

The development and trial of Māori language tools for assessing oral language from Years 1 to 3

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Abstract

Māori language education settings have resulted in teachers requiring efficient ways to identify the oral Māori language proficiency of students at the beginning of Māori-immersion schooling and throughout their participation as the basis for students' ongoing learning. Accordingly, three assessment tools were developed using understandings from sociocultural perspectives on human learning that emphasise the importance of the responsive social and cultural contexts in which learning takes place. The researchers aimed to promote culturally responsive contexts in which students would talk about topics of interest. Once the tools and processes were found to have cultural legitimacy, further trials in a number of settings tested two of the assessments for measurement reliability and validity. This paper introduces the assessment tools and discusses the establishment of cultural legitimacy. It then discusses assessing the reliability of the tools using test–retest and internal consistency evidence, and assessing the tools for content validity.

Introduction

In New Zealand, the imminent loss of the indigenous Māori language (Benton, 1983) contributed towards a strong movement of resistance by Māori people to ongoing colonisation. This movement, known as kaupapa Māori (Smith, 1997; Smith, 1999) is based on Māori aspirations and the Treaty of Waitangi.¹ As such, it provides guarantees for the revitalisation of Māori language, culture and identity as part of a wider process of developing new power relationships based on the self-determination of Māori people as Treaty partners. In educational settings, for example, the

interrelationships and interaction patterns that develop draw upon Māori cultural aspirations and sense-making processes that seek to promote the self-determination of all participants in the educational setting. In the 1980s, for example, kaupapa Māori led to the establishment of te kōhanga reo (Māori language preschools) which in turn drove an increasing number of people to both learn in and teach through the medium of the Māori language (Smith, 1995, 1997). Families of kōhanga reo graduates started the wave of Māori-medium education (accessing the curriculum through the medium of the Māori language) into primary schooling and thus the revitalisation and retention of the Māori language at an iwi (tribal), hapū (subtribe) and whānau (family) level, and at the level of education provided by the state. Kōhanga reo and kura kaupapa (schools designed by Māori for Māori to uphold and present authentic Māori values and beliefs) have meant that social and pedagogical structures for learning from traditional Māori society have finally begun to be acceptable within mainstream education.

The 1989 Education Act gave communities the right to set up their own “special character” state-funded school. This enabled, for example, Māori language to be taught as the centre of the learning process and as the medium for delivery of the entire curriculum (Māori-medium education or rumaki) rather than merely as a separate subject within it. There were considerable challenges, at both a policy and practice level, in establishing kura kaupapa Māori and then Māori-medium classrooms and schools. Nonetheless, for the first time, schools were focused on the promotion of higher levels of achievement for Māori students and the revitalisation and maintenance of the Māori language (Education Review Office, 1995). One of the basic tenets of the Māori-medium education movement was to afford rangatiratanga (self-determination) to Māori learners and their families over what constitutes an appropriate model of education, as well as over the language medium of that education (Smith, 1997).

In 2000, there was a stocktake to identify Māori-medium diagnostic assessment tools used to assess students’ achievement in reading, writing and mathematics in the first 4 to 5 years (Bishop, Berryman, Glynn, & Richardson, 2000). In this study, diagnostic assessment tools or instruments were broadly defined as tools that identified a child’s

strengths and weaknesses in a particular learning area, thus providing information for future teaching.

The overall picture from the areas sampled indicated there was limited availability of diagnostic assessment tools, and few diagnostic assessment tools used in the schools sampled. This is not surprising given the limited resource that had gone specifically into the development, trial and promotion of diagnostic assessment tools for Māori-medium education. Researchers did identify a number of less frequently seen diagnostic assessment tools in some of these schools, many having been reconstructed by translating English-medium tools. Teachers in this study indicated a strong resistance to tools such as these; however, tools developed or reconstructed in accordance with cultural aspirations did have acceptance. The teachers also indicated that they needed to see a clearly identified link to learning if they were to use these tools. Teachers also suggested that professional development models were needed, where trained facilitators accompanied them to the classroom and worked alongside them while they learned how to use new tools.

Following this stocktake, the development of the Kawea te Rongo resource (Berryman et al., 2001; Specialist Education Services, 2001) identified that students entering Māori-medium schooling could be classified into one of four groups according to their individual Māori language competency. These groups included students who communicated with others:

- mainly in Māori
- in Māori and in English
- mainly in English
- in neither good English nor Māori (usually as the result of a hearing and/or speech impediment).

Teachers in the Kawea te Rongo study identified a need for Māori language assessments that would help them to make better judgements about their students' Māori language ability on entry to school and to be able to make effective formative teaching judgements. Anecdotal evidence from many of these teachers indicated that they were targeting a "mid-point" ability level for all students. Problematically, this ignored students with the most or least

Māori language proficiency. They shared that this was frustrating for their learners as well as for them as teachers. Although Kī Mai,² an oral Māori language assessment tool from Aro Matawai Urunga-ā-Kura³ (Ministry of Education, 1997) was available to these teachers, many found the retelling component of this assessment, which required multiple opportunities to model retelling to students before the assessment, to be too time consuming and difficult to implement. This concern was further identified during an evaluation of teachers' perceptions and use of Aro Matawai Urunga-ā-Kura (Bishop, Berryman, Richardson, & Glynn, 2001). The development of the oral Māori language assessments discussed in this paper were, therefore, the result of teachers identifying their need to more effectively and efficiently discriminate the Māori language competencies of students entering Māori-medium education at the age of 5.

Theoretical framework for the assessment tools

The development of these assessment tools drew upon understandings from both kaupapa Māori (as further discussed below) and sociocultural constructs. Sociocultural perspectives on human learning emphasise the importance of the responsive social and cultural contexts in which learning takes place as being key components to successful learning (Glynn, Wearmouth, & Berryman, 2006; Gregory, 1996; Rogoff, 1990). Children acquire knowledge and skills through social interactions and activities, in formal and informal settings. Contextualised social interactions are also increasingly seen as fundamental to the acquisition of intellectual knowledge and skills (Bronfenbrenner, 1979; Bruner, 1996; Glynn et al., 2006; McNaughton, 2002; Wood, Bruner, & Ross, 1976).

Teachers can gain assessment information from the direct observation of students in authentic, responsive social settings. In these settings it is possible for the teacher to implement strategies that will promote a responsive and interactive teacher role, where students have opportunities to exercise a measure of autonomy in their learning, rather than a directive role. One such strategy is to provide students with material that is interesting to them, and then to maximise opportunities for them to direct their own engagement with the materials (Glynn et al., 2006).

The development of the tools

Kaupapa Māori research requires that processes, initiatives and findings are understood and interpreted from Māori world views and evaluated against standards set by Māori. Kaupapa Māori research often involves conceptualising the entire research process from within a Māori cultural framework. Accordingly, researchers worked with kaumātua (elders) who were native speakers of Māori and who participated at all stages, playing a prominent role in both the development and trial of the assessment tools in a number of settings over more than a decade.

The effectiveness of these assessments depends heavily on the use of pictures to “set the scene” for oral language responses. Importantly, the pictures used are culturally appropriate, which means that Māori children are encouraged to bring their own knowledge, experiences and expertise to the assessment process. The structure and processes involved in the assessments also incorporate kaupapa Māori practices of mihimihi (meeting and greeting), manaakitanga (caring and support) and poroporoaki (leave taking).

These cultural practices are also responsive practices in that they allow teachers to listen to and then affirm, support and encourage the child throughout the entire assessment process. Children are always greeted and made to feel comfortable at the beginning of the assessment. They are supported by visual and oral prompts and by the assessor modelling appropriate responses during the assessment process. They are also given words of encouragement for their achievements when the assessment is completed. All these procedures provide a culturally safe and authentic context for the child to warm to the assessment and the assessor and to feel comfortable throughout the process.

The assessments involve the child handling pictures and being able to choose which pictures they would like to talk about. This gives the child a measure of ownership of or self-determination in the process, thus rendering the assessment process more intersubjective and interactive, and hence more user friendly from a kaupapa Māori perspective. Once these criteria were satisfied, the tools were tested in a range of Māori-medium classroom settings against Western concepts and standards of reliability and validity.

Description of the tools

Three oral Māori language assessment tools were developed: Kia Tere Tonu; Takapiringa; and Kōrerotia.

Kia Tere Tonu

Kia Tere Tonu, the first of the three assessments, was developed as a screening tool that would provide an efficient and effective means for identifying the different Māori language levels of emergent Māori language speakers.

Kia Tere Tonu involves a sheet of 24 different pictures. The pictures include items associated with everyday experiences (hū, shoe) items with Māori names that are commonly known (poi, item used in cultural performance), and a few items that may be less well known (roro hiko, computer). After modelling the naming process on a separate model card, the assessor gives the child 30 seconds to name, in Māori, as many of the items on the assessment card as they can. Items named are concurrently ticked on the recording sheet.

The student is next asked to choose one item that they would like to talk about. Three separate starter questions are then used to elicit oral language samples from the student, based on the selected item. The language sample is recorded, and on the basis of the language sample the assessor makes three global judgements about the student's oral Māori (productive) language. These judgements are concerned with:

- māramatanga (meaning)
- hanga rerenga (language structure)
- pakari (overall language competency).

Takapiringa

The second assessment, Takapiringa, uses five sets of five sequential photograph cards. Photographs of five common childhood experiences (getting ready for bed, making breakfast, feeding the cat, getting ready for kōhanga reo, making a drink) are used. Five cards, one example from each of the five themes, are presented to the student to model the exercise. The student is then asked to select the theme card that they would like to tell a story about.

Once the student has chosen their picture, the appropriate picture set is laid out in front of the student, one card at a time, in random order. As each card is placed, the standard prompt from the assessment sheet is also read out. The student is asked to organise the cards into the order of the story they are going to tell. When they are satisfied with the sequence of their pictures, the student is asked to tell their story. The oral language sample for each picture is recorded and scored separately. Each story is taped and later used for further checking.

Kōrerotia

Kōrerotia, the third assessment, involves a series of 10 photographs which are used to motivate personal narratives. After the assessor has demonstrated the assessment procedure with the model photograph, the set of assessment photographs is presented and the student is asked to select three photographs that show activities they are familiar with and that they could share a personal experience about. The following sequence is then followed one photo at a time. The first photo chosen by the student is briefly introduced with the standard prompt for that photo. For example, there is one photo of a young child at a table looking at picture books. The standard prompt for this picture is, “Kei te pānui pukapuka te pēpi. Titiro, he muramura te kara o te pukapuka kei runga i te tepu.”⁴ The student is asked to think about and then retell their experiences, triggered by the events in this photograph. If they cannot, the assessor asks the child to talk about the next photograph. This assessment is considered to be complete once three photographs have resulted in the child providing consistent oral language samples. These personal narratives or oral language samples are scored (according to the scoring sheet), taped and later transcribed for further checking. Kōrerotia is more challenging than Takapiringa because it provides fewer language prompts.

The trials

In total, 279 children aged from 4 to 7 years have participated in the trials of these assessment tools in four separate sites (Berryman, Cavanagh, & Woller, 2007; Berryman, Togo, & Woller, 2007). All trials were undertaken according to the University of Waikato’s ethical procedures.

Overall, 279 students have trialled the Kia Tere Tonu assessment (39 from Year 0, 100 from Year 1, 84 from Year 2 and 56 from Year 3). From these students, 174 went on to trial the more challenging Takapiringa assessment (22 from Year 0, 68 from Year 1, 57 from Year 2 and 27 from Year 3) and 50 went on to trial the most challenging Kōrerotia assessment (1 from Year 0, 14 from Year 1, 11 from Year 2 and 24 from Year 3).

Four-year-olds from kōhanga reo and Years 1, 2 and 3 students (5- to 7-year-olds) from rumaki classes were chosen to help identify the suitability of Kia Tere Tonu as a screening tool for the more challenging Takapiringa assessment or the most challenging Kōrerotia assessment. Accordingly, the following convention was proposed and trialled for this purpose. If the student scored six or less when naming the 24 pictures, they were not tested any further, but teachers could be redirected to the Kawea te Rongo checklists for these students. If the student scored between 7 and 15 they would be tested on the Takapiringa assessment, and if they scored between 16 and 24 they would be tested on the Kōrerotia assessment. Evidence was collected by scoring students through their use of Kia Tere Tonu, and then comparing the appropriateness of their response to the next level of assessment.

It was important to test that the tools did challenge students through increasing levels of difficulty. This was tested in association with the trials by comparing the students' responses to the different assessments with their time in immersion. It was further tested by asking both the teachers and whānau members (parents, caregivers and family) for their perceptions of the students' oral language competency; their perceptions were then compared with the students' responses on each of the assessments.

The trials also aimed to determine the perceptions of teachers and whānau as to the effectiveness and suitability of the tools and also the effect of dialectal differences on students' responses to the tools. This was gauged from solicited and unsolicited feedback throughout the trial and from trialling and comparing responses to the tools in three separate iwi (tribal) areas.

Finally, to assess the validity of the measures and response processes, two assessors were asked to independently analyse the same test results

of a group of 30 children who had been assessed with Kia Tere Tonu and Takapiringa. Then, as part of the assessment of reliability, students from an immersion school and a kura kaupapa Māori were tested and then retested within a two-week period to assess the reliability of two of the assessments—Kia Tere Tonu and Takapiringa. The students ranged from Year 1 to Year 3.

Results

Scores compared to time in immersion

To test that the tools followed sequential levels of difficulty, students' responses to the assessments were compared with the students' time in immersion. The results from the Kia Tere Tonu assessment of 97 students from sites 1 and 2, whose whānau had indicated the time their children had spent in Māori immersion settings, showed that there was a trend demonstrating increased ability in te reo Māori in line with increased time in immersion. However, there were also some obvious disparities related to a range of other factors.

The 97 participants in the above sample included Year 0 to Year 3 children (4- to 7-year olds)—that is, some of the participants identified as having one year or less in immersion were kōhanga reo students, while others were Year 2 or Year 3 students. This meant that students demonstrated a wide range of language ability in both Māori and English. Research has shown that a range of factors affect the proficiency of children entering Māori-medium education, and while time in immersion before entering school is a key factor, it is qualified by other issues. These include regularity of attendance, the quality of the kōhanga reo language programme and the amount (if any) of Māori language exposure in the home (Rau, Whiu, Thomson, Glynn, & Milroy, 2001).

When the results of the responses by the 279 students from the four sites to Kia Tere Tonu were ranked by year groups, it was clear that the tool did not have a ceiling effect; rather it allowed for maturation and continued to challenge older and more experienced students. Similar results were shown for the Takapiringa and the Kōrerotia trials by year groups.

The results indicate the usefulness of Kia Tere Tonu as a screening tool. The students' responses to the assessments, when compared with time in immersion and year groups, indicated students were increasingly able to respond to the more challenging assessment tools the longer they were at school. The comparison of teacher and whānau judgements (of students' oral language) with students' responses to the tools produced a clear trend of matching the increase in students' scores to the increase in teacher and whānau expectations.

Results from all three assessments thus indicated that there was a trend demonstrating increased ability in te reo Māori in line with increased time in immersion. Teacher and whānau ratings of where they felt each child's level of Māori language competency was also indicated that the students' assessment results were in line with teacher and whānau expectations. However, the wide range of scores in each rating band demonstrated the need for assessments such as these and the need to interrogate the assessment contexts further.

Internal consistency, reliability and measurement validity

Data from the oral language assessment trials were also analysed using the Statistical Package for the Social Sciences (SPSS) to test three different aspects of two of the assessments (Kia Tere Tonu and Takapiringa). These were:

1. the internal consistency of the tools
2. a test–retest trial for reliability of the assessment results
3. measurement validity using evidence based on a response processes trial for inter-rater reliability.

Analysis was not done with the results of the third oral language assessment, Kōrerotia, because of low trial numbers ($n = 50$).

Internal consistency

Internal consistency was measured using Cronbach's alpha (Gliner & Morgan, 2000) to assess whether the three aspects of the Kia Tere

Tonu test items—māramatanga (meaning), hanga rerenga (grammar) and pakari o te reo (language competency)—formed a reliable measurement. The correlation for the three items was 0.94, which indicates very strong internal consistency for these three items. When the three items were combined with the Kia Tere Tonu raw score (for the number of pictures named), the correlation was 0.72, which indicated a reasonable level of internal consistency reliability. While the calculations showed strong internal consistency and therefore reliability among the test items māramatanga, hanga rerenga and pakari o te reo, there is not the same strong correlation between these three items and the first item, which measures the students' ability to name items in te reo Māori. This could be expected as this assessment, Kia Tere Tonu, measures two different tasks: first, naming a number of items in te reo Māori, and second, producing oral language samples in response to three questions. Thus, taken together, these results indicate that the items form a measurement that has strong internal consistency reliability.

When the internal consistency of the second assessment, Takapiringa, was assessed using Cronbach's alpha, an extremely high correlation of 1.0 was recorded for both test items. The "perfect correlation" of 1.0 (0.99) could indicate that the two items of each assessment—reo whakaputa (language produced) and pakari o te reo (language competency)—are measuring the same items of Māori language fluency, or that the tester has not made a clear distinction between the two items (that is, reo whakaputa and pakari o te reo).

Test–retest for reliability

The test–retest trial involved 15 Year 1 to Year 3 students from a total immersion school and 21 Year 1 to Year 3 students from a kura kaupapa Māori. Thirty-six students were tested on Kia Tere Tonu and 20 students were tested on Takapiringa. Tests were undertaken by the same assessors and then retested within a two-week period, again by the same assessors. A paired samples *t* test indicated that there was a significant association between the first test and second or retest of Kia Tere Tonu. A correlation statistic was calculated, $r(35) = .83$, $p = .000$. This result indicates that there is good evidence for test–retest reliability.

A paired samples *t* test indicated that there was a significant association between the first test and the second or retest of Takapiringa. A correlation statistic was calculated, $r(19) = .79, p = .000$. Again, this result indicates that there is good evidence for test–retest reliability (Gliner & Morgan, 2000).

Inter-rater reliability response processes

Evidence based on response processes involved comparing the results of two assessors who were asked to independently analyse the raw language samples of a group of 30 children who had been assessed with Kia Tere Tonu and Takapiringa during the first oral language assessment trials. Both assessors were fluent Māori speakers who were also trained teachers.

An analysis of the marks given by the two assessors for the 30 Kia Tere Tonu assessments was calculated using the total of the three sections of Kia Tere Tonu (māramatanga, hanga rerenga and pakari o te reo). Correlations were calculated using SPSS. A paired samples *t* test indicated that there was adequate to good association between the scoring of the first and second assessor on the Kia Tere Tonu assessment following moderation and reassessment of initial scores. A correlation statistic was calculated, $r(29) = .79, p = .000$. According to Gliner and Morgan (2000), this result indicates that there is adequate to good evidence for response process validity.

The correlation between the scores given by the two assessors for the 30 selected Takapiringa assessments produced a strong correlation. A paired samples *t* test indicated that there was good association between the scoring of the first and second assessor on the Takapiringa assessment. A correlation statistic was calculated, $r(29) = .82, p = .000$. This result indicates that there is good evidence for response process validity.

This trial of the oral language assessment tools Kia Tere Tonu and Takapiringa showed that these assessments have measurement reliability and validity and do what they set out to do—that is, assessing the oral language of 4- to 7-year-olds in Māori-medium settings in ways that have validity and reliability. Further, it shows that they are culturally relevant and therefore appropriate and user friendly for both the assessor and the children being assessed. Importantly, their teachers could use the results of these assessments to inform future teaching and learning thus

perpetuating more successful learning outcomes (Berryman, Cavanagh et al., 2007).

Discussion

Students in the trials of all three assessments indicated that they liked the pictures and were able to relate to each of the assessment tools. They also liked being able to choose which pictures to talk about, and they enjoyed handling the pictures as they did so. Students appeared to appreciate this measure of ownership of the tools throughout the process, with the result that, in spite of the majority not having met the assessor before, they still found the assessment process to be user friendly and interactive.

In the *kōhanga reo* and *kura* where the tools were trialled, teachers and *whānau* saw the tools and the practices involved in their administration to be culturally appropriate. They liked that students were always greeted and made to feel comfortable at the beginning of the assessment and then supported and encouraged throughout the assessment process. Furthermore, students and staff also liked the way the assessor modelled each process with the model sample before going into the assessment itself, and that throughout the assessments, consistent oral prompts were supported by visual prompts. This was important given that the assessments were conducted all in Māori with younger students, and that the students' understanding of the instructions might well have caused some confusion from time to time throughout the assessment. The staff and students also approved that students' achievements throughout the assessment, and again when it was completed, were consistently and specifically acknowledged. The high level of Māori language proficiency of the administrator also received their approval. Many commented that all of these procedures provided a culturally safe and authentic context for the student to first warm to the administrator and then to engage with the assessment. Teachers commented that students felt comfortable and supported throughout the actual assessment and therefore not disadvantaged in any way. Dialectal differences were not identified as an issue given that either an exact response or an appropriate response (often these were dialectal) were both deemed to be correct.

Teachers from the kōhanga reo and kura commented that the assessments were easy to use and practical. They could also be understood by kura whānau who were not fluent speakers but who had sufficient Māori language to understand the required tasks. Teachers wanted to be able to use the tools themselves, and could see that they would be able to do so. Importantly, they believed that the results from the assessments not only indicated the level and depth of students' Māori language proficiency for summative purposes, but would also provide teachers with information for formative purposes.

Conclusion

One reason for Māori-medium teachers' resistance to the use of diagnostic assessment tools was shown to be associated with the inappropriateness of using translated tools. Persistence with the approach of translating resources developed for a different language and culture has resulted in teachers avoiding using these types of tools (Bishop et al., 2001) and students continuing to be misrepresented and misinterpreted by the results of their assessments. So all-pervading is English in the wider community, it is the language likely to be used by the majority of parents to communicate in the home (Benton, 1983) and it is still also the first language of the majority of children attending education in Māori-immersion settings (Education Review Office, 1995; Hollings, Jefferies, & McArdell, 1992). Māori learners coming from English language communities and a variety of educational settings demonstrate a wide range of Māori language competencies.

We have learned that models are needed where learning and assessment resources for Māori-medium education are developed from within the framework of the Māori language and culture (Bishop et al., 2000). Understanding that culture is a necessary prerequisite for assessment of Māori-medium students has also challenged us as educators to consider the importance of testing the reliability and validity of the tools that we put in front of them.

This trial of the oral language assessment tools *Kia Tere Tonu* and *Takapiringa* showed that these assessments have measurement reliability

and validity and do what they have been designed to do. That is, they can be used for assessing the oral language of 4- to 7-year-olds in Māori-medium settings in ways that have validity and reliability. Furthermore, it shows that they are culturally appropriate and user friendly for both the assessor and the children being assessed. Importantly, teachers who are proficient in te reo Māori and who have been fully prepared in the use of the tools could then use the results of these assessments to inform future teaching and learning, thus perpetuating more successful learning outcomes (Berryman, Cavanagh et al., 2007).

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Notes

- 1 The Treaty of Waitangi, signed in 1840, was a partnership agreement between the British Crown and Māori. Māori viewed the Treaty as a charter for power sharing in the decision-making processes of this country and as a means for seeking Māori self-determination.
- 2 Kī Mai is the Māori language equivalent to an assessment called “Tell Me”.
- 3 Aro Matawai Urunga-ā-Kura (AKA) is the Māori language equivalent to the School Entry Assessment (SEA).
- 4 “The baby is reading the book. Look at the bright colours of the book on the table.”

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