

**Developing Bilingual Questionnaires:
Experiences from New Zealand in the development of the
2001 Mäori Language Survey.**

Lyn Potaka
Statistics New Zealand
85 Molesworth Street
Wellington
New Zealand
e-mail: Lyn.Potaka@stats.govt.nz

Suzanne Cochrane
Statistics New Zealand
85 Molesworth Street
Wellington
New Zealand
e-mail: Suzanne.Cochrane@stats.govt.nz

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

This paper describes a "dual development" approach to the design of bilingual questionnaires, as used by New Zealand's statistical agency. The paper compares this dual-development approach with traditional translation practises. Using experiences from the development of a Māori language survey, the paper 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.

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 sub-populations 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, the indigenous population of New Zealand. The Māori language is one of the two official languages in New Zealand, along with English, the language most commonly used. With increasing recognition of the importance of the Māori language to the Māori people, as an official and everyday language, the challenge for Statistics New Zealand has been to develop questionnaires which are equally valid in both languages.

New Zealand's statistical agency, Statistics New Zealand (SNZ), was first involved in designing questions in both English and Māori for the 1996 Census of Population and Dwellings.

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 considerable dialectical variation between iwi (tribes). Words and phrases used by one iwi are not always used by other iwi.

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 struggled to evolve and keep pace with modern technological developments and bureaucratic terminology. Keeping questions free of transliterations and "loan words" adopted from English to reflect these changes can be difficult. Although new Māori words are constantly being developed and introduced into the language through official sources, the limited use of these technical words in everyday conversation means that they are not adopted quickly and are rarely well-known at the grass-roots level. In contrast, transliterations are more widely used and commonly understood. 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.

2.2 *Pretesting*

To address these concerns, SNZ see it as essential that questions in Māori are exposed to the same rigorous pretesting as those in English.

The pretesting method favoured by SNZ for questionnaire development is cognitive testing. Cognitive testing is effective in identifying problems with question construction, and can be particularly useful in revealing problems related to semantic influences (Presser & Blair, 1994). The concurrent and retrospective probing used in these think-aloud interviews, can help assure researchers that questions are being interpreted as intended.

2. **World Practice**

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 & Tarnai, 1996).

The problems with direct translation have been well documented (see for example Behling & Law, 2000). Perhaps most importantly, this process denies cultural differences between the source and target cultures, which can threaten the validity of the research.

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). Ultimately these problems 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, the method most accepted as good practice for questionnaire design (McKay et al, 1996; Hilton & 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.

While 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.

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 which are "dictionary equivalents" of each other. Although the back translation may closely match the original version, this procedure does not guarantee that the questions will be understandable to respondents (Behling & Law, 2000).

2.3 *Decentering*

Decentering is a preferable option where the aim is conceptual equivalence (Werner & 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, because translation and revision typically follow on from the source language development, there can often be less time allocated to pretesting, and if there are delays in development, this time can be further compromised.

2.4 *Dual Development*

Because bilingual developments present additional concerns over and above the usual needs of pretesting, SNZ have opted to use a “dual development” approach to designing questions in English and Māori. One of the core advantages of this procedure is 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 both 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 both languages within a single questionnaire and on the accompanying showcards. 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 which 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, 2000).

3. Māori Language Survey

Like other indigenous languages world-wide, the Māori language struggles to survive in an environment where English has become the dominant language (Te Puni Kōkiri, 1995). 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 sponsored 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 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 both 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.

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

As an example, one such strategy is to keep questions as short and simple as possible. However questions which 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' decisions 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 option. 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.

Another example of the way semantic influences helped shape decisions relating to the MLS development, was the need to measure the frequency with which Māori was spoken in a variety of different contexts. Developing a question in English only would have been reasonably straight forward, and may 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, or never. However, the mid-point for this scale would have been difficult to express in Māori because, although there is a Māori transliteration for the word "half", its meaning becomes distorted when used within this context.

The dual development approach to developing this questionnaire allowed designers to recognise this difficulty early, 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 of - all Māori, mostly Māori, Māori equally with English, mostly English, and all English - was developed and used successfully.

4.2 *Conceptual*

Conceptual equivalence relates to the extent to which concepts and ideas are transferable between cultures. Concepts relevant to one culture may not apply to another culture, or may be thought of differently.

At the inception of the project designers were active in discussions with the project sponsors to clarify and refine information needs. While this process helped guide and inform decisions relating to linguistic issues, it was also invaluable in compelling researchers to think critically about their information needs and to 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 viewpoints. 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 origin. Identifying these differences in worldview early in the project was important, not only in selecting appropriate words within the questionnaire, but also to the interpretation of survey results.

4.3 *Cultural*

A further factor likely to threaten bicultural research relates to cultural influences. Fundamental differences in cultural behaviours may mean that respondents react in different ways to questions contained within the questionnaire (see for example, Hui & Triandis, 1989).

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 sub-groups of Māori speakers. Although respondents appeared to be interpreting the scale in similar ways, native speakers were consistently under-rating their language ability, while second language learners were consistently over-rating their language ability. Several factors may help explain this observation, but the results of cognitive testing suggested that this effect largely stemmed from cultural influences.

Where second language learners could be seen 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”.

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 information needs. This process helped guide and inform decisions relating to the questionnaire.

Secondly, through discussion and mutual agreement, both 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 means that there was ample opportunity for iterative testing of both versions to ensure comparability.

Although adopting a dual-development approach to designing the MLS had a number of significant benefits, a number of practical issues should 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, made up a relatively small proportion of the total interviews (12%).

Although this could be viewed as a reason for researchers to limit the expenditure allocated for the second language development (Weidmer, 1994), in the case of the MLS, investigators recognised that producing a robust questionnaire in both English and Māori was an important investment, in order to provide 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 impact on the credibility of the research (Carroll, Holman, Segura-Bartholomew, Bird & Busby, 2001).

In working with Māori communities to develop and test the questionnaire, the MLS research project also benefited in less direct ways, by helping 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 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.

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 language choices and question clarity.

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 should be expanded to include other aspects of the survey development such as client objective-setting and the development of other survey documentation, such as pre-notification letters and information pamphlets.

5. **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 they 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 need to be weighed against wider benefits and, in particular, lower measurement error and increased validity.

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 and this is useful in achieving structural, conceptual and cultural equivalence so that data from both versions will be equally valid. 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.

References

Behling, O. & Law, K.S. (2000). *Translating Questionnaires and Other Research Instruments: Problems and Solutions*. Thousand Oaks, CA: Sage Publications.

Carroll, J.S., Holman, T.B., Segura-Bartholomew, G., Bird, M.H. & Busby, D M. (2001). Translation and Validation of the Spanish Version of the RELATE Questionnaire Using a Modified Serial Approach for Cross-Cultural Translation. *Family Process, Vol 40, No. 2*.

Hilton, A. & Skrutkowski, M. (2002). Translating Instruments into Other Languages: Development and Testing Processes. *Cancer Nursing, Vol. 25, No. 1*.

Hui, C.H. & Triandis, H.C., (1989). Effects of Culture and Response Format on Extreme Response Style. *Journal of Cross-Cultural Psychology, Vol. 20, No. 3, September*. 296-309.

McKay, R.B., Breslow, M.J., Sangster, R.L., Gabbard S.M., Reynolds, R.W., Nakamoto, J.M. & Tarnai, J. (1996). Translating Survey Questionnaires: Lessons Learned. *New Directions for Evaluation, No. 70*. Summer.

Potter, D. (1999). Development of a Dual Language (Bilingual) Questionnaire. *Proceedings from QUEST*. London: Office for National Statistics.

Presser, S. & Blair, J. (1994). Survey Pretesting: Do Different Methods Produce Different Results? In P.V. Marsden (ed.). *Sociological Methodology, Vol. 24*. Oxford: Blackwell.

Te Puni Kokiri (1994). *Te Mahi Rangahau Reo Māori (The National Māori Language Survey)*. Wellington.

Weidmer, B. (1994). Proceedings of the Section on Survey Research Methods, Vol. 2. *Papers presented at the Annual Meeting of the American Statistical Association*. American Statistical Association.

Werner, O. & Campbell, D.T. (1970). Translating, Working Through Interpreters and the Problem of Decentering. In R. N. Cohen and R. Cohen (eds.). *A handbook of Method in Cultural Anthropology*. New York: American Museum of Natural History.