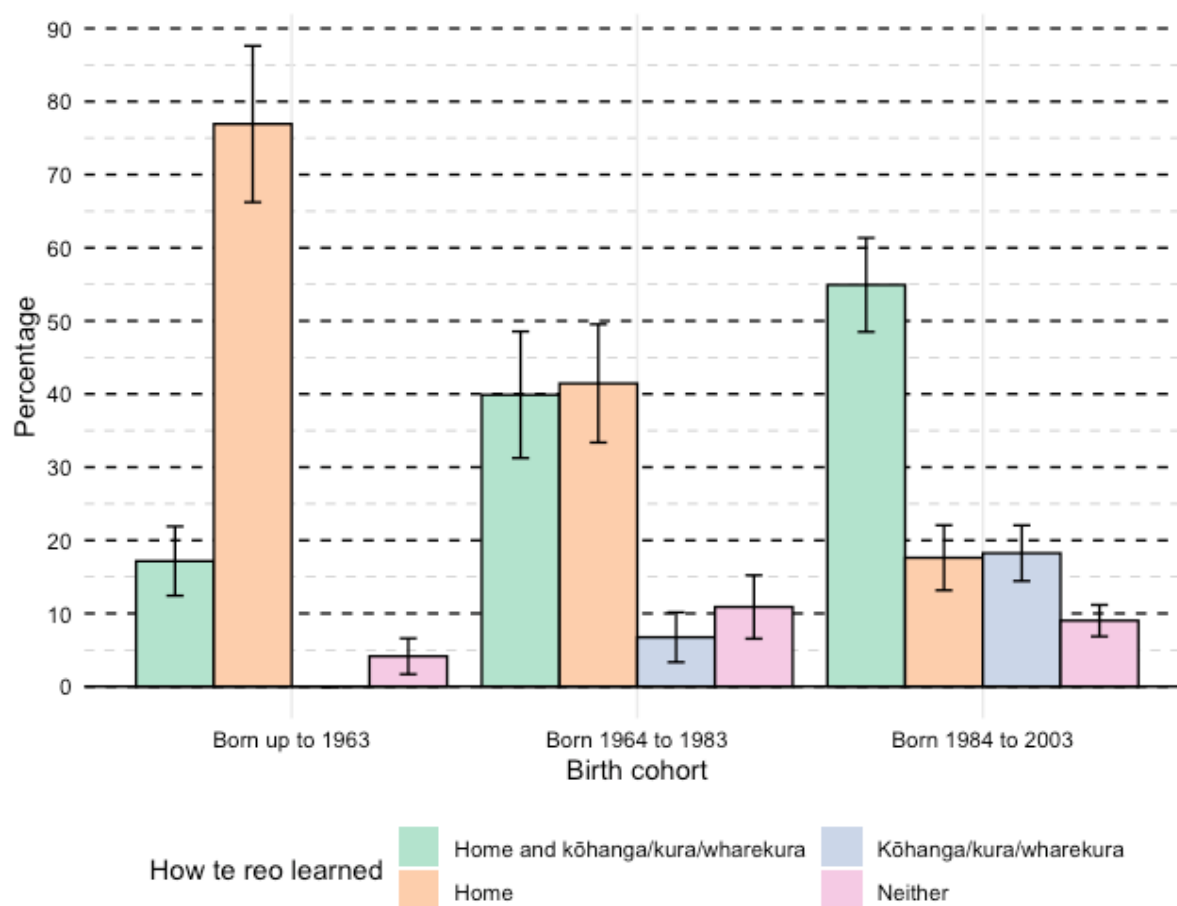


Figure 10. Percentages of Māori first language speakers of te reo Māori in each birth cohort who learned te reo Māori at home and/or at kōhanga reo, kura kaupapa Māori and/or wharekura, with margins of error (Te Kupenga 2018, Stats NZ customised data)

4 Discussion

4.1 *Quality of data from language questions*

The language question included in the New Zealand census asks about conversational ability. The key sentence is: “In which language(s) could you have a conversation about a lot of everyday things?” This is followed by a list of languages including English and te reo Māori and a space to write in other languages. This conversational ability question has been part of New Zealand censuses since 1996 and has been the basis of recently cited statistics relating to te reo Māori (see e.g. Te Mātāwai n.d.-a; Hardman 2018; King 2018; Nicholson Consulting & Kōtātā Insight 2021).

However, the process of reviewing the 2018 census brought a revelation: Stats NZ concluded that the quality of data on te reo Māori based on the language question was poor. The External Data Quality Panel (2019b: 38) report states that, “Stats NZ has calculated a quality rating for te reo Māori (0.86) which results in a metric 1 quality rating of poor.” Note that “metric 1” refers to data sources and coverage.

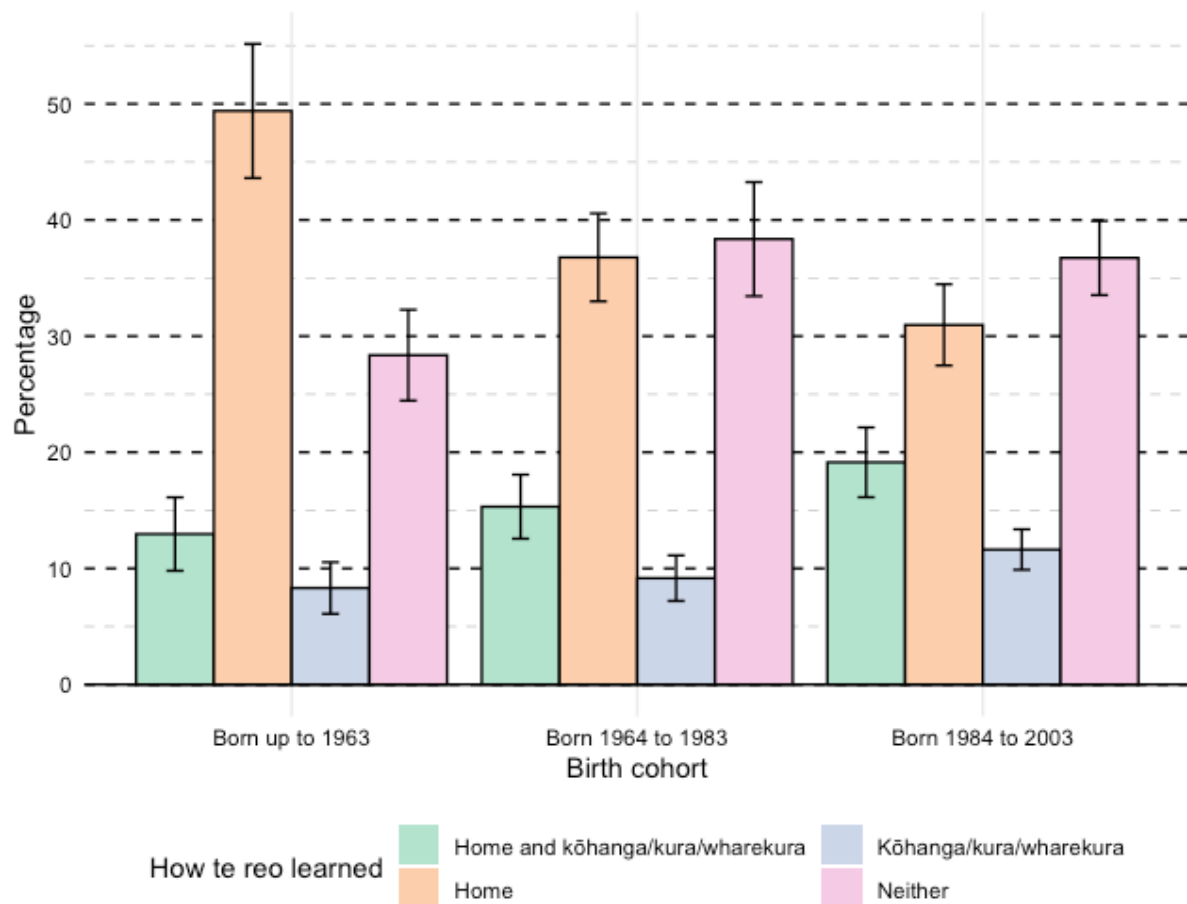


Figure 11. Percentages of Māori second language speakers of te reo Māori in each birth cohort who learned te reo Māori at home and/or at kōhanga reo, kura kaupapa Māori and/or wharekura, with margins of error (Te Kupenga 2018, Stats NZ customised data)

The report continues:

The metric 1 quality rating is influenced by the consistency of 2018 responses with 2013 census responses. The percent of those who answered Yes to te reo Māori in 2018 and also answered Yes in 2013, is low at 56 percent. Almost equal numbers of people have replied Yes in 2018 and No in 2013 as those who have said the opposite (No in 2018 and Yes in 2013). This level of disagreement within a five-year period is unlikely to all be due to a genuine change in proficiency. There is almost no change at the aggregate level of the number of Māori speakers for those who responded in both censuses. (External Data Quality Panel 2019b: 38)

The data-quality problem here is not due to the census undercount; rather, there were inconsistent interpretations of the question by people who did respond to the census and were counted. This is a case of “non-sampling error”. It cannot be fixed by making sure that more people are counted. There has been earlier evidence that the census question can have a wide range of interpretations leading to inconsistent responses (Lane 2020: 324–326). It is unclear whether Stats NZ had scrutinised the question so thoroughly in earlier censuses, but if so, the problem of inconsistent responses might have been flagged at an earlier stage. Responses to the 2018 census question in relation to te reo Māori were not included in the Te Kupenga 2018

data set and so cannot be directly compared with Te Kupenga variables such as first language and speaking proficiency. The poor data quality rating was specific to this census question and to responses related to te reo Māori. The quality ratings of other census items varied considerably but included many high ratings. Because this issue is specific to the census language question it does not indicate an issue with results based on different questions from Te Kupenga 2018.

The size of samples such as that for Te Kupenga 2018 means that very few individuals are likely to be included in more than one survey sample, so that it is not possible to subject survey language questions to the kind of consistency analysis that Stats NZ carried out for the census language question. The census question is effectively a speaking proficiency question with only two possible responses: include a language in the census response or exclude it. The speaking proficiency question used in Te Kupenga 2018 allows responses on a five-point scale which arguably should enable respondents to reflect their proficiency more accurately. In so far as awareness of first language(s) is a part of an individual's biography and identity, this too should be more accurate than the census question and more stable across time. However, qualitative research on how these questions are interpreted by Māori in Aotearoa would improve our understanding of the quality of the data derived from these questions and improve our interpretation of the data. Research on how Māori interpret alternative forms of these questions would be desirable before considering replacing the census question or adding another language question to the census.

The 2023 census included the same language question as earlier censuses, while Te Kupenga 2013 and 2018 were not followed up with a 2023 version. This is an unfortunate step backwards in terms of the availability of statistical data to effectively monitor the revitalisation of te reo Māori.

4.2 *Limitations of this analysis*

Te Kupenga 2018 did not specifically address the question of whether first language speakers in the rangatahi cohort who learned from parents/others at home or relatives/friends/neighbours learned from people who were themselves first language speakers or were second language speakers. Te Kupenga 2018 sampled individuals in households. This means it did not provide a basis for detecting local clusters of speakers in different households, particularly first language speakers. It was not able to reveal regeneration in whānau and hapū or in specific geographical areas. Te Kupenga 2018 data cannot be analysed by iwi because the 2018 census undercount led to large gaps in data on iwi affiliation. Iwi affiliation was not asked about in Te Kupenga 2018, but in any case, the sample size of 8,472 adult Māori would have provided a basis for collecting adequate affiliation data for some larger iwi only.

The estimates of numbers who were “regular speakers” of te reo Māori in the home are based on people self-identifying as such, and thus depend on respondents' varied interpretations of “regular.” Similarly, the Te Kupenga 2018 questions on how speakers learned te reo Māori are very basic in that they only admitted a “Yes” or “No” response. Speakers do not provide any information on the age at which learning took place or on the intensity of each learning pathway, e.g. frequency or duration of visits to iwi/hapū areas, number of years in Māori-medium education – which are important for developing proficiency (see e.g. Nicholson Consulting and Kōtātā Insight 2021: 10).

4.3 *Speakers of te reo Māori*

Te Kupenga 2018 provides an estimate of about 100,000 Māori aged 15 and over for whom te reo Māori was a first language. On the basis of a broad definition of a speaker, about 300,000

Māori adults could be considered as speakers of te reo Māori in 2018, with 80,000 to 90,000 of those first language speakers. The analysis indicates that both first and second language speakers are significant participants in the revitalisation of te reo Māori, with each accounting for about half of the more proficient adult speakers, and second language speakers accounting for over 70% of adult speakers broadly defined.

The analysis also shows a decline in percentage of first language speakers (among speakers broadly defined and among more proficient speakers) between the kaumātua cohort and the pakeke cohort, then a reversal of that decline in the rangatahi cohort. This provides an indication of a recovery in intergenerational language transmission. There have been similar indications of recovery of intergenerational language transmission in four earlier surveys (Lane 2020: 335–343). On the basis of Te Kupenga 2018, Stats NZ (2020b) reported a similar pattern for the percentage of Māori adults who were more proficient speakers of te reo Māori (i.e. first and second language speakers who could speak te reo Māori “Fairly well” or better), with the highest percentage estimates in the 55+ and 15–24 age groups.

In a more recent information release based on data from the GSS 2021, Stats NZ (2022) has reported that 23% of adult Māori had te reo Māori as a first language, compared with the 17% estimate from Te Kupenga 2018 (and also from GSS 2018). This information release also reported that 34% of adult Māori could speak te reo Māori “Fairly well” or better, compared with the estimate from Te Kupenga 2018 of 21%. These appear to be dramatic increases. However, the Māori samples in GSS have been relatively small: 1,184 in 2018 and 476 in 2021 (McCaull 2022), with GSS 2021 truncated due to the COVID-19 pandemic. As a result, the margins of error on GSS estimates are much larger than those from Te Kupenga 2018, as confirmed in customised tables I requested from Stats NZ.

If we compare the estimated percentages of adult Māori with te reo Māori as a first language in Te Kupenga 2018 and in GSS 2021, taking into account the margins of error, it is not clear that there has been a real increase. The estimate of 17% in Te Kupenga 2018 has a margin of error of 1%, while the estimate of 23% in GSS 2021 has a margin of error of 5%, hence the difference in estimates could largely be due to sampling error. There is a similar issue with the estimates for the percentage of adult Māori who could speak te reo Māori “Fairly well” or better. The estimate from Te Kupenga is 21% with a margin of error of 1%, while the estimate from GSS 2021 is 34% with a margin of error of 18%. The large margin of error in GSS 2021 means that the apparent difference in estimates could be due solely to sampling error. The sample of Māori people interviewed for GSS 2023 may be similar to that for 2018 and so GSS 2023 may provide estimates with reasonably small margins of error. This may provide an opportunity to make a clear comparison between percentage estimates in 2018 and 2023.

The results from Te Kupenga 2018 provide evidence of a positive trend among adult Māori in numbers of speakers, numbers of more proficient speakers and numbers with te reo Māori as a first language. This provides empirical support to the “reo-orientation” advocated by Olsen-Reeder (2018) away from what he has dubbed “death narratives.”

4.4 *Comparison with first language speakers of other languages*

Questions about first language are relatively rare in censuses and surveys. They have been used in the five-yearly Basque sociolinguistic surveys which began in 1991. Urla and Burdick (2018) elucidate the context of these surveys and other efforts to quantify Basque revitalisation. On the basis of results from the second survey in 1996, Azurmendi et al. (2001: 241) report that, “one of the most positive changes seen over the last two decades has been the reversal in the process of the loss of Euskara [Basque] transmission as an L1 within the family”. Data

from parents in this survey indicated a turning point in the first language of children born around 1981.

The report of the Sixth Sociolinguistic Survey 2016 of the Basque language provides percentages of the total population of the “Territory of the Basque Language,” which covers a region of northern Spain and south-western France. The report states:

As regards age, the over-65s and young people aged 16–24 represent the highest percentage of those whose sole mother tongue is Basque (18.8% and 16.6%, respectively). Those aged 35–49 represent the lowest percentage (12.8 %).

If we compare this to the situation 25 years ago [i.e. 1991], we see that the highest percentage of those whose sole mother tongue was Basque was found among the over-65s (27.7%), with the percentages dropping as you moved down the age scale, and the lowest figure being found for the youngest age group (15.7 %). In 2016, on the other hand, the 16–24 age group had the highest percentage (16.6 % as opposed to 15.7%). (Eusko Jaurlaritza/Gobierno Vasco 2019: 34–35)

In terms of birth cohorts, the cohort born between 1967 and 1981 had the lowest percentage of those with Basque as their sole mother tongue, with the earlier and later birth cohorts having higher percentages. This is in line with the earlier observations from the 1996 survey, and there is also a striking similarity between the timing of this Basque recovery and the pattern of first language speakers by birth cohort for Māori as reported from Te Kupenga 2018.

The first language question used in Te Kupenga 2013 and 2018 derives from the “mother tongue” question which has been used in multiple Canadian censuses (Lane 2020: 335). Data on mother tongue speakers of Indigenous languages in Canada has been published by Statistics Canada (2023a) but there appears to have been little analysis. Statistics Canada (2023b) simply states: “In 2021, 184,170 Indigenous people had an Indigenous mother tongue, a decline of 14,120 (-7.1%) from 2016. It is apparent that younger generations are less likely to have an Indigenous mother tongue than older generations.”

4.5 *Home use of te reo Māori*

In each birth cohort, a greater percentage of first language speakers than second language speakers were regular speakers of te reo Māori at home. Te Kupenga 2018 provides an estimate of between 100,000 and 120,000 adult Māori who were regular speakers of te reo Māori at home, representing 34% to 38% of Māori language speakers (broadly defined). In contrast to the birth cohort patterns for percentages of speakers, of more proficient speakers and of first language speakers, the birth cohort with the greatest percentage of regular home speakers of te reo Māori was the pakeke cohort. From these statistics it is not possible to determine whether Māori in this cohort were more active in using te reo Māori or if they were more likely to find someone to use te reo Māori with in the home, perhaps because they lived in larger households. Te Kupenga 2018 did not include a measure of household size.

4.6 *Learning te reo Māori*

First and second language speakers learned te reo Māori largely in similar ways, with at least half of both groups reporting learning at home, through activities connected to whānau, hapū and iwi as well as through schooling. However, among speakers of te reo Māori overall, markedly larger percentages of first language speakers than second language speakers learned from parents or others at home; from relatives, friends or neighbours; by going to hui; by going home to an iwi/hapū area; and through kōhanga reo, kura kaupapa or wharekura. These differences were evident in the rangatahi cohort, and in addition, larger percentages of first language speakers than second language speakers in this cohort learned by self-study; through classes at work or community courses; and through study at wānanga. There were no learning pathways with a clearly greater percentage of second language speakers. Thus in general, first language speakers were more likely to have learned in multiple ways compared to second language speakers. In the rangatahi cohort, key differences were that first language speakers were much more likely to have learned te reo Māori at home and/or through one or more of kōhanga reo, kura kaupapa Māori and wharekura.

This paints a picture of first language speakers as not only potentially having a head start in learning te reo Māori, being more proficient speakers and more likely to speak te reo Māori at home, but also as being more active than second language speakers in pursuing different learning pathways. These differences can be seen as supporting the emphasis on intergenerational language transmission by Te Mātāwai.

Nicholson Consulting and Kōtātā Insight (2021) have built a complex statistical model of the Māori population including current speakers (but not specifically first language speakers) and potential learners of te reo Māori. A relevant finding from their model is that the factors most strongly associated with learning te reo Māori were having a speaker of te reo Māori in the household and experience of Māori-immersion education. In this study, closely related factors are strongly associated with being a first language speaker. Similarly, Simmonds et al. (2020: 28–33) have investigated the use of te reo Māori by four-year-old children in the Growing Up in New Zealand study, and found that among the key factors related to Māori children's use of te reo Māori were attending kōhanga reo and their mothers' fluency in te reo Māori.

Te Ahu o te Reo sought out Māori who were active in revitalisation of te reo Māori in nine communities across Aotearoa and who “lived with, or were in close, regular contact with several generations of whānau” (Hutchings et al. 2017: 7). Because of this focus, it is not surprising that the percentage of first language learners among people interviewed was somewhat higher than in Te Kupenga 2018, at 27%. Hutchings et al. (2017: 45–46) also comment that, “three-quarters of those whose first language was te reo Māori were brought up in homes with at least one native speaker ... Nineteen percent of those whose first language was te reo Māori had learnt it in a home where adults had learnt Māori as their second language.”

From Te Kupenga 2018 it is not possible to say to what extent first language speakers in the rangatahi cohort were continuing a process of multi-generational language transmission. However, given that the parents of first language speakers in the rangatahi cohort were likely to be part of the pakeke or kaumātua cohorts, the greater numbers of second language speakers in these cohorts suggest that many of the parents may have been second language speakers. In this respect, second language speakers as well as first language speakers may have had a crucial role in reinstating intergenerational language transmission.

The study reported here highlights the importance of both Māori-immersion education and intergenerational transmission in the home. It is based on a standard statistical survey methodology, quite different from the kaupapa Māori methodology of *Te Ahu o te Reo*, but it has comparable findings, though at a broad national level rather than at the level of specific local communities.

5 Conclusion: First and second language speakers of te reo Māori

There has been a tendency to present an over-simplified story of Māori language revitalisation – one that involves a recovery from a situation where no more children were growing up learning te reo Māori at home and educational interventions including *kōhanga reo* were the main pathway to reversing language shift. This study supports a more complex story in which learning at home and in community contexts has also played an important part.

The first language question in *Te Kupenga 2013* required respondents to choose only one first language, and provided an estimate of about 38,000 or 8% of adult Māori with te reo Māori as their sole first language (Stats NZ 2014b: 8). It is likely that many of those with two or more first languages reported English rather than te reo Māori in *Te Kupenga 2013*. *Te Kupenga 2018* allowed respondents to report more than one first language and so it provided a markedly different picture of first (and second) language speakers of te reo Māori.

First language speakers in the *kaumātua* cohort in *Te Kupenga 2018* were more likely than those in the other cohorts to have te reo Māori as their only first language, and first language speakers of te reo Māori in the *pakeke* and *rangatahi* cohorts were more likely to have two (or more) first languages. In other words, most first language speakers in the *pakeke* and *rangatahi* cohorts were not stereotypical native speakers but rather had grown up and continued to operate in a bilingual or multilingual environment. Some first language speakers even reported that as adults they spoke “No more than a few words or phrases” (see §3.2). A similar phenomenon has been reported for a small proportion of Basque mother tongue speakers (Eusko Jaurlaritza/Gobierno Vasco 2019: 46–47).

First language has not typically been used as a measure of progress in language revitalisation generally and revitalisation of te reo Māori in particular. One problem is that it has been mainly available from surveys of adults, so in one sense it is backward-looking – one can only see change in numbers learning te reo Māori in infancy ten or more years later. However, whether speakers of te reo Māori are first language speakers or second language speakers makes a difference in the present (and likely in the future) in terms of their proficiency and use of te reo Māori as adults. There has been a lacuna in our understanding of the process of revitalisation of te reo Māori because of neglect of first language as a topic and over-reliance on what has turned out to be a flawed census question.

This paper has provided evidence that the first language variable (as recorded in *Te Kupenga 2018* and in GSS) is an important factor in the revitalisation of te reo Māori and should be included in analyses of the progress of revitalisation and in statistical modelling and forecasting of speaker numbers. However, it is important to remember that according to *Te Kupenga 2018*, there were many more second language speakers than first language speakers, and, in particular, there was a greater number of second language speakers than of first language speakers who spoke te reo Māori regularly at home. And there were approximately equal numbers of first and second language speakers who were more proficient speakers, i.e. could speak te reo Māori “Fairly well” or better. In terms of statistics then, both first and second language speakers have important roles and are significant contributors to the revitalisation of te reo Māori.

Appendix: Glossary of Māori terms

Aotearoa	traditional Māori name for New Zealand, usually glossed as “Land of the Long White Cloud”
hapū	kin group(s) of intermediate size, sub-tribe(s)
he pā tūwatawata	a fortified settlement
hui	Māori gathering(s) or meeting(s) – a prime domain for ceremonial and formal use of te reo Māori
iwi	kin group(s) of large size, tribe(s)
kaumātua	respected elder(s)
kōhanga	nest(s)
kōhanga reo	language nest(s), Māori immersion pre-school(s)
kaupapa	plan, purpose, guiding philosophy
kura	school(s)
kura kaupapa Māori	Māori immersion school(s) – usually for students aged 5 to 12
Māori	Indigenous person(s) or language of Aotearoa
mātua	parents
mokopuna	grandchild(ren), descendent(s)
Ngāti Kahungunu ki Wairarapa	name of iwi based in the Wairarapa region
Pākehā	New Zealander(s) of European ancestry
pakeke	mature, adult(s)
rangatahi	young person(s), younger generation
Rangitāne	name of a specific iwi
reo	voice(s), language(s)
te reo, te reo Māori	the language, the Māori language
te kupenga	the net
wānanga	forum(s), seminar(s), Māori tertiary institution(s)
whakatipuranga	generation(s)
whānau	kin group(s) of small size, extended family/ies
wharekura	Māori immersion school(s) – usually for students aged 13 to 17

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