Can Māori children really be positioned as "deficient" learners for reading English?

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> ABSTRACT: Māori are the indigenous people of New Zealand. Since British colonial settlement in the early 1800s, Māori children have been predominantly educated in an English- speaking system dominated by colonial governance. In this institution, Māori children have been constructed as deficient learners, primarily in relation to a colonial curriculum taught in English and an assessment regime developed with monolingual and mono-cultural English children. This article, which critically challenges the deficit discourse, outlines the ways in which Māori and English languages co-exist in a fluid stream across the curriculum in a Christchurch classroom in order to scaffold educational achievement in learning to read English, for Māori children.
>
> Keywords: Māori children, bilingual, reading, educational achievement, deficit construction

PROLOGUE

The children have arrived at school and are standing together in a group on the large carpet square in the centre of the classroom. Whāea[1] Kath is standing in front, facing them. She starts the karakia timatanga (beginning prayer), and the children speak in unison.

He hōnore he korōria	(Honour and glory)
ki te Atua	(to the God the Father)
He maungāronga ki te whenua	(Peace on earth)
He whakaaro pai	(Goodwill)
Ki ngā tāngata katoa	(to all mankind)
Ake ake ake	(Forever and ever)
Āmine	(Amen)

This classroom interaction is a snapshot of the bilingual context for a group of Māori children in a Christchurch, New Zealand, whānau[2]-based classroom. Christchurch is the South Island's largest city of 450,000 inhabitants. The educational context portrayed here and within this article is one where English and Maori languages co-exist in a stream across the curriculum in order to scaffold learning to read English, underpinned in part by the reading-related language skill of phonological awareness that reflect the two languages.

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[1] Whāea loosely means aunty, and is used to address the teacher, followed by her first name.

[2] A classroom in which family groups of children learn together. At primary school level, the children's ages can range from 5 to 12 years, the learning context is usually bilingual (English/Māori) and classrooms tend to be located as separate class contexts within "mainstream" English-immersion schools.

INTRODUCTION

Māori are the indigenous people of New Zealand. Since at least the 1960s, they have been constructed in educational discourse and literature as poor readers of English (Ministry of Education, 2009; Tunmer, Nicholson, Greaney, Prochnow, Chapman, & Arrow, 2009). This shaping is embedded within a historical macro-level deficit discourse that has, since British settlement in the early 1800s, positioned Māori children as learners within an education system dominated by colonial governance and curricula, and assessment regimes developed with monolingual English-speaking and monocultural Western children in mind (see Harris, 2008, for an overview of this deficiency construction, from colonial settlement to today.).

Over the past 10 years, the reading deficit discourse relating to Māori children has begun to absorb a perceived deficiency with regard to the literacy-related language ability of phonological awareness (Gillon & Schwarz, 1999; Tunmer & Chapman, 2005; Tunmer, Chapman, & Prochnow, 2004). This language skill has long been deemed necessary for learning to read English (Adams, 1990; Anthony & Lonigan, 2004; Botting, 2002; McCabe, 1992, 1996; Paul, 2001; Rollins, McCabe, & Bliss, 2000; Silliman & Champion, 2002; Stanovich, 2000; Yopp & Yopp, 2000). In particular, the phonological awareness skill of phoneme awareness - the ability to segment a word into its individual sounds - is considered critically important for learning to read alphabetic languages such as English (Catts, Fey, Zhang, & Tomblin, 2001).

The New Zealand Government has embraced this viewpoint and made phonological awareness ability a central feature of school English-reading programmes (Ministry of Education, 2003; Smith, 2000). Academic researchers in New Zealand have also placed increasing emphasis on the importance of phonological awareness relative to reading proficiency (Berryman, Boasa-Dean, & Glynn, 2002; Gillon & Schwarz, 1999; McNaughton, 2002; McNaughton, Phillips, & MacDonald, 2003; Openshaw, 2000). Today, children are tested for their phonological awareness in order to diagnose "normal" or "disordered" ability, determine research participant eligibility, and measure progress in research interventions (see, for example, work by Gillon, 2000a, 2000b, 2002, 2004).

The tools typically used to assess phonological awareness have not been developed with New Zealand children, but constructed with monocultural, monolingual English-speaking children in Australia, Britain, and the United States. Examples of these tools include the Queensland University Inventory of Literacy or QUIL (Dodd, Holm, Oerlemans, & McCormick, 1996), the Preschool and Primary Assessment of Phonological Awareness or PIPA (Dodd, Crosbie, McIntosh, Teitzel, & Ozanne, 2000), and the Lindamood Auditory Conceptualisation Test or LAC (Lindamood & Lindamood, 1979).

In respect of Māori children, these tools do not take account of the fact that a good number of them are growing up in bilingual and bicultural homes (Statistics New Zealand, 2002, 2007). These children bring to school linguistic knowledge based on their learning in these contexts. Research indicates that the phonological awareness skills children learn reflects the language or languages they hear in their own environments (Bruck & Genesee, 1995; Bruck, Genesee, & Caravolas, 1997; Cossu,

Shankweiler, Liberman, Leonard, & Tola, 1988; Mumtaz & Humphreys, 2001). In addition, bilingual learners can take a number of years (approximately five to seven) to become proficient readers of English (Cummins, 1992; Lindholm & Aclan, 1991; May & Hill, 2005). It is highly likely, then, that the phonological awareness of bilingual, bicultural Maori children differs from the phonological awareness of monolingual, monocultural English-speaking children. It is also highly likely that the former group of children will take longer than the latter to become fluent readers of English.

These considerations led to the following questions, asked as part of a larger, ongoing research study:

1. What role does bilingualism and biculturalism play in the development of phonological awareness for Māori children?
2. How do Māori children respond to phonological awareness tasks in English and Māori, and how is their performance perceived when analysed according to different theoretical perspectives?

The research conducted in an effort to answer these questions forms the content of this article.

RESEARCH APPROACH AND PARTICIPANTS

I approached a local Christchurch kaumātua (pseudonym Uncle Rewi) regarding my research. After a year of conversations with him and the people in his community, I began working within a local primary-school whānau[3] classroom, three days a week for a year. Here, as a participant-observer, involved in the classroom activities, I followed a core group of Māori children, 4.10 to 10.4 years of age. The classroom roll fluctuated throughout the year, at one time reaching a maximum of 18 children. The 11 children whose data I eventually analysed were those who were still enrolled in the classroom at year's end.

Unusually for an urban context, the school, because of its whānau status, exists as an independent school and is similar to a very small rural "mainstream" school in that it accommodates one classroom only. Established in 1995 as a church/state (integrated) school, the school has a decile rating of 3[4]. Other relevant features of the school, such as year levels catered for and staffing are given in Table 1.

The school's charter document spells out the school's special character as one of "strong spiritual bi-lingual education. It is an integral part of the programme to help children develop a high level of fluency in Māori." Whāea Kath, the school's principal and kaiako (teacher), described the level of Māori immersion as up to 30%

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[3] Whānau is a term that means family, both immediate and extended. Essentially, the environment of the classroom in which I worked is seen as one in which its members are seen and treated as family.
[4] Decile is a rating from 1 to 10, applied to every school by the Ministry of Education (n.d.). It is based on a socioeconomic indicator of the school's community in terms of household income, occupation, household crowding, educational qualifications of the parents, and income support. A Decile 1 rating means that the school's students come from the lowest socioeconomic community. A Decile 10 rating, the highest, means that the children come from the highest socioeconomic community.

(see also Education Counts, n. d., in this regard). She enlists the support of kaumātua (community elder) Uncle Rewi for weekly church services and weekly reo Māori lessons. On these occasions Uncle Rewi speaks te reo Māori. Whāea Kath speaks Māori for karakia (type of prayer), greetings and instructions, daily waiata (singing), and during shared class book reading with Māori text, followed by comprehension questions in English, two to three times a week. English is spoken at other times.

School staff*	• Uncle Rewi - Kaumātua (community elder) • Whāea Kath - Principal and kaiako (teacher) • School whānau komiti (committee) • Parent help
Children* and ages during the year from February to December.	The older children • Roxy (9.6 to 10.4 years) • Rata (9.6 to 10.4 years) • Rapata (9.11 to 10.3 years) ** • Mary (8.10 to 9.8 years) • Tama (7.5 to 8.3 years) The younger children • Pere (6.6 to 7.4 years) • Ana (6.5 to 7.3 years) • Ariel (5.11 to 6.10 years) • Big JL (5.5 to 6.3 years) • Hone (4.10 to 5.2 years)** • Huriana (4.10 to 5.2 years)**
Administrative facilities	Phone, photocopier, kitchen in church office
Year levels	1 to 6
Classrooms	One
Age of children	5 to 11 years
Facilities on site	• Whare hui (meeting house) • Kitchen in church office • Kōhanga reo (early childhood centre) • Church office • Hall and kitchen • Sleeping accommodation • Large playground, with trampoline and softball pitch

*Names are pseudonyms
** Children who enrolled in the last 4 months of the school year.

Table 1: Characteristics of the school

The children I observed were living their lives in simultaneous bilingual and bicultural contexts. In their homes, at least one parent spoke te reo Māori (the Māori language); both spoke English. Several of the children were staying with grandparents who spoke both languages. All of the children had been to kōhanga reo (Māori immersion early childhood education) before enrolling in the whānau class. Tikanga Māori (cultural practices) were visible in the homes. Parents said karakia (a type of prayer) daily and regularly attended hui (meetings) on the marae (Māori-specific place). They socialised with other Māori in their homes and were employed with other Māori or in Māori organisations, such as the Māori Wardens. They belonged to clubs that were Māori based, for example, the Māori Women's Welfare League and the local sports club. Families ate traditional and Western kai (food) and participated in traditional cooking methods (hangi) when special occasions arose.

In conversations with the parents they said they enrolled their children in the school because they wanted them to be bilingual and bicultural so they could traverse both Pākehā (European, non-Māori) and Māori worlds. A conversation with Dan, a father, highlights how the parents thought the school supported this dream.

> It teaches them how to speak properly and to understand both cultures, not just Māori culture as well, to understand the Pākehā culture too, and that's the way I was brought up, to learn both sides of the culture….I think if they can learn to accept both cultures they'll handle it [life], find it easier.

The range of fieldwork activities that I carried out in the school over the year included classroom observations, many of which were video-recorded; audio-recorded conversations with school personnel and with the children, their parents, grandparents, and siblings; literacy-related language assessments for phonological awareness and oral narratives (not discussed here); reading measures; examination of school policy documents; journal writing; and home visits.

Three times at three-monthly intervals across the school year, I assessed the children's English phonological awareness skills, using a standard assessment typical of the tests used in the Aotearoa New Zealand education system - the aforementioned PIPA (Dodd *et al.,* 2000). I analysed and interpreted the children's responses according to the test manual. I expected that those children older than the upper norm age of seven years would achieve all items. I also used the PIPA data to complete a sociolinguistic thematic analysis of the ways in which the children responded to the test items. In addition to using the PIPA, I, along with a fluent speaker of Māori, developed a set of parallel phonological awareness tasks in Māori and analysed these thematically.

Throughout the year, I carried out running records in English as measures of word recognition in text and reading comprehension and interpreted the results according to approved assessment procedures (Clay, 2000). I did not use these records with the children younger than six years of age because teachers tend not to use them with children until they are established in their reading learning. The running record is one of the assessment tools most often used by teachers in the education system in Aotearoa New Zealand's education system (Croft, Strafford, & Mapa, 2000). I often observed Whāea Kath using it with her class.

In the next section, preparatory to presenting and discussing the results of these assessments within the context of the two research questions posed above, I present several video-recorded vignettes of classroom activities that illustrate the co-existence of English and Māori languages within the whānau classroom.

CLASSROOM VIGNETTES

Ngahuru/Autumn

Whāea Kath speaks in Māori. She tells the class that the day is cold and cloudy. She directs the children's attention to her small whiteboard and says, in English, "I want you to read this." Written on the board is the following:

Te Maramataka.   (The Calendar.)

Ko Mane.	(It is Monday.)
Ko Paenga-whāwhā te marama.	(It is the eleventh month of the Māori year, April.)
Ko Ngāhuru tō wa o te tau.	(It is the season autumn.)

Everyone reads together while Whāea points to each word. Some children read out loud. The other children join in at different times, saying some of the words in unison with Whāea and the older children, and some just after Whāea.

Now Whāea uses English, telling the children it is autumn. How do we know it is autumn? Rata calls out, "Cold!" Whāea repeats Rata's answer, writes the word on the board, and reads it. She looks at the class. "Leaves fall off the trees," says Mary. Whāea repeats Mary's answer, and writes her answer on the board, reads it and looks again to the class. Whāea follows this practice with all question/answer sessions. Pere calls out, "Yellow leaves!" Big JL says, "Red Leaves".

Sometimes, the younger children wait for the older ones to give answers before they do so, an environment that supports learning through demonstration and observation. The whānau class concept allows the older children to scaffold the younger children's learning, as in the tuakana-teina[5] Māori framework for learning. Rose Pere (1994) describes the tuakana-teina relationship as one that is bound up in whanaungatanga, practices that "bond and strengthen the kinship ties of a whānau" (p. 26).

As a follow-up task, the children write a poem together, using the words they have said in the above interaction. The poem is a combination of Māori (the title) and English. It is rich in vocabulary and metaphor - the tree sleeping and clothed. Maori typically make strong use of metaphor in their discourse (Metge, 1990).

Ngāhuru
Autumn.
Is colder.
Trees sleep.
Trees are bare, clotheless.
Leaves drop.
Leaves fall.
All colours.
Red, yellow, brown.
Some stay green.
Evergreen.

Waiata (Song/Singing)

Rata stands at the front of the classroom holding up the waiata chart. The children are standing on the mat. "This one," says Rata. "Tahi, rua …" ("One, Two …"). As the children sing the waiata (see Figure 1), Rata points to the words: "A e i o u. A ha ka ma…."

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[5] The tuakana-teina practice is one in which an older child scaffolds a younger child's learning. The two children are usually of the same gender.
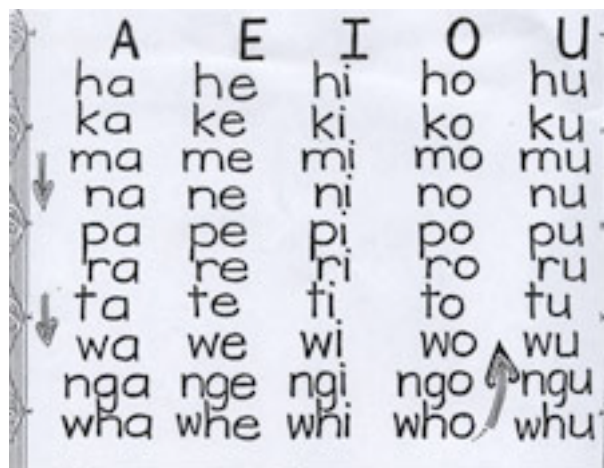
Figure 1: The "A ha ka ma" waiata sung daily (see Naden, 1991)

Singing in Māori and English is a daily (sometimes twice daily) part of the school's timetable. Singing, according to the staff and parents, provides the children with an opportunity to bond as a group and to maintain that bond. Metge (1990) reinforces this notion when she observes that, for Māori, "Frequent use of group recitation, singing and dancing reinforces the value of togetherness and group support" (p. 62). *A ha ka ma* is sung every day in the school. It makes the Māori-specific consonant-vowel (CV) linguistic unit visible for the children, because the lyrics are the consonant-vowel segments for every consonant and each of the five vowels in te reo Māori (see Appendix 1 for a description of Māori sound structure).

This observation of Rata (above) portrays the way in which the older students of the school support Whāea Kath's teaching. All the children shift their role from learner to teacher, in accordance with the Māori principle of ako. This principle, which accords each person the status of teacher and learner, is a common feature of Māori learning contexts (Pere, 1994; Tangaere, 1996).

Shared book reading

The classroom shared reading programme includes books written in Māori and English, and reflects the school's biliteracy focus. Whāea Kath uses these books to scaffold the children's learning of spoken Māori as well as reading Māori. In this first observed example during a shared reading session, the children are sitting on the mat. Whāea Kath is sitting on her chair beside her small whiteboard. She holds up a book and reads the title: "I haere ahau ki te tātahi." Some of the children repeat the title as Whāea reads it. "What's this word?" asks Whāea, pointing to haere. "Go!" Mary calls out. "Go, āe (yes)," says Whāea, as she swivels round to the board and then writes out these sentences: I haere au. Ka haere au. Kua haere au. Kei te haere au." [6] She turns back to the class and says, "Au is the same as ahau. One of these is 'I am going'. Which one do you reckon is 'I am going'? Go is haere." Rata calls out, "Kei te haere au". Whāea says, "Ae. Kei te haere au".

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[6] English translation: "I go. I will go. I have gone (*or*) I went). I am going.

The next shared book time features an English text of a Māori legend. The children are again sitting on the mat.

Whāea holds up a book. "This story is called 'Maui and the Sun', retold by June Melser," she says. Some of the older children join in saying the title. Big JL edges forward to make sure he sees the picture on the cover. Whāea opens the book and says the title again, showing the children that the title appears twice, on the cover and then on the first page of the book. Having engaged the children's attention, Whāea turns the page and reads, "It was dark. The sun had gone down. Maui couldn't see to eat his food. Aue, that sun! said Maui. He goes too fast - far too fast. Maui called his brothers. They came to him out of the darkness." Whāea pauses and asks, "What do you think he's going to do?" Some of the children call out their answers: "Catch the sun!" "Make the day go slower!" The other children listen. Whāea repeats back the answers that the children call out, turns the page, and reads, "The days are too _____", and again some children call out, "Short!" Some of the children repeat what the others have said. Whāea Kath repeats, "The days are too short." She continues to read: "You must help me. We're going to make that sun go more _____". "Slowly," say some of the children. "We're going to make that sun go more slowly," says Whāea.

English and Māori vocabulary

During lessons at the school, Whāea and the children together learn both English and Māori vocabulary. As a group, the children co-construct understandings, while Whāea writes words in both languages on her small whiteboard, specifically stating the English word and the Māori word as she writes them and then reading them out. An example of one such session focused on photosynthesis, with the children learning relevant vocabulary in both languages. The children copied the diagram depicted in Figure 2 into their books at the end of the lesson.
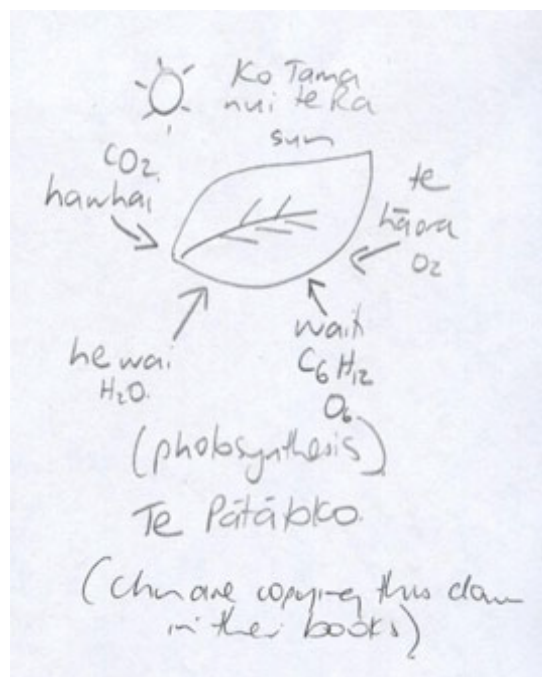

Figure 2: An example of a lesson combining te reo Māori and English words

FINDINGS AND DISCUSSION

It was evident from my multiple observation methods, that Whāea Kath's teaching practices were providing the children in her class with a fluid bilingual and bicultural environment within which to learn to speak and read in two languages, thereby providing continuity with their home lives. The ways in which the children were learning to read English were informed by their bilingualism, especially reflected in their phonological awareness learning, which I explored throughout the year, and which I consider and discuss at this point with reference to the outcomes of my two types of analysis. I also consider these findings relative to the children as readers of English.

Standardised analysis

The outcomes of the PIPA assessment showed all the children as having completed syllable segmentation according to the test expectations. However, they had not completed all or a combination of the other phonological awareness subtests as per the test requirements (see Table 2). The children would thus be considered deficient in phonological awareness development, except for syllable segmentation. In terms of phoneme segmentation, a skill that is considered essential for learning to read English and that was not completed by the children according to test expectations, we would expect that none of the students would be reading English according to educational expectations. I will discuss this matter in due course.

	PIPA 1						PIPA 2						PIPA 3					
	SS	RA	AA	PI	PS	LK	SS	RA	AA	PI	PS	LK	SS	RA	AA	PI	PS	LK
The Older Children																		
Roxy	●		●				●						●		●			
Rata	●						●		●				●		●			
Rapata	●	●					*											
Mary	●		●				●		●				●	●	●			
Tama																		
The Younger Children																		
Pere	●	●		●			●	●	●	●			●					
Ana	●						●											
Ariel	●						●		●	●		●	●	●	●	●		
Big JL	●			●	●		●	●			●		●			●		
Hone	●	●	●		●		*											
Huriana	●		●		●		*											

Note: *Rapata, Hone, and Huriana enrolled at the school later in the year and took part in one administration.

Key

●	"Passed" the subtest according to test scoring and analysis procedures
▓	Did not "pass" the subtest
SS	Syllable segmentation
RA	Rhyme awareness
AA	Alliteration awareness
PI	Phoneme isolation
PS	Phoneme segmentation
LK	Letter knowledge

Source: Dodd et al. (2000).

Table 2: "Pass" status for each subtest of the Preschool and Primary Assessment of Phonological Awareness (PIPA)

Thematic Analysis

In my thematic analysis of the ways the children completed the PIPA subtests and the corresponding te reo Māori tasks, I teased out a number of patterns that align with Bruck and Genesee's (1995) claim from their research, that the phonological awareness abilities of bilingual children reflect the salient features of their two languages. These six themes (noted below) contest the "standard" PIPA regulations that reflect cognitively monolingual ways of thinking about phonological awareness. The PIPA constructed my study children as deficient. The thematic analysis, however, demonstrated linguistic strengths that the children had developed as participants in bilingual environments.

Theme 1: Syllable segmentation was linguistically strong

Syllable segmentation was a task all children accomplished successfully, whether in English or Māori, as these examples from conducting the test with Ariel and Hone show.

> "The next word is 'agility'."
> Ariel says, "A - gi - li - ty."
> "What about 'magnitude'?"
> Ariel, "Mag - ni - tude."
> "Well done Ariel, you did those words really well".
> "Listen to this sentence Hone. It goes with this picture. 'I haere a Patariki a Tahi ki te toa.' ('Patrick and Tahi are going to the shop.') How can you break up the word 'haere'?"
> Hone says, "Hae - re."
> "Okay, what about 'Patariki'?"
> Hone, "Pa - ta - ri - ki."
> "What about 'Tahi'?"
> Hone, "Ta - hi."

Syllable segmentation was, in fact, the children's strongest phonological awareness skill in terms of completing the tasks according to the "standard" imposed by the PIPA test expectations. Also relative to the PIPA norms, all the children, except for Tama, were developing "normally" for syllable-segmentation skills in English. The PIPA phoneme segmentation subtest contains four, two-syllable words: *okay*, *inside*, *rabbit*, and *lady* (with syllable structures V-CV, VC-CVC, CV-CVC, and CV-CV respectively). All 11 children consistently segmented the four two-syllable words syllabically, not phonemically. Clearly, for these children, the syllable was foremost as a linguistic unit. However, according to the phonological awareness theorists, it is not as high level a skill as phoneme segmentation, considered critical for learning to read an alphabetic language such as English.

Theme 2: CVC was English-specific

The CVC syllable structure was a salient English-specific language unit for my study group. The following extract featuring Rata typifies the children's responses to the PIPA syllable segmentation task.

> "Okay Rata. What about 'abyss'?"

> "A - byss", replies Rata.
> "Magnitude?"
> "That would be 'mag - ni - tude'," Rata responds.

During their work on the PIPA test, the children were far more likely to segment the CVC syllables than the CV syllables. As a structure found in English and not Māori (Bauer, with Parker and Te Kareongawai-Evans, 1993), the CVC has consonant boundaries that highlight its language-specific nature. In the process of learning the phonology for English, awareness of the CVC syllable boundary may well be influenced by the salience of these consonant boundaries. The English-specific nature of CVC was evident also when some of the younger children overused it for segmentation of CV syllables. For example, Big JL and Tama segmented "elaboration" as "e - *lab* - o - ra - tion". None of the children used CVC to segment te reo Māori words, thus revealing their well-developed, English-language-specific knowledge.

Theme 3: CV was te reo Māori-specific

Whereas CVC was a strong English syllable-segmentation pattern for the children, the CV was a strong pattern for them when speaking in te reo Māori, as shown in my interaction with Hone above under Theme 1. All 11 children consistently chunked Māori words into CV patterns when asked to segment words into syllables. At times, the younger children segmented words according to CVCV patterns as one segment, displaying emerging knowledge of the CV chunking skill. For example, Ariel and Pere segmented "Ūenuku" as "Ūe - nuku" (VV-CVCV), while Big JL said "a - peri - kota" (V-CVCV-CVCV) for "aperikota". In addition, when asked to segment Māori words into individual phonemes, the children vigorously did so according to syllables of CV formations.

My interpretation of the CV as a strong linguistic pattern specific to Māori is based on how the children went about segmenting Māori words. My interpretation is also supported by the fact that te reo Māori is a syllabic language, as opposed to English, which is alphabetic. A high number of CV units form the syllabic structure of Māori words. For example, there is a large range of single-CV-syllable, high-frequency words in te reo Māori, such as te, kā, me, kē, kō, ko, ngō, mā, ki, ngā, and so on.

Although the children segmented CV syllables in te reo Māori, they did not always segment CV syllables in the PIPA English words, as evident when administering the test to Big JL and Ana.

> "So, do the word 'panorama'."
> Big JL says, "I can do that. 'Pan - a - ra - ma'."
>
> "What about the word 'periodical'?"
> Ana says, 'Pe - ri - odi - cal'."

This pattern was more pronounced with the younger children. The older children tended to segment CV syllables in both languages, possibly because the older children had "sorted out" the syllabic structures for both languages because of their longer bilingual experience. As noted earlier, bilingual competence takes time to develop (Cummins, 1981, 1992; Lindholm & Aclan, 1991). This was well displayed by the

difference in how the older and the younger children segmented CV syllables in Māori and English.

Theme 4: CV was an overall linguistic strength

The following conversations with Rata and Roxy demonstrate the acoustic recognition of the CV as a building block in phonological awareness that all 11 children displayed.

> I am in the classroom, sitting with Rata and checking her spelling work. I ask her, "Can I check something out with you? It's to do with sounds in words." Rata says, "Yes." I ask, "If I was to break up the word 'bat' into two parts, I could do it like this: 'ba - t', or 'b - at'. What sounds better to you? 'Ba - t' or 'b - at'?"
> Rata replies, 'Ba - t.'"
> I ask, "Why does 'ba - t' sound better?"
> Rata: "'Ba and the t' sound better."
> And I ask, "Why?"
> "Cause you miss out the 'a'."

Here, I was asking Rata about her understanding of onset-rime knowledge (see Gillon, 2004, p. 6, for a description); her response did not conform to onset-rime "rules". Rata's answer indicated that her thinking about words in relation to onset-rime was that she should not break words up according to onset and then rime (C-VC), but to break them up according to the first consonant-vowel (CV) combination, then the final consonant (C) - the body-coda form (see Cassady & Smith, 2004, for a description). She told me that this sounded better to her, because the vowel needed to be included.

I checked some more words with Rata, alternating the presentation of the separated words, C-VC or CV-C, then CV-C or C-VC and so on, to make sure she was not answering the first or second option only: cat, sat, mat and fat. With all words, Rata said that the CV-C separation sounded best to her. I decided to ask Roxy the same question I had asked Rata about how she would break up the words: bat, mat, sat, cat and fat.

> I ask Roxy, "What sounds better to you - ' b - at' or 'ba - t'?"
> She replies, "b - at". This was interesting. Does Roxy hear the onset-rime form as sounding better?
> I ask the other words, and each time Roxy replies with the CV-C construction, saying it sounds better to her: "'Ma - t', 'sa - t', 'ca - t',   'fa - t'."
> I ask, "Why does 'fa - t' sound better than 'f - at'?"
> "Because you can hear the 'fa' better than the 'f - a'."

Although the children syllabically chunked CVC syllables in English and CV in Māori, the CV unit stood out as an overall linguistic strength. Conversations with the other children supported the way Rata and Roxy thought about the CVC words. I asked all the children the same question: "What sounds better to you? 'Ca - t' or 'c - at'?" For seven of the 11 children, the segmentation was CV-C; the two youngest children repeated back the entire CVC word, and the two children who thought C-VC

sounded better were an older and younger child. For the majority of the children, the consonant and the vowel were inseparable, suggesting a way of thinking about phonology that had been influenced by their learning in te reo Māori. As observed earlier, bilingual children learn phonological awareness skills that reflect the structural characteristics and orthographies of the languages to which they are exposed (Bruck & Genesee, 1995; Bruck *et al.,* 1997; Caravolas & Bruck, 1993; Cossu *et al.,* 1988; Cutler, Mahler, Norris & Segui, 1986; Read, Zhang, Nie, & Ding, 1986; Rubin & Turner, 1989).

I told Whāea Kath about this finding. She replied that the children keep the CV chunk together "all the time in Māori. If you isolate the consonant, it's more difficult for them. They feel more relaxed with the vowel there too because, culturally, our language is very much vowel sounds."

When I asked the group of 11 children and three other children in the class (14 in total) to break CVC words into parts, their responses varied, as these examples show.

> I ask the children to break up a set of CVC words into two parts.
> "If you were to break up the word 'bat' ['sat', 'cat', 'pop'] into two parts, how would you do it?"
> Ana says, "Ba - at, sa - at, ca - at."
> Pere says, "'Ma - mat', 'ba - bat', 'sa - sat'."
> Ariel says, "'Po- op', 'mo - op', 'to - op'."

Six of the 14 children divided the word according to these patterns. They retained the vowel in both divisions, as did Ariel and Ana, or they sounded out the CV followed by the whole word, as did Pere. Of the other children, four broke the words up into CV-C segments, two repeated the whole words, and two said that they could not do the task. However, none of the children separated the words into C-VC. These ways of dividing CVC words by the children clearly illustrated that they were thinking about the consonant and the vowel as a "whole" production. These findings support my assertion that the CV was a significant linguistic structure for these children.

During phoneme segmentation activities for Māori and English words, some of the children rehearsed their responses. They said the first CV syllable of the word out loud and then tried to phonemically segment it. They then moved on to the next CV, and so on. For example, when I asked Big JL to break the word "stand" into sounds, he said, "Sta - a - and." When I asked Pere to say "tuna", he said, "Tu - u - na". Their responses again demonstrate the linguistic importance of CV as a basis from which these children think about language. The children did not say the whole word out loud, and then attempt phonemic segmentation. Because they had already chunked the word into CV syllables, they started from that point.

The children also used syllable chunking to read unknown words:

> I am talking with Ariel about her reading. She is reading out loud to me, and she stops at a word, "tarapeke". I ask her, "What is the first sound?"
> "Ta."
> "The next sound?"
> "Ra."
> "The next?"

"Pe."
"And the next?"
"Ke. Tarapeke".

For Ariel, the "sound" was always the CV syllable. I asked her to tell me how she worked out the word she stopped at. She said, while pointing to the CV syllable segments in the word, "Like … them two together, them two together, then the other two together, and them two together, then I get the whole lot together." Ariel told me she used this way of working out words when reading both English and Māori.

Rata and Roxy described the same process. Rata said that when sounding out an unknown word in Māori or English, she "put some of it together" in groups of sounds. Rata said she never worked out a word by breaking it up into single sounds. "I went 'ma - ta - ku'," she told me, "and then I said it together," When I asked her about reading words by looking at the single letters, she replied, "I look at them together." Roxy clearly used the CV unit for deciphering Māori words. I asked her if she used the same process when reading English, "Not really," she said, but she could not explain just what she did. It is of note that when Roxy was six years old, her teacher at a prior school wrote on her Six Year Net survey (a literacy and numeracy education assessment given to all six-year-olds to monitor progress): "Interesting way of looking into words. Chunking."

If Rapata did not know a word, he: "Split it up in two: 'ta - ma - ri - ki'." When trying to explain to me why he did this, he told me the Māori alphabet, "Like a, i, e, o, u, pa, pe, pi, po, pu, ka, ki, ke, ko, ku." His explanation also referenced the waiata setting out this alphabet that the class learned when they sing "A ha ka ma." On another occasion Rapata again demonstrated his use of CV or syllable chunking when working out the English words "stagnant" and "silo": "s, t, a is sta, and g, n, is stag, and a, n, t is ant, stagnant. And this word si, and there's a lo at the end, silo."

I interpret these ways of working out written, unknown Māori and English words as reinforcing my argument that the CV structure is an important overall linguistic unit for these children. If the children draw from the CV unit to read English, it begs the question about the relevance of phonological awareness or aspects of phonological awareness for bilingual Māori children.

To conclude the discussion related to the CV syllable as an overall linguistic strength, I refer back to the research that has found phonological awareness knowledge to be important for learning an alphabetic language, not a syllabic one. Also, for bilingual children and adults, whose first language orthography is syllabic, phonological awareness is not evident or crucial to successful reading (Bialystok, Majumder, & Martin, 2003; Karanth, 2002). My study children were learning two languages simultaneously - te reo Māori, which is a syllabic language, and English, which is an alphabetic one. In this study, I found that the children's linguistic strength in relation to the te reo Māori-based CV unit stood out as a major tool for learning to read both languages. The CV structure, not phonemic awareness, was central to reading for my study children.

Theme 5: Vowel salience is te reo Māori-based

In addition to what Whāea Kath told me about the place the vowel holds for learning to read among the children in her school (see Theme 4), the linguistic centrality of the vowel for reading became evident in a number of ways as I continued my work with the children, leading me to posit that this feature is te reo Māori-based, despite its evidence in English tasks as well as Māori. When I asked some of the children to break CVC words into two parts, they typically retained the vowel in each segment. For example, Ariel said, "po – op" for pop, "mo – op" for mop, and so on. When I asked Pere to break the word "hand" into sounds, he replied, "Ha - and." And when I asked Tama to break the word "rabbit" into sounds, he said, "Ra - a - bit." What is evident here is that the children did not separate out the CV as two phonemes. They were so attuned to this unit that the consonant was not a sound unless it was attached to the vowel, at which point they could separate the vowel.

I also noted that with phoneme segmentation of two-phoneme words, the children tended to repeat and overuse the vowel.

> For example, Big JL segmented "car" as "c –ar – ar– ar," Ariel and Pere segmented "eat" as "ea – ea – ea – t." Roxy, Mary, and Rata also repeated the vowels in this way.
> I am asking Pere and Tama to break Māori words up into phonemes.
> I say, "Rangi." Pere responds with, "Ra –a – ng – i."
> I say, "Kāinga." Tama says, "Kāi – āi – nga".
> "Kawhe." Tama and Pere say, "Ka – a – whe."
> "Hoata." Pere, "Ho – o – a – ta."

These examples again highlight the vowel salience. The children sounded the CV and then the vowel, as they did for some English words. I argue that the vowel prominence is a base, building block learned from te reo Māori. The five vowel sounds are in the seven most frequently used phonemes in conversational speech (Bauer, with Parker & Te Kareongawai-Evans, 1993). Te reo Māori contains a larger number of vowel combinations than does English (see Appendices 1 and 2), and te reo Māori is a syllable-timed language, where every vowel is long and more acoustically available than is the case in English (Roach, 1998).

Theme 6: Consonant salience is an English-specific marker

In contrast to the te reo Māori-based, vowel salience, the consonant appeared to be a prominent English language-specific marker for the children in my study. They segmented CVC syllables more so than CV syllables in the PIPA syllable subtest. (The consonant has a linguistic significance in English because it provides an acoustic boundary in CVC syllables.)

This finding is interesting for several reasons. First, in English, five of the seven most frequent phonemes spoken during conversational speech are consonant sounds (Weiss, Gordon, & Lillywhite, 1987; see also Appendix 2.) This means that consonants predominate acoustically. Second, there are more consonants in English than Māori (see Appendices 1 and 2). Third, the vowels in English can be unstressed and transformed into the schwa vowel /ə/, which sounds like the "i" sound in "sit" and

is one of the highest seven phonemes spoken in conversational English. Because English is a stress-timed language, many English-language syllables contain the schwa vowel. Clarity of syllable boundaries differs within stress-timed languages such as English (Cutler, Mehler, Norris, & Segui, 1986). These syllable boundaries can be perceived to lack clarity, while those in syllable-timed languages (which are more akin to te reo Māori) tend to be heard more clearly (Roach, 1998). Prominence of the consonant in CVC structures may well have aided the children's ability to identify these syllables compared to the CV syllables in the English words.

In addition, ability to segment vowel-only syllables in English provides more evidence for the consonant prominence in English. The PIPA syllable segmentation subtest has a possible seven, vowel-only syllables to segment, positioned in initial (for example, **a**−byss), medial (for example, pe−ri−**o**−di−cal), and final (for example, bac−te−ri−**a**) parts of words, and within words of two, four, and five syllables. Except for Tama, the older children segmented these words according to test expectations, across the three test administrations. For the younger children, segmentation of the vowels tended to occur most commonly in relation to the initial word position for the two-syllable words "abyss" (a − byss) and "ego" (e − go), followed by the four- and five-syllable words "agility" (a − gi − li − ty) and "elaboration" (e −la − bo − ra − tion), and then in relation to the final word position, as with "bacteria" (bac − te − ri −a). However, the children did not segment medial vowel syllables as per test requirements. Examples included "periodical" (pe − ri − **o** − di −cal), "joviality" (jo − vi − **a** − li − ty).

The children also tended to attach medial vowel syllables to other syllables. Tama, for example, segmented "periodical" as " peri - odi - cal". My interpretation is that this happened because the consonant prominence within syllable structures created salience barriers to deciphering the medial vowel syllable as a syllable. Because the children could hear the word initial- and final-vowel syllables heard as distinct units, they found it easier to distinguish these regardless of word syllable length. Thus, the children tended to segment the "e" in "elaboration" more than they segmented the "o" in "periodical". Also, because the word initial and final vowels were not confined by adjacent consonants, they were more easily heard.

Reading

The running records that I kept for the children in relation to their word recognition in text and their reading comprehension (Clay, 2000) showed that the children from 9 to 11 years of age were reading English fluently and comprehending text according to their age norms. The children six to eight years of age were not yet doing so, and the children from four years ten months to six years of age were emergent readers. These results again align with research conclusions that bilingual children can take longer than monolingual children to learn to read English fluently (Cummins, 1981, 1992, 2000; Lindholm & Aclan, 1991; May & Hill, 2005). The children in this whānau class were thus learning to read English in keeping with the research related to bilingual children, and I believe they were drawing from their bilingual linguistic knowledge during this learning.

CONCLUSIONS

The children enrolled in a primary-school whānau class for whom I collected language-related data for a year were bilingual and bicultural, factors that had implications for how they were learning to read both Māori and English. When I tested the children's English literacy-related language skills of phonological awareness, their responses positioned them as either "deficient" or "at-promise" learners, depending on the assessment lens used.

In terms of phonological awareness, the children were drawing from their linguistic knowledge of the syllable, not the individual sound unit, as deemed important in the research, to read English. In fact, the children in this whānau class were not segmenting words according to individual sounds, a task that was foreign to them. However the oldest children were reading and understanding English in ways expected of them. This challenges the notion that the individual phoneme is essential for learning to read English, especially for a number of bilingual Māori children.

In addition, the children in this classroom were learning to read English in line with the research that indicates bilingual children can take a number of years to learn to read English fluently. The older children were reading and understanding English text fluently, the younger children were progressing towards this outcome, and the youngest children were emerging readers.

Although the findings of this research align with findings of existing literature, they still need to be treated with caution given the small number of children studied, and given that other factors may have influenced these outcomes. Further research designed to replicate this study is needed. Nonetheless, a major implication of these findings resides with the fact that the assessments used to measure Māori children's reading have been developed with monolingual and monocultural children in mind. These measurements paint a picture of Māori children as deficit readers and their ongoing use perpetuates this discourse.

Educators must appreciate the need to ensure that children experience a learning context that is continuous between home and school. School principal and teacher Whāea Kath provides a way forward. She has created a classroom in which the Māori and English languages co-exist and are used in a fluid interplay across the curriculum, scaffolding the children's educational achievement for reading English. The series of vignettes provided early in this article illuminates this form of teaching and learning in practice, while my analyses of the children's reading achievement strongly suggest that their learning is by no means deficient, but just different given that it is informed by learning two (in general, very different) languages simultaneously.

In assessment terms, the education system in New Zealand needs to recognise diversity in language and culture and to understand what such diversity means for children's learning and achievement in the classroom.

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APPENDIX 1: PHONOLOGICAL AND SYLLABLE FEATURES OF TE REO MĀORI[7]

Consonant Graphemes

(p)
(t)
(k)
(m)
(n)
(ng)
(wh) (pronounced as "f")
(r)
(h)
(w)

Vowel Graphemes

(i) ("ee" as in the English word feet)
(e) ("e" as in the English word set)
(a) ("a" as in the English word rather)
(u) ("oo" as in the English word food)
(o) ("aw" as in the English word saw)

The vowels can be lengthened or combined as follows:

a	ā	ae	ai	ao	au
e	ē	ea	ei	eo	eu
i	ī	ia	ie	io	iu
o	ō	oa	oe	oi	ou
u	ū	ua	ue	ui	uo

The seven most frequent phonemes spoken during conversational speech are
a, i, t, e, k, o, u.

Syllable Structure

The vowel forms the nucleus of the syllable, with the option of a preceding consonant or an added vowel to create a combination: (C)**V**(V). The (C)V te reo Māori syllable structure is called a mora.

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[7] This material is drawn from Bauer, with Parker & Te Kareongawai-Evans (1993).

APPENDIX 2:   PHONOLOGICAL AND SYLLABLE FEATURES OF ENGLISH[8]

Consonants and Graphemes

(p)   pet
(b)   big
(t)   tie
(d)   duck
(k)   key, cat
(g)   go
(m)   man
(n)   net
(ng)   sing
(f)   fan, tough, phone
(v)   van
(s)   sun
(z)   zoo
(th)   teeth
(th)   the
(sh)   shoe
(zh)   pleasure
(ch)   chook, watch
(j)   jar
(l)   lemon, ball
(r)   read, write
(y)   yellow
(w)   wet
(h)   hen

Vowels and Graphemes

(ay)   make, rain, day, eight
(ee)   me, eat, key, see
(ie)   tie, my, kite
(o)   go, boat, know, toe
(oo)   two, suit, boot
(a)   cat
(e)   pet
(i)   sit
(o)   pot
(u)   cup
(oo)   foot
(er)   stir, her, fur
(aw)   four, saw, for
(ar)   car
(oy)   boy, coin
(ow)   cow, shout
/ə/   schwa vowel, a short sound for unstressed vowels in syllables, sounds like the (i) sound

The seven most frequent phonemes spoken during conversational speech are
/t, /ə/, n, i, s, d, r/

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[8] Information drawn from Weiss *et al.* (1987).