

Developing Bilingual Questionnaires: Experiences from New Zealand in the Development of the 2001 Māori Language Survey

Lyn Potaka¹ and Suzanne Cochrane²

This article describes a “dual development” approach to the design of bilingual questionnaires, as used by New Zealand’s statistical agency. The article compares this dual-development approach with traditional translation practices. Using experiences from the development of a Māori language survey, the article considers ways in which this methodology can be useful in identifying problems with structural, conceptual and cultural equivalence. Practical issues relating to costs and technical review are also discussed.

Key words: Māori language; questionnaire design; cognitive testing; translation methods; dual development.

1. Background

1.1. New Zealand context

There are both practical and theoretical reasons for survey researchers to accommodate cultural differences in survey research. In New Zealand, as in other parts of the world, there is an increasing demand to design questionnaires in more than one language, as researchers and policy makers seek information to help describe and explain differences amongst ethnic groups, and as over-sampling of subpopulations becomes increasingly common.

Although New Zealand is a multi-cultural nation, the two largest segments of its population are those of European descent, and Māori. Approximately 14% of the New Zealand population identify as Māori. As Tangata Whenua (the indigenous people of New Zealand), Māori hold a unique place in New Zealand society (SNZ 1994). A culturally distinct minority, the Māori population is younger and growing more rapidly than non-Māori, although birth rates have declined significantly in recent history. (Statistics New Zealand 2002; Statistics New Zealand 1994).

The Māori language is one of the two official languages in New Zealand, along with English, the language most commonly used. The health of the Māori language was significantly compromised throughout the course of the twentieth century, as the English-speaking majority sought to assimilate the Māori ethnic (and Māori speaking)

¹ Statistics New Zealand, 85 Molesworth Street, Wellington, New Zealand. Email: Lyn.Potaka@stats.govt.nz

² Statistics New Zealand, 85 Molesworth Street, Wellington, New Zealand.

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population into the “mainstream” of New Zealand society. These assimilation efforts gained momentum in the 1940s and 1950s as the Māori population was encouraged to relocate from homogenous rural communities to urban communities that were predominantly European and English speaking.

After concerns were expressed about the long-term prospects of the Māori language in the 1970s, when research indicated that the majority of Māori people had limited Māori language skills (Benton 1991), Māori communities set in place education and broadcasting networks to support the maintenance and development of the Māori language. Over time, the New Zealand Government has provided policy and funding support for these networks. Latest figures suggest that some 42% of Māori now have some Māori language skills, although these skills exist on a continuum of proficiency from “very high” to “limited” (Te Puni Kōkiri 2002). Virtually all Māori also speak English, and this is, in fact, the main language of discourse. Among the non-Māori population of New Zealand, less than 1% has any Māori language skills (Te Puni Kōkiri 2002).

With increasing recognition of the importance of the Māori language to the Māori people, as both an official and an everyday language, the challenge for Statistics New Zealand has been to provide Māori respondents with the opportunity to complete questionnaires in their preferred language, while retaining the integrity of survey results. However, designing questionnaires in both English and Māori has presented questionnaire designers with a number of practical challenges.

Despite very little geographical separation, there is some degree of dialectical variation between iwi (tribes). Although there are high levels of mutual intelligibility, words and phrases used by one iwi are not always used by other iwi, which can complicate wording choices.

Added to this is a situation where increased urbanisation and the fracture of Māori communities away from traditional communal groups has created two distinct groups of speakers – those who have Māori as their first language (native speakers) and those who have learned Māori as a second language. There are marked differences in the way that Māori is spoken between these groups. Where native speakers use the language in an idiosyncratic way, second language learners have a more generic vocabulary and grammatical structure.

Questionnaire design decisions are made even more difficult because Māori, like other indigenous languages around the world, has been a language struggling to survive (Te Puni Kōkiri 1998). Keeping pace with modern technological developments and bureaucratic terminology has been difficult. This has been coupled with widespread resistance, particularly amongst second language learners, to large-scale use of loan words adopted from English (Harlow 1993). Although new Māori words are constantly being developed and introduced into the language through official sources (principally the Māori Language Commission, established by the Māori Language Act in 1987), the limited use of these technical and bureaucratic words in everyday conversation means that they are not adopted quickly and are rarely well-known at the grass-roots level. In contrast, transliterations (or loan words) are more widely used and commonly understood, especially among native speakers. Given SNZ’s guiding principle for questionnaire design of “understandability” first and foremost, this can create some tension between

maintaining the integrity of the language and choosing words that are uniformly understood by respondents.

1.2. Pretesting

To adequately address these concerns, SNZ sees it as essential that questions in Māori are exposed to the same rigorous pretesting as those in English. The pretesting method most favoured by SNZ for questionnaire development is cognitive testing (for a full description of this method, see Forsyth and Lessler 1991; DeMaio and Rothgeb 1996). Cognitive testing is effective in identifying problems with question construction, and can be particularly useful in revealing problems related to semantic influences (Presser and Blair 1994). The concurrent and retrospective probing used in these think-aloud interviews can help assure researchers that questions are being interpreted as intended (see for example Earthy, Maltby, Arber, and Cooper 2000; Schwartz 2002).

2. Translation Methods

Around the world, approaches to the design of questionnaires in more than one language have commonly involved one of three different “translation” methods.

2.1. Direct translation

Direct or one-way translations generally involve the development of a questionnaire in a “source” language, which, once complete, is translated into the “target” language by a person fluent in both languages. In some cases, however, this method is adapted to involve “translation by committee,” where more than one translator is involved in agreeing upon the target language translation (McKay, Breslow, Sangster, Gabbard, Reynolds, Nakamoto, and Tarnai 1996). The problems with direct translation have been well documented (see for example Behling and Law 2000). Translators can introduce error by using words that convey subtle differences in meaning. Perhaps most importantly, this process denies cultural differences between the source and target cultures, which can threaten the validity of the research. Concepts used in a questionnaire will not always be transferable across cultures (Banville, Desrosiers, and Genet-Volet 2000).

On a practical level, researchers using this approach often underestimate the problems presented by linguistic differences. Because translators commonly interpret questions very literally, phrasing can become unnatural and overly formal in the target language (McKay et al. 1996; Gabbard and Nakamoto 1994), a problem common to translation methods. Ultimately these shortcomings can introduce high levels of measurement error as respondents often fail to understand the question’s intent. Interviewer error contributes to this problem, as questions are often difficult to read aloud because they lack the flow of more natural language.

A further problem is that direct translations are commonly undertaken late in the development cycle, and the time available for cognitive testing can be limited.

2.2. *Back translation*

Back translation is, arguably, a method often considered best practice for questionnaire design (McKay et al. 1996; Erkut, Alarcon, Garcia Coll, Trop, and Vazquez Garcia 1999; McDermott and Palchanes 1994; Hilton and Skrutkowski 2002). This method starts with a direct translation but adds some additional steps to assess the quality and equivalence of the translation. In essence, it involves a direct translation, followed by a second translation where an independent person translates the new version back into the source language. Comparisons are then made between the original and back-translated versions to identify discrepancies in the target instrument.

However, as discussed elsewhere (see for example McKay et al. 1996), this practice also does little to minimise the linguistic problems inherent in direct translation, and can further compound these by encouraging translations that are “dictionary equivalents” of each other. Comparisons of two versions in the source language does not guarantee that the questions will be understandable in the target language (Behling and Law 2000).

A further drawback with this method is that competent translators may use their language skills to compensate for poor quality translations, and therefore problems may remain undetected (Bontempo 1993; Brislin 1986).

Although this procedure may help to reduce differences between versions, the process remains problematic in that the target language questions are not developed directly from the project’s information needs. In transcribing meaning from an existing questionnaire, biases communicated within the source language are replicated within the target language questionnaire. In identifying this type of problem Erkut et al. (1999) make a useful distinction between translation-driven and objective-driven methods.

2.3. *Decentering*

Decentering is a preferable option where the aim is conceptual equivalence (Werner and Campbell 1970). With this method, the source language questionnaire remains open to revision while the target language translation is developed. By revising both instruments when language problems occur, literal translations can be avoided and “conceptual equivalence” is promoted. However, this method can be time consuming (Sechrest, Fay, and Zaidi 1972) and because translation and revision typically follow on from the source language development, there can be less time available for pretesting. If there are delays in development, the time allocated to this important phase of development can be further compromised.

2.4. *Dual development*

Because bilingual developments present additional concerns over and above the usual needs of pretesting, SNZ has opted to use a “dual development” approach to designing questions in English and Māori. This method shares some similar principles to the “dual-focus” approach described by Erkut et al. (1999). SNZ sees one of the core advantages of this procedure being that it allows maximum opportunity for concurrent cognitive testing in both languages.

In practical terms, this method involves two questionnaire designers, one responsible for the English version and one responsible for the Māori version, working alongside each other to simultaneously refine the concepts of interest and develop the questions. This interactive approach to questionnaire design incorporates the principles and aims of decentering, but pivotal to this methodology is the parallel development of questions in both languages. By using this process, issues unique to each language can be given consideration at every stage of the development cycle, starting at the very inception of the development. Because the two languages are given equal status throughout the development cycle, compromises are not made at the expense of either language and ultimately both versions should meet an equivalent quality standard.

An additional feature of this approach is the side-by-side presentation of the two languages within a single questionnaire and on the accompanying show cards. This provides bilingual respondents and interviewers with a quick and ready reference against which to check their comprehension, and can be particularly useful for items that include administrative terms that are not widely known in one of the languages.

The following discussion describes SNZ's experience of designing a questionnaire for The Health of the Māori Language Survey (MLS), using a dual-development approach which built upon processes initiated for the 2001 New Zealand bilingual census forms (Potter 1999).

3. Māori Language Survey

Like other indigenous languages worldwide, the Māori language struggles to survive in an environment where English has become the dominant language (Te Puni Kōkiri 1998). However, in recent years there have been renewed efforts, including initiatives by the New Zealand Government, to revive and revitalise the language.

In this environment, SNZ was engaged by Te Puni Kōkiri (Ministry of Māori Development) to develop a bilingual survey, which would measure the health of the Māori language, using face-to-face interviews with a nationally representative sample of 5,000 Māori respondents.

The primary information needs identified for this project were to estimate the number of Māori speakers in the Māori population, to assess their language proficiency and to determine the frequency with which the Māori language was currently being used within a variety of different contexts.

The goal for the questionnaire development phase of this project was to produce a questionnaire that was understandable to the widest possible range of Māori respondents, would be of equal quality in the two languages, and would be capable of producing comparable results. Importantly, the aim was to avoid strictly literal translations in favour of conceptual equivalence by using a dual development approach.

Two questionnaire designers were involved in the development of this questionnaire, working within a wider questionnaire design team. Two independent Māori language experts were also contracted from outside SNZ to provide periodic reviews of the questionnaire, and a Māori language adviser (or "kaiāwhina") was available throughout the development cycle to provide additional language support.

Although the intention for the final survey was to present both versions in a side-by-side format (to provide a comprehension check for bilingual respondents with weaker language skills), “blind” cognitive testing was used to evaluate draft versions. Developers considered this an important step to ensure that questions were understandable in a single language and capable of standing alone.

During the course of the development, both questionnaire developers personally conducted cognitive tests. In total 42 respondents were interviewed. Of these, 24 were interviewed in English and 18 were interviewed in Māori. Respondents were aged between 15 and 65 years, were of mixed gender and socio-economic background and from a range of geographical locations, including rural and urban areas. Respondents completing the interviews in Māori had a variety of language proficiency levels, including both native speakers and second language learners. All interviews were conducted in the respondents’ own homes and testing strategies included think-aloud and concurrent probing.

Individual summary reports were written and discussed between developers on an on-going basis as the testing progressed. The problems identified were sometimes specific to one language (usually involving wording choices) and sometimes common to both languages (where conceptual issues needed further clarification and refinement). By using a dual-development approach, developers were able to adjust and revise both versions of the questionnaire if necessary.

4. Results

The dual development approach implemented for the MLS was useful in compensating for problems relating to structural, conceptual and cultural influences, as the following examples illustrate.

4.1. Structural equivalence

Structural or semantic equivalence, as defined here, refers to the degree to which one language shares similar grammatical constructions with another language and contains words or phrases with similar or identical meaning (Behling and Law 2000; Weidmer 1994).

Although the MLS designers hoped to avoid strictly literal translations, it was still considered important that questions were perceptibly comparable, in particular due to the side-by-side format intended for the final version. This format was considered desirable to allow bilingual interviewers and respondents to switch between English and Māori versions should they wish to confirm their understanding of a particular question. This approach was particularly useful for show cards and questions, which contained technical and bureaucratic wording, for example, a question naming educational qualifications.

In order to achieve this perceptual comparability, the designers used some basic principles for question construction to facilitate structural equivalence. Such principles have been documented elsewhere (for example, Behling and Law 2000; Weidmer 1994; Hilton and Skrutkowski 2002).

As an example, one such strategy is to keep questions as short and simple as possible. However, questions that may be easily and succinctly conveyed in one language often become lengthy in the other, and this has implications for understandability and respondent burden. This was a key factor in influencing the designers’ decision to borrow

from previously validated research, in the selection of a scale for self-assessment of language proficiency. In selecting from several alternatives, the designers opted for a concise and simple scale. However, because scale adaptations were necessary to meet the project requirements, testing became a vital feature in assuring designers that they had not over-simplified the self-assessment task and that the scale remained capable of meeting the project's requirements.

As Flaherty and his colleagues warn, researchers cannot assume the validity of a measure will be retained in a second language (Flaherty, Gaviria, Pathak, Mitchell, Wintrob, Richman, and Birz 1988). A methodology commonly used by researchers to evaluate the validity of respondents' self-ratings of language proficiency is to compare these ratings with the ratings of an independent expert (Oskarsson 1998). This method was used in a follow-up survey commissioned by the project sponsor, using the modified scale. That study involved reinterviewing a sample of respondents so that comparisons could be made between respondents' self-ratings and those of an independent language assessor. Results indicated that, using the modified proficiency scale, self-ratings for "speaking" and "understanding" the Māori language were accurate for 83% and 84% of the respondents interviewed (Te Puni Kōkiri 2002). This compared favourably with other self-rating measures (see for example, Wilson 1996) and helped verify that the scale adaptations had been successful.

Another example of the way semantic influences helped shape decisions relating to the MLS development concerns the need to measure the frequency with which Māori was spoken in a variety of different contexts. Developing a question only in English would have been reasonably straightforward, and might have involved the use of a typical frequency scale such as: all the time, most of the time, half of the time, some of the time, never. However, the mid-point for this scale would have been difficult to express in Māori because there is no equivalent word for "half" in the Māori language.

The dual development approach to developing this questionnaire allowed designers to recognise this difficulty early on, and to approach this question in a different way. Because the English word "equal" conveys the same meaning as the word "ōrite" in Māori, the question was framed differently and a new scale was developed and successfully used: all Māori, mostly Māori, Māori equally with English, mostly English, and all English.

4.2. *Conceptual equivalence*

Conceptual equivalence relates to the extent to which concepts and ideas are transferable between cultures. Concepts relevant to one culture may not be present or meaningful in another culture (Banville, Desrosiers, and Genet-Volet 2000).

At the inception of the project, designers were active in discussions with the project sponsors to clarify and refine information needs. This process of formal and informal consultation and negotiation was ongoing throughout the development and helped guide and inform decisions relating to linguistic issues. This process was also invaluable in compelling researchers to think critically about information needs and to adequately consider ways in which traditional Māori thinking might diverge from standard western frameworks.

For example, the concept of “family” is more narrowly defined in western cultures, and most commonly linked to “nuclear” family structures. In Māori, however, this concept is much broader and extends to a wider network of family, where “roles” are less strictly ascribed.

Another issue of relevance to the MLS development was the difference in the way Māori concepts of “home” differed from western ones. Where western concepts of “home” are almost invariably linked to current address or birthplace, for Māori ideas of “home” are more firmly anchored to regions of iwi (tribal) origin. Identifying these differences in worldview early in the project was important, with regard not only to selecting appropriate words within the questionnaire, capable of conveying an equivalent concept, but also to the interpretation of survey results.

4.3. Cultural influence

A further factor likely to threaten bicultural research is cultural influences. Differences in cultural conventions may mean that groups respond in different ways to questions contained within the questionnaire (see for example Hui and Triandis 1989; Marin, Triandis, Betancourt, and Kashima 1983).

Although cultural influences were not an immediate concern for the MLS project, because the design was one of a bilingual survey for a single ethnic group, cognitive testing revealed that respondents’ self-ratings of language proficiency tended to vary between subgroups of Māori speakers. Although respondents appeared to be interpreting the scale in similar ways, native speakers were consistently underrating their language ability, while second language learners were consistently overrating theirs. Several factors may help explain this, but the results of cognitive testing suggested that it largely stemmed from cultural influences.

Where second language learners were more inclined to have adopted a European (Pākehā) cultural value, which encourages pride in individual achievement, native speakers were far more likely to display a cultural tendency amongst Māori where personal importance or ability is understated. This tendency was described by respondents in cognitive interviews as “not wanting to be whakahihi,” or to appear “big-headed” about their ability.

Identifying this threat to a core objective early in the development cycle allowed designers to modify the proficiency scale to compensate for this effect. Adapting the scale descriptors at the upper and lower extremes to present “softer” options helped balance respondents’ ratings to minimise these differences. To do this the scale descriptor “I can say anything in Māori” was altered to become “I can say **almost** anything in Māori” and “No Māori” became “No more than a few words or phrases.”

These changes were made to both English and Māori versions of the questionnaire and cognitive testing indicated that scale performance had improved. Follow-up as described earlier (Te Puni Kōkiri 2002), confirmed that these scales performed well in the field.

5. Discussion

As these examples illustrate, the flexibility of the dual-development approach was instrumental in helping developers overcome problems throughout the development process. There were a number of advantages in using this approach.

Firstly, both questionnaire designers were fully conversant with the information needs for the research, and played an equal role in discussions to clarify and refine these needs. Regular and on-going consultation and negotiations with the survey sponsor as the development progressed helped guide and inform decisions relating to the questionnaire.

Secondly, through daily discussion and mutual agreement, both questionnaire designers were fully aware of the problems encountered during the project, were active in seeking solutions, and were able to reach suitable compromises.

Finally, and perhaps most importantly, the simultaneous generation of questions meant that there was ample opportunity for iterative cognitive testing of both versions to ensure comparability. This was a key advantage in the development, as it allowed researchers to assess how well the questionnaire was functioning in both languages.

Although adopting a dual-development approach to designing the MLS had a number of significant benefits, a number of practical issues need to be considered. These include issues of cost and technical review.

5.1. Costs

Costs associated with the dual-development design were relatively high. Because the number of Māori speakers in New Zealand remains fairly low, the benefits of using this approach may not have been immediately recognisable. The proportion of respondents completing the interview in Māori, although larger than previously observed in other SNZ bilingual projects, was relatively small (12%).

Although this could be viewed as a reason for researchers to limit the expenditure allocated for the second language development (Weidmer 1994), investigators recognised in the case of the MLS that this was an important investment. Producing a robust questionnaire in both English and Māori was advantageous politically, to promote credibility and acceptance amongst the Māori community, and was also viewed as essential in providing a valid benchmark against which to compare future results.

Costs were offset to a large degree, because this process enhanced the validity of the research data, and helped prevent significant and costly problems from occurring late in the development cycle. Although translations may appear to be a convenient and expedient alternative, they neglect important factors, which effect on the credibility of the research (Carroll, Holman, Segura-Bartholomew, Bird, and Busby 2001).

In working with Māori communities to develop and test the questionnaire, the MLS research project also benefited in less direct ways in that this work helped to increase awareness of the research amongst the wider Māori community. This in turn helped to promote a good response rate when the survey went into the field.

5.2. Expert review

As with all questionnaire projects, expert review is a valuable complement to quality assurance. However, for the MLS project this created some difficulties. Although the

questionnaire designers had access to a cultural/language adviser (or *kaiāwhina*) throughout the development cycle, the reality was that this person was off-site and therefore was not immediately accessible on a day-to-day basis. This created some delays and inhibited the free and easy exchange that the project team had hoped to promote.

A further problem was that independent language reviewers, although highly skilled in language issues, lacked an in-depth knowledge of questionnaire design and survey objectives. On occasion this led to some misunderstandings when trade-offs needed to be made between question clarity and language preferences. However, a challenge for designers in continuing to develop a “dual” approach to bilingual projects is to promote a better understanding of the process within the wider survey development team.

To achieve a truly integrated approach, it is also envisaged that this process could be expanded to include the drafting of other respondent documentation, such as pre-notification letters and information pamphlets.

6. Conclusion

Clearly there are limitations to the feasibility of adopting a dual-development approach to creating questionnaires in two languages. This process has greatest potential when applied to new developments, because researchers are often reluctant to alter existing questions, particularly if these questions form part of a long-standing time series or have been previously validated in earlier research.

Costs and resourcing constraints may also make this approach less attractive to researchers, although the view taken here is that these costs and constraints need to be weighed against wider benefits and, in particular, smaller measurement error. This, in turn, should increase the validity of the research.

However, the MLS example illustrates that a dual-development procedure can be a valuable tool in the development of bilingual questionnaires. A major advantage with this process is that language and cultural issues are considered at every stage of the development cycle, which is useful in achieving structural, conceptual and cultural equivalence so that data from both versions will be equally robust. While practical challenges such as adequate resourcing and technical review may continue to be a problem, the increased potential for intensive and concurrent testing of both versions can help assure researchers of a quality questionnaire and increase the likelihood that survey results will be valid.

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