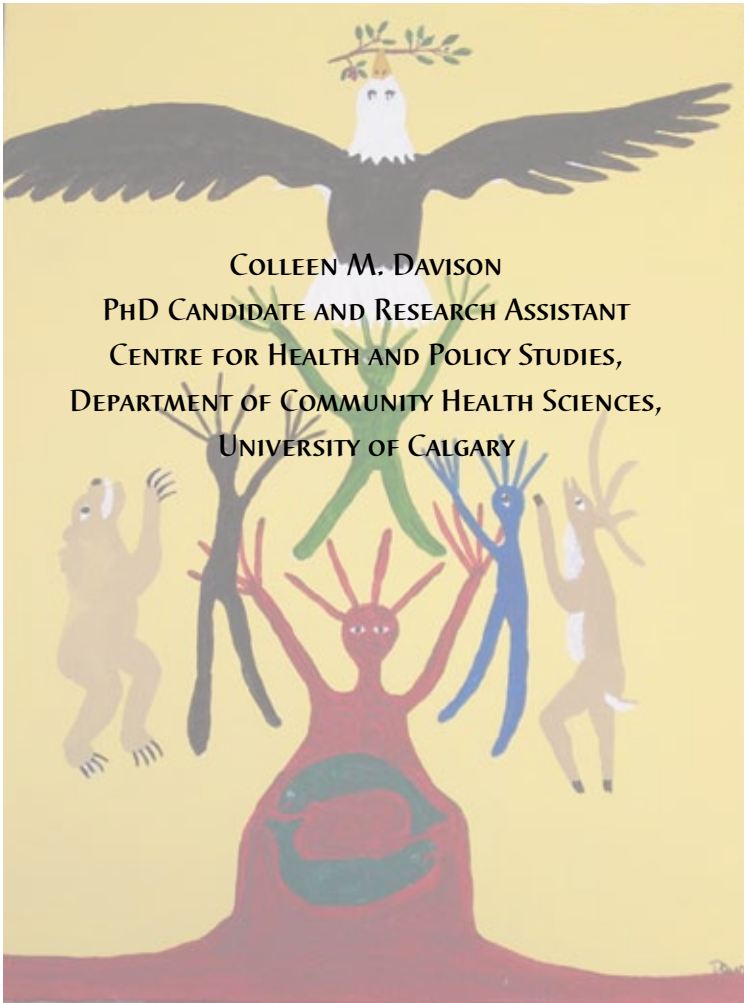# Translation of Fixed-Response Questionnaires for Health Research with Aboriginal People: A Discussion of Methods

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Artwork by Dawn Marsden

"Language is a gift from the Creator. Embodied in aboriginal lan-guage is our unique relationship to the Creator, our attitudes, be-liefs, values, and the fundamental notion of what is truth."
— *National Indian Brotherhood*

ABSTRACT

The primary objective of this paper is to raise interest and awareness surrounding issues related to the translation of research instruments for use in health research with Aboriginal people. The paper provides a review of three current methods for translating fixed-choice questionnaires and looks at the strengths and weaknesses of each method. Recommendations from this paper include the need for more discussion about translation in research studies with Aboriginal people and other minority groups as well as further research to compare methods and examine the evidence of the effectiveness of each method. Gaining this kind of understanding, and putting our learn-ing into practice, could positively affect the overall quality, relevance and ef-fectiveness of health research with Aboriginal people.

INTRODUCTION

Many of us can imagine a time at which we were asked to fill out a survey or questionnaire and where we could tell that the questions in that instru-ment had not been developed with 'us' in mind. Perhaps the question word-ing sounded exotic, questions were hard to interpret or the document was in a language other than our mother tongue. Fixed-choice questionnaires (research tools that ask participants questions about a topic and then pro-vide a series of answers or responses to select from) are common in health research (Bradburn, Sudman and Wansink 2004). As the amount, scope and reach of health research expands, and research funding remains tight, it can be appealing to use pre-existing questionnaires for gathering data instead of developing new tools. The distinct challenge however, is that the majority of established research measurement instruments (surveys, questionnaires, scales, or indexes) come from the Anglo-American literature and exist in ver-sions that have been specifically developed for a mainstream North American population (Billinger et al. 1998, McDowell and Newwell 1987).

The use of questionnaires of Anglo-American origin has implications in Aboriginal and Indigenous community health. It raises questions concerning

whether these tools can be used in their existing versions and/or how they could best be modified for use in health research with Aboriginal communities. As an example of why using a pre-existing questionnaire might be questionable, we can look to the SF-36. This is a well-used 36-question tool that asks questions in a number of areas pertaining to a person's overall health and quality of life (the 'construct' the questionnaire is proposing to measure). For example, there are a number of questions pertaining to a person's physical functioning. These questions ask whether a person can climb a flight of stairs without difficulty or whether someone is able to carry shopping bags more than a few city blocks. When looking at the suitability of this questionnaire for people in settings outside those for which the questionnaire was originally designed (primarily urban American environments) we question the 'construct-validity' of the tool. Construct validity refers to whether the questions that are asked really measure the construct (health and quality of life) we wish to know about (Cronbach 1971, Moss 1994). The 'stairs and blocks" line of questioning might not make sense in a remote Aboriginal community, for example, where flights of stairs and city blocks might not be common. If someone in Repulse Bay, Nunavut, answered the American version of the SF-36, they might find the questions a bit 'exotic' and could probably pick up that the tool was not originally designed for them as the audience. Using a linguistically and/or culturally inappropriate questionnaire may affect the ability of researchers to make inferences about the results of that instrument (it may not accurately reflect health or quality of life) (Jones and Kay 1999). There may be another set of questions, or ways to word questions, that would better relate to these constructs in these kinds of contexts. This paper will reveal that there are a variety of ways that researchers might arrive at an adapted version of a pre-existing questionnaire.

Objectives

The objectives of this paper are to:
- Raise interest and awareness surrounding issues related to the translation of research instruments for use with Aboriginal people;
- Provide a review of three current methods of translating fixed-choice questionnaires, including the strengths and weaknesses of each method;
- Highlight the need for further discussion and research in this area.

Terminology

Before discussing translation in detail it is necessary to define, for the purpose of this paper, a series of terms:

Fixed-response questionnaire: a research tool where participants are asked questions about a topic and then provided a series of answers or responses to select from.

Construct: Abstract attributes (usually of individuals) that "construct-referenced" questionnaires attempt to measure. eg. depression, anxiety, happiness, quality of life, or honesty (Cronbach 1971).

Construct Validity: refers to whether a questionnaire measures what it is supposed to measure (Cronbach 1971, Moss 1994).

Item: a question or a sub-section of a question (these get tallied or scored when analyzing questionnaires).

Response Choices: the series of answers or responses that are provided for questionnaire respondents to select from (these may be textual [i.e. yes, no, sometimes] or based on a numeric scale [i.e. the 1-5 strongly disagree to strongly agree model]).

Source Language: the original language of the questionnaire, in the majority of cases an American form of English.

Target language: the language that the instrument is being translated into (this may be a different language altogether [i.e. English to Cree] or a second version of the language of the source document [i.e. American to British English, or English to be used with an Aboriginal group in Canada versus English used with military veterans in the United States]).

Translator/Interpreter: the person who translates the original document into the target document.

Forward translation: translating the original document into the target language.

Back translation: translating the translated version back into the source language.

Reconciliation sessions: meetings held among translators, research team and/or local people to talk about the translated document, usually to make a decision about specific translation issues.

Triangulation: when two or more translated versions are compared to make a decision about specific translation issues.

Involvement of the Target Population: when members of the population that the instrument will eventually be used in are involved (things like interviews, focus groups or pre-testing) in the adaptation process.

A Case for Translation

The Merriam-Webster English Dictionary (1994: 768) defines translation as, "the act of changing from one place, state, or form to another. The discussion surrounding translation, as it relates to research methods and questionnaires, has been primarily focused in the fields of social anthropology, psychiatry and cross-cultural psychology (Brislin, Lonner and Thorndike 1973, Klienman, Eisenberg and Good 1978). Prior to the 1990s, very little had been written in the health-related literature concerning the quality of translations of health measurement instruments or how this might impact research results (Bullinger et al. 1998). Since that time, there has been a steady increase in health-related publications concerning these issues. The most significant of these is the discussion surrounding the International Quality of Life Assessment Project (IQOLA) (Gandek and Ware 1998).

Some debate exists over the need for adapting pre-existing questionnaires. As will be discussed in this paper, the process of adapting a health measurement tool for use in a new setting may involve up to six trained interpreters and over 10 stages of development. In this type of situation, translation can be a significant burden on the research team and participants. Some scholars argue that unique, rather than adapted, instruments should be developed for use in each new setting. Some of the counter arguments to this point include that as Ware and Gandek point out, there may be many of the same difficulties encountered while adapting an instrument as were encountered in its initial development and that researchers can learn from this previous work. There may also be experience using the existing document with ethnically diverse populations already and this past experience may help inform the adaptation process. The other strength of adapting, rather than creating, a measuring instrument is that the measurement and structural model (the way the instrument is designed to be delivered and analyzed) does not necessarily have to be re-invented entirely (Gandek and Ware 1998).

Bullinger and colleagues (1998) argue that before any research instruments can be used with populations beyond that of their original purpose,

such as using a mainstream American questionnaire with an Aboriginal population in Canada, source documents should be adapted for language and cultural appropriateness (Bullinger et al. 1998). In relation to questionnaires, translation can refer to changing a document from one language to another, or, simply adapting the original document so that the choice of words, terminology, or level of reading difficulty are appropriate for the new target audience.

Translation and Research with Aboriginal Peoples

There are obvious benefits for supporting the sustenance and revival of native culture and languages in Canada (Royal Commission on Aboriginal Peoples 1996). Research, and more specifically health research, which is undertaken with indigenous populations, should be done with respect for, and without detriment to, native culture and languages. Approximately one-fifth of the nearly 1 million people who identified as North American Indian, Métis or Inuit in the 2001 Canadian Census speak an aboriginal language as their mother tongue and an additional 35,000 people report being able to understand an aboriginal language (Statistics Canada 2003). However, statistics indicate that far fewer people read and write an aboriginal language in Canada (Government of British Columbia 1991). The Aboriginal Peoples Surveys of 1991 and 2001 collected information about aboriginal language ability. In 1991 in British Columbia for example, 20% of Aboriginal people over the age of 15 could speak or understand a native language and less than half of these people could read and write that language (corresponding data has not been published from the 2001 survey) (Government of BC 1992). When researchers hope to use pre-existing questionnaires in health research with Aboriginal people, translation may be to a native language from a French or English version (for some) but more often, it involves adapting the English or French version to make it more understandable in indigenous communities (but not changing the language entirely).

Very little has been written about the translation and subsequent use of fixed-choice questionnaires with Aboriginal people or other minority groups. In May 2002, Katrin Conway and her colleagues at the Mapi Research Institute did a comprehensive literature review of papers concerning methods of cross-cultural adaptation of health-related measurement instruments. Papers were

included if they proposed a set of guidelines or recommendations for adaptation or if they reviewed and criticized methods to cross-culturally adapt measures from a source language to a target language. Their search resulted in 18 papers proposing translation guidelines and 14 papers proposing unique methods (Conway, Mear and Acquadro 2003). The majority of these papers related to the translation of instruments from one language to another (rather than the adaptation of an instrument within the same language). None of these papers related to Aboriginal people specifically. It would appear that although many strong methods for adapting questionnaires exist, it is not clear which methods might best be used in different types of health research with indigenous people. In general, "best practices" have not been widely shared (Samson 1999).

THE ART OF TRANSLATION

When adapting a health measurement instrument, it is necessary to match the translation strategy with the study goals. There are two main types of translation. The first is called symmetrical translation. This type of translation stays loyal to the meaning of the original document so that there is an equal sense of familiarity in the source and target documents and cultural relevance is maintained. In the SF-36 example, a symmetrical translation of the document may not use the exact words "shopping bags," "flights of stairs," and "city blocks." Instead, a translator would attempt to remain loyal to the meaning of the original document, thus finding terms that would relate equally to physically functioning, health, and quality of life in the new cultural context.

The second main type of translation is called asymmetrical translation. This type of translation remains loyal to one language (usually the source language) so the translated version may sound somewhat unnatural. This type of translation is useful if the study goals are to compare responses of one culture with another, in a situation specific to one of the cultures (Werner and Campbell 1970). For example, location specific client satisfaction questionnaires (e.g. Are you satisfied with your visit to the health clinic today? Are you aware of the patient education classes offered at your health clinic?) would appropriately use asymmetrical translation. The WHO Health Behaviors of School-Aged Children Survey, which aims to compare international responses to questions concerning specific health behaviors, was translated using this type of translation (World Health Organization 2000). This question-

naire asked about such things as the number of cigarettes smoked per day, daily intake of fruits and vegetables, amount of time spent in physical activity per week, etc.

Methods for Translating Fixed-Choice Questionnaires

A search of the peer-reviewed literature was undertaken. Key words included questionnaire(s), survey(s), tool(s) and instrument(s) along with translation and adaptation. Databases that were searched included Medline, CINAHL, PsychInfo, PubMed, Sociological Abstracts and Academic Search Premier. Although many studies did not discuss their translation method in detail, over 20 different methods or variations of methods of translation were found. These could generally be viewed as some form of adaptation of one of the three models reviewed for this paper. These three methods were selected as representative of the wide-range of translation approaches, based primarily on increasing level of complexity. Each of the three methods will be explained and then the strengths and weaknesses of that particular approach will be noted.

'Standard' Back Translation

Back translation (Brislin et al. 1973, Tamanin et al. 2002) appears to be the most commonly used method of translation and has been seen throughout the social and anthropological literature. Tamanin and colleagues describe the approach in four steps (Figure 1):

Step 1: The source language document is translated into the target language document.

Step 2: A second translator back translates the target language document into the source language.

Step 3: Reconciliation sessions (with translators and the research team) to look at the original language document and the source language document #2 to reconcile discrepancies.

Step 4: Pre-testing of translation with target population. Project team (in collaboration with translators 1 and 2) makes adjustments to final version.

Figure 1: 'Standard' Back Translation Method (Tamanin et al 2002)

```
                 Forward                        Back
               translation by               translation by
  ┌──────────┐  Translator 1  ┌──────────┐   Translator 2   ┌──────────┐
  │  Source  │───────────────▶│  Target  │─────────────────▶│  Source  │
  │ language │                │ language │                  │ language │
  │ document │                │ document │                  │ document │
  └────┬─────┘                └────┬─────┘                  └────┬─────┘
       │                           │                             │
       │                           ▼                             │
       │                     ┌───────────┐                       │
       │                     │Reconciliation                     │
       └────────────────────▶│ sessions with│◀────────────────────┘
                             │ translators │
                             └─────┬─────┘
                                   │
                                   ▼
                             ┌───────────┐
                             │ Pre-testing│
                             └─────┬─────┘
                                   │
                                   ▼
                             ┌───────────┐
                             │Final version│
                             └───────────┘
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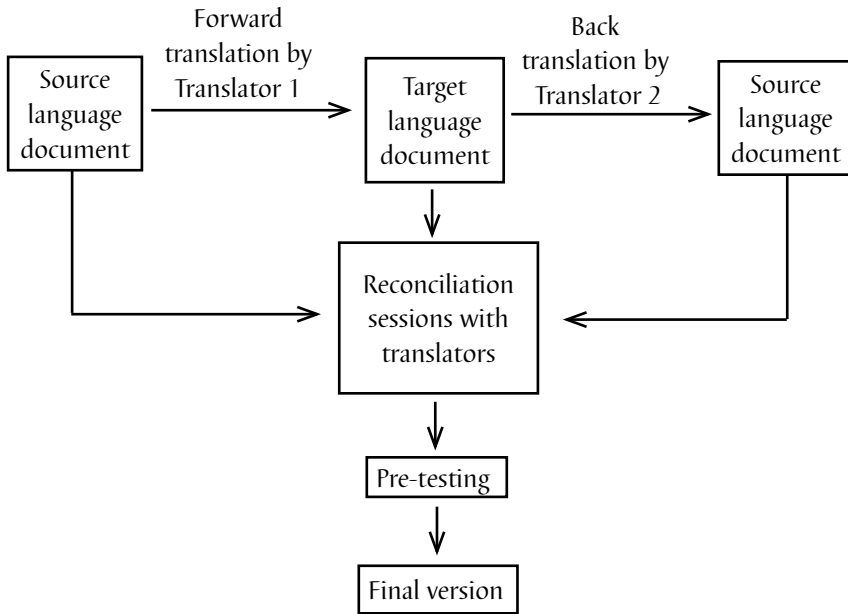
STRENGTHS

This method uses two translators (and the process of back translation) to check the quality of translation. Reconciliation sessions between the translators and the research team are also used for quality control. Members from the target population are involved in pre-testing the instrument and this can be useful in assessing the cultural relevance of the material. The approach is likely the most feasible for smaller, community-based research projects.

WEAKNESSES

This method does not explicitly involve an initial phase of qualitative exploration in order to determine whether the construct the instrument is trying to measure may be defined differently in the new setting. The linguistic ability of the translators is also not specified (in most cases) and it is not clear whether translators must be of the target culture and/or have an understanding of the research area. The process of reconciliation and pre-testing is usually not clearly explained and the number of translators involved is not standardized. There is also some variation in the methods, for example Jones

and Kay (1999: 246-247) explain that the source document is split into two halves, each half given to a different translator. Upon completion of the forward translation of one half of the document, the translators switch material and back translate the other half.
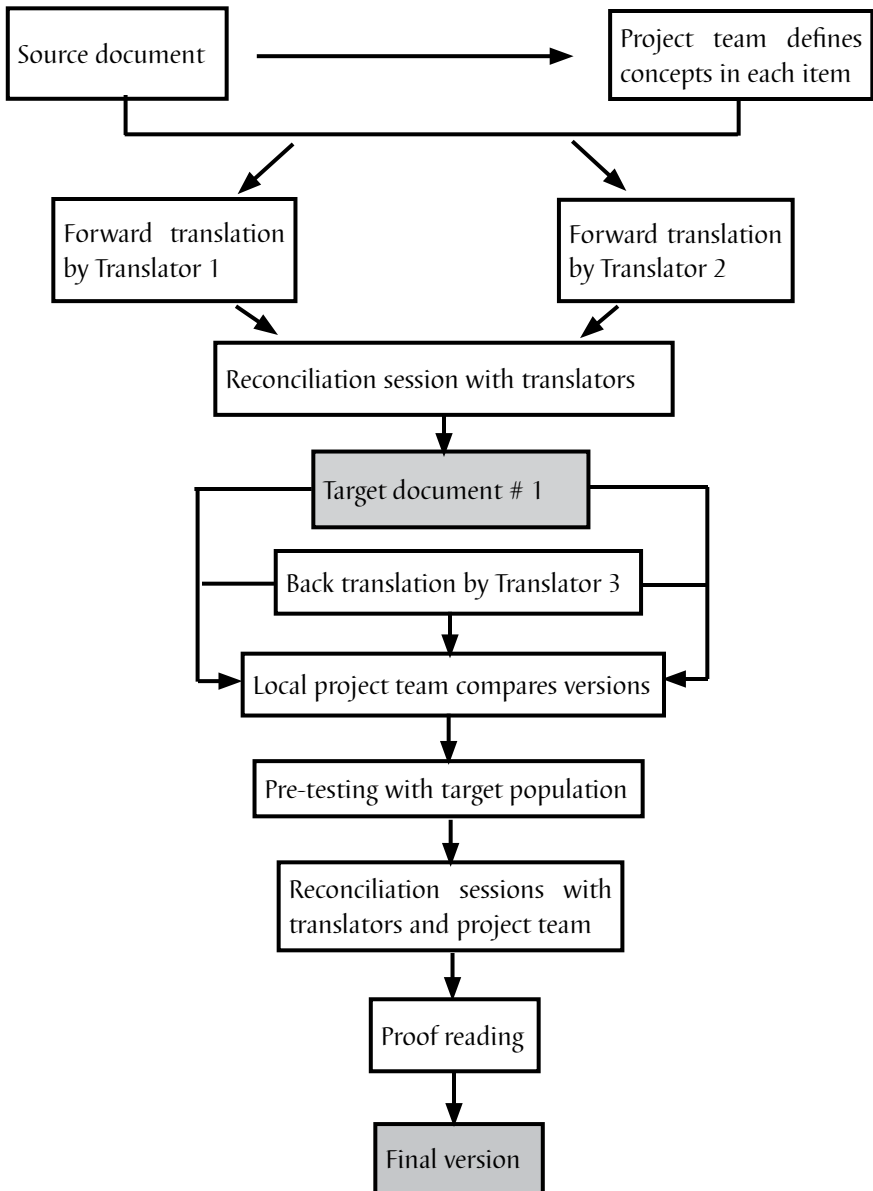
Mapi Research Institute Method

The Mapi Research Institute is located in Lyon, France and has done "linguistic validation" of more than 200 health-related measuring instruments in 90 countries (MAPI Research Institute 2002). Their process is broken into eight stages (Figure 2):

Step 1: Definition of concepts in each item.

Step 2: Forward translation by 2 translators.

Step 3: Reconciliation meeting of the 2 translators to decide on one translated version.

Step 4: Back translation of the reconciled version by a third translator.

Step 5: Comparison of the original and back translation by the local project team.

Step 6: Interviews with members of the target population to test the interpretation of the translation.

Step 7: Comparison of all versions in a meeting with the project team and professional translators.

Step 8: Final proof reading and final version.

Strengths

This method has been widely used by the Mapi Research Institute. It begins with the definition of concepts (what is being asked about) in the question. This may help the translators better understand the document and its purposes. The concept definition stage is unique to this method and is a distinct strength. The process involves at least three professional translators and includes three levels of reconciliation sessions. Triangulation is used as two preliminary forward translations are used to reconcile to one version for back translation. The method also involves consultation (interviews) with the target population.

Figure 2
Mapi Research Institute Methods (Mapi Research Institute 2002)

```
┌─────────────────────┐              ┌─────────────────────┐
│  Source document    │─────────────▶│ Project team defines│
│                     │              │ concepts in each item│
└─────────────────────┘              └─────────────────────┘
         │                                      │
         ▼                                      ▼
┌─────────────────────┐              ┌─────────────────────┐
│ Forward translation │              │ Forward translation │
│ by Translator 1     │              │ by Translator 2     │
└─────────────────────┘              └─────────────────────┘
         │                                      │
         └──────────────┬───────────────────────┘
                        ▼
        ┌───────────────────────────────────────┐
        │ Reconciliation session with translators│
        └───────────────────────────────────────┘
                        │
                        ▼
              ┌───────────────────────┐
              │  Target document # 1  │
              └───────────────────────┘
              ┌───────────────────────┐
              │ Back translation by Translator 3│
              └───────────────────────┘
              ┌───────────────────────┐
              │ Local project team compares versions│
              └───────────────────────┘
                        │
                        ▼
              ┌───────────────────────┐
              │ Pre-testing with target population│
              └───────────────────────┘
                        │
                        ▼
              ┌───────────────────────┐
              │ Reconciliation sessions with│
              │ translators and project team│
              └───────────────────────┘
                        │
                        ▼
              ┌───────────────────────┐
              │   Proof reading       │
              └───────────────────────┘
                        │
                        ▼
              ┌───────────────────────┐
              │    Final version      │
              └───────────────────────┘
```

Weaknesses

Similar to the standard back translation method, the Mapi Research Institute method does not explicitly involve an initial phase of qualitative exploration. More about the role of qualitative research in cross-cultural adaptation will be discussed later in this paper. The Mapi Research Institute does not clearly outline the standard to which translators must be qualified. Again, they do not specify whether the translators are of the target population's culture and/or are knowledgeable of the research area.

Translation Protocol for the International Quality of Life Assessment Project

The International Quality of Life Assessment Project (IQOLA) began in 1991 and has been translating, validating and norming the SF-36 in over 54 countries (Gandek and Ware 1998). The complex method of translation is best explained in the following flow-chart adapted from Bullinger and colleagues (Figure 3) (Bullinger et al. 1998).
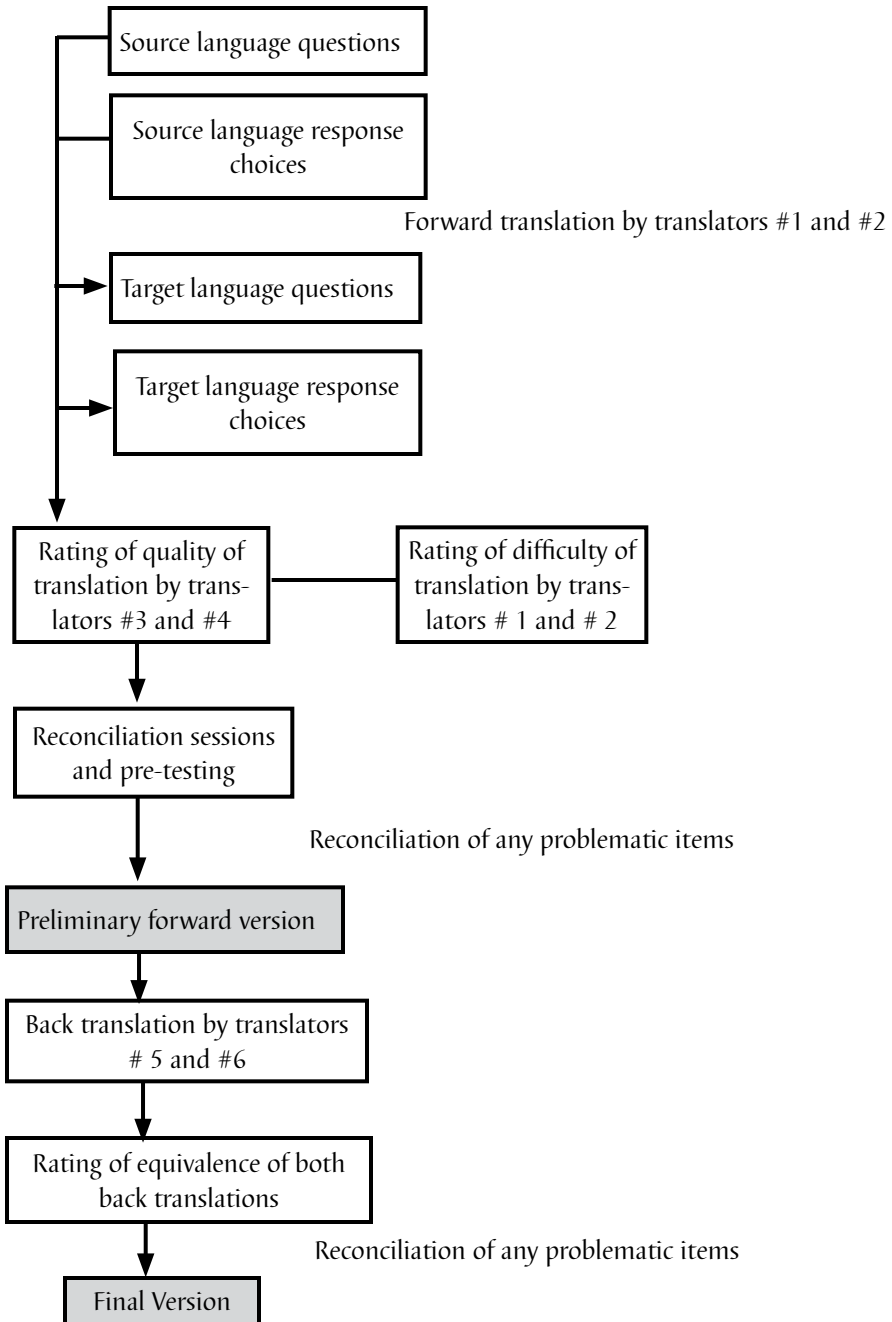
Strengths

The standard translation protocol for the IQOLA Project is a comprehensive standardized translation procedure that involves six professional translators and numerous reconciliation sessions. This approach seems to be well-suited for larger studies. Unique to this method are the rating stages for both difficulty of translation (as perceived by the translator) and quality of translation. Also unique to this method is the separation of items and response categories. These are potential strengths as the literature suggests that in other translation methods, inappropriate attention has been paid to the translation of response choices as opposed to the items themselves (Jones and Kay 1999).

Weaknesses

The main drawbacks of using this method are that it may be difficult to find, or afford, six well-qualified translators. It also may not be necessary to engage in such a complex translation process for a small, single-use questionnaire, for example. Qualification or experience of translators is again not standardized nor do they specify whether translators are, or should be, from the target population or are knowledgeable of the research area. This method does not involve the target population in the adaptation process, nor does

Figure 3
International Quality of Life Assessment Project Method (3)

Source language questions

Source language response choices

Forward translation by translators #1 and #2

Target language questions

Target language response choices

Rating of quality of translation by translators #3 and #4

Rating of difficulty of translation by translators # 1 and # 2

Reconciliation sessions and pre-testing

Reconciliation of any problematic items

Preliminary forward version

Back translation by translators # 5 and #6

Rating of equivalence of both back translations

Reconciliation of any problematic items

Final Version

it have an initial phase of qualitative exploration that may help inform the research in this new setting.

The Role of Qualitative Research in Cross-Cultural Adaptation

Jones and Kay (1999) point out that the first step in adapting instruments for use in a new setting should be conducting a preliminary qualitative study. These authors use the example of adapting an American bereavement questionnaire for use with Mexican widows. An initial qualitative study, involving transcribed interviews with the widows themselves, greatly informed the language use and inclusion, or exclusion, of items on the translated questionnaire. Streiner and Norman (1996) give a similar example where a qualitative study informed the adaptation of a scale concerning child abuse. Subtle differences in the meaning of the construct of "child abuse" were found between people in the USA and Chile and the authors were able to adjust the scale for use in each context accordingly.

There is some evidence of the use of qualitative methodology in the translation methods listed in this paper. The Mapi Research Institute method uses cognitive debriefing, or interview sessions with members of the target population, to test the interpretation of the translation (MAPI Research Institute 2002). This type of data collection could also be used in the pre-testing phase of the standard back translation method. It seems that qualitative research can play an important role in informing the cultural adaptation process at a variety of stages.

Conclusions

There is a great diversity of translation methods being used in research today. Strengths seen in the translation methods reviewed here include:

- An initial phase that includes a qualitative exploration of the concept with the proposed target population

- Definitions of the concepts being measured by the questionnaire

- The involvement of forward and back translations by different translators

- The use of multiple translators (minimum 2) who:
    - Are trained to an locally-relevant standard
    - Have in-depth understanding of the target population

- Have an in-depth understanding of the concept being measured

- Meaningful involvement by the target population in the development, translation assessment and pre-testing phases of the adaptation

- The quality of translation assessed by an additional qualified translator

- Reconciliation sessions including translators and members of the research team take place following each stage of the translation procedure

- Equal attention is paid to the translation of items and response categories in the translation process

Appropriate methods for adapting health-related measurement instruments for use in cross-cultural settings do not appear to be widely known. Work could be done to disseminate some of this information to a wider audience, especially those doing health research with Aboriginal people and other minority groups in Canada. This review supports the sentiments of Conway et al. (2003) who point out that further research is needed to compare methods and examine the evidence of effectiveness of each method. Gaining this type of understanding, and putting our learning into practice, could help improve the quality, relevance and effectiveness of health research with populations beyond the Anglo-American mainstream.

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