Examining Samoan language development in Samoan bilingual students' understanding of texts in English

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Abstract: This paper examines language development of Samoan students in bilingual contexts in Aotearoa, New Zealand. In the absence of valid and standardized assessments tools in Samoan, one was designed to test reading comprehension and oral language development for Samoan students using common narratives as a base. For reading comprehension, the tool used a listening comprehension format to avoid possible decoding limitations and provided a gradient of difficulty with a surprising drop in both oral and reading comprehension at year 7. This drop was attributed to a change in competencies of some students entering the bilingual classroom at year 7. For example, the mixed levels of both L1 (Samoan) oral and L1 (Samoan) reading comprehension within and across years of schooling likely reflects the varied provision in the Samoan bilingual classes and the variations across cohorts in different degrees of bilingualism. We argue that this might be due to the make up of the two schools of which one was an Intermediate school of years 7 and 8 students and, the other was a full primary school with students from years 4 to 8. The patterns suggest two general instructional needs in Samoan bilingual classrooms. One is the need to develop metacognitive components and the need for deliberate and explicit instruction to build awareness of strategies and effectiveness. The other is the ubiquitous need identified in reading comprehension instruction generally to develop vocabulary both through oral and written forms. There was a highly significant relationship between L1 oral at L1 reading comprehension levels reflecting a general relationship found in other studies of monolingual in L2 (English) contexts.

Key words: language development; Samoan bilingual/biliteracy; bilingual/biliteracy development

1. Introduction

The education achievement of English language learners has become one of the most important issues in all of educational policy and practice across the globe. As the place in which immigration in the United States and other developed countries has accelerated in recent decades, increasing numbers of children in US schools come from homes where English is not the primary language spoken (Slavin & Cheung, 2005). This is a trend in the schooling contexts of New Zealand where there are large numbers of children from immigrant low socioeconomic and minority groups who speak a first language (L1) and have English as a second language (L2).

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While New Zealand students generally achieve very highly in English literacy in international comparisons, these children notably those from Pacific islands communities (Pasifika), are in the bottom tail of literacy achievement and the achievement between them and other children may be widening (Literacy Task Force, 1999).

In 2000, Pasifika people made up 15% of the national population, had a uniquely young demographic, and made up 4.5% of total students in post-secondary education. Pasifika students make up a large and growing proportion of the school population in New Zealand. In 2003, Pacific students made up 8.2% of students in New Zealand schools. This proportion was the highest in the Auckland region where 18.2% of students were Pasifika[1]. Of all Pasifika students in New Zealand, 73% attend schools in Auckland and environs (ERO, 2004).

Although some Pasifika students achieve at a very high level, these students achieve, on average, less well than their Pakeha (European) and Asian peers (Satherly, 2006). Compared to the general population of students, Pasifika students are over-represented in the statistics for those leaving school either without assessment results or with lower level assessment results[2] and over-represented in suspension and stand-down figures[3] (ERO, 2004). At all levels of education Pasifika achievement has been prioritized, along with Māori, by government policy and strategy, and operationalised on the basis of meeting identified need (Airini & Amituanai-Toloa, 2008).

Like other countries, New Zealand is concerned with the disparities in literacy achievement between its cultural groups. New Zealand's and other countries' response to this enduring "education debt" (Ladson-Billings, 2006) has included programmes of schooling improvement and reform, at local, district and even national levels, and there has been recent success with the Pasifika group, for example, in the case of reading comprehension (e.g., McNaughton, et al., 2006). But these successes have not as yet generalized to the majority of the group.

We know a great deal about Pasifika L2 achievement from standardized tests used by schools for assessment and national and international monitoring. Similarly, we know about areas where achievement could be raised, for example, from an intervention project aimed at developing more effective teaching of reading comprehension in seven schools (McNaughton, et al., 2006; McNaughton, et al., 2007). However, in order to fully understand the underachievement of the children in the Pasifika group, there are two related needs. One is to study achievement of specific groups. A complexity surrounding the Pasifika achievement has been the inability to define achievement of Pasifika in terms of its many ethnic groups (e.g., Samoa, Tonga, Cook Island/Māori, Niue, Tokelau, Fiji and other minor groups). It is difficult, therefore, to identify which groups are doing well in achievement and which groups are not. The second issue is the need to know more about the development of the first language both in its oral and written forms. But identifying this need raises another problem. It is the lack of formal assessment tools in L1. More knowledge of L1 development in context is required in order to design more effective instruction, especially if schooling provisions include bilingual options (Tabors & Snow, 2001). Without knowing about L1 capabilities, teachers are unable to know what resources to build on. Tabors and Snow (2001) point out that the preparedness to learn and to benefit from teaching which promotes linguistic transfer is very different for a student with a well-developed L1 versus one with limited L1 or L2 skills. Similarly, by the middle

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[1] Ministry of Education, Educational Statistics of New Zealand. Retrieved April 2, 2004, from http://www.minedu.govt.nz/web/downloadable/dl6246_v1/6246- enrolments-tables-03.xls, Table 11. The region with the next highest proportion of Pacific students was Wellington with 9.9 percent. No other region had a proportion of Pacific students over four percent.

[2] In 2004 Pasifika students were the lowest ranked group of Year 11 candidates who met NCEA Level 1 literacy requirements by ethnic group (Satherly, P., 2006), with 62% meeting NCEA Level 1 literacy requirements. However, the proportion leaving with only Year 11 (Form 5) assessment results or no assessment results has reduced significantly since 1998. Ministry of Education website, April 2, 2004.

[3] Ministry of Education website, April 2, 2004.

to upper primary grades very specific information about comprehension strategies and vocabulary in L1 is needed by teachers to plan instruction for transfer (Cummins, 1991; Garcia, 2003). This creates, however, a challenge for schools because there are no standardised first language assessments for Pasifika students attending schools in New Zealand. And even if there were, there is a further concern about how to ensure that these are valid and equitable assessments for Pasifika students as English language learners. This requires the design of assessments which reflect sociocultural and socioeconomic contexts (Sweet & Snow, 2003).

The validity of assessments is dependent on the degree to which the assessments draw on children's background knowledge to reflect real world learning in both at home and school contexts and their relationships (Lee, 2003; McNaughton, 2002). This means designing assessments that incorporate students' prior knowledge and out of school activities. Narratives, as forms of assessments have long been recognised in the research as effective measuring comprehension (e.g., Olson, Mack & Duffy, 1981) for several reasons. First, they are easy to comprehend; second, they elicit more interest; and third, they promote explanations and predictions more than expository texts. The use of narratives, according to Graesser (1981) and Brewer (1985), increases opportunities for students to make inferences, which in turn activates schema and script structures that support inference generation. In other words, narratives generally foster socialisation and educational goals (Williams, 2002). Thus narratives that are designed with familiar aspects of children's out of school activities and experiences can provide useful insights into how children develop in their L1.

In this paper we contribute to the pressing need to validly describe L1 competencies for Pasifika students. We report on the comprehension competency of Samoan bilingual children in their first language particularly how they respond and think about texts as their language develops. The study was situated in a special context, that of bilingual instruction in both L1 and L2 (Amituanai-Toloa, et al., 2008).

2. Method

2.1 Context

The study took place within a large scale schooling improvement initiative to more effectively teach reading comprehension in English. It was part of a research-based collaboration, which involved researchers working with teachers in seven urban schools serving communities with the lowest employment and income levels, who were largely Māori (indigenous families) and Pacific Nations communities. We have previously reported on overall effects elsewhere (Lai, et al., 2004). The six bilingual classes described here are operated in two of the schools (school A and school B), which are involved in the larger project (McNaughton, Lai, MacDonald & Farry, 2004). School A had three bilingual classrooms, a year 7 (11-year-old), a year 7/8 (12- and 13-year-old) composite and a year 8 (13-year-old) classroom. School B had three bilingual classrooms also, with two composite classes, a year 4/5 (8- and 9-year-old) class and a year 5/6 (9- and 10-year-old) class and the other, a year 7/8 classroom.

All classrooms used a mixture of Samoan and English, but they varied in their use of English and Samoan across the school day, and across curriculum areas. However, in reading instruction all teachers used English texts for teaching reading comprehension. Two teachers used Samoan only during reading comprehension instruction, two further teachers only used English and the remaining two teachers used a combination of both.

2.2 Participants—Children (Samoan bilingual)

There were between 24 and 30 students enrolled in each of the six classes across two years. Data from three groups of students are reported. In total, there were 148 students ranging from year 4 to year 8 assessed on the L1

oral and 158 from the same year levels on the L1 reading comprehension. In both cases, there was an equal representation of gender (50%).

The majority of younger children in year 4 to year 6 had been in bilingual classrooms since year 1. However, the make-up of children in the year 7 and year 8 bilingual classrooms was different, especially for the classrooms at the intermediate school. Some children were new to bilingual classrooms and others had entered bilingual classrooms at different points of their schooling, thus giving a more mixed L1 status due to their school experiences.

2.3 Measures—Oral language and reading comprehension (Samoan)

A major challenge facing the design of more effective instruction for language minority students is the dearth of standardised assessments in the minority language appropriate for bilingual and immersion contexts (Garcia, 2000; Tabors & Snow, 2001). Patterns of L1 (Samoan) reading comprehension and oral language production for bilingual children across the year levels in this study are drawn from assessments on specially designed narratives. In the absence of standardised assessments in Samoan, five narratives were developed to be used in questioning and retelling formats for use in both the reading comprehension and oral language tasks. Two of these were originally designed and field tested for English reading comprehension (Warner, 2003). The two narratives were designed for an English reading age level of 6 years. The two narratives in English were of equal difficulty in terms of accuracy of responses to the questions. Inter-rater agreement on the coding of the questions and retelling component was high (around 90%). For the purposes of the present study these were translated into Samoan and the additional three narratives in Samoan, written by the first author, were included. These narratives were used to assess both reading comprehension and oral language (see below).

(1) Narrative 1—O ananafi i le a'oga (Yesterday at school)

All children can identify with going to school and the activities they engaged with at school. One of the important things children go to school for is friendship. The story depicts a child who went to school one day only to find her/his friends absent. Saddened and uncomfortable by it, the child coped when he/she found consolation in a new student who had just started school that day.

(2) Narrative 2—O le fa'alavelave o le matou ta'avale (The problem with our car)

Assuming that all Samoan children have cars in their families, the story tells of a family who set out to go to a family lunch only to find when pulling into a petrol station that there was something wrong with the car. After a few attempts, protagonist tells us that if it had not been for Mum, the car would not have started.

(3) Narrative 3—Nana i le fanua (Hidden in the land)

A contemporary version of one of the oldest and most popular Samoan legends, "Nafanua" (Na—hide; fanua —land) is designed to reconnect students' ideas of myths and legends to the present day reality of being Samoan. As a legend, it is predicted that most students would have heard this story being orally told by an elder as a leisurely bedtime activity not only to expose Samoan superstitions and beliefs but also as a reminder of Samoan people of long ago and what they had contributed to what it is to be Samoan.

(4) Narrative 4—O se aso fa'avauvau (A solemn day)

Almost all children do have a pet sometime in their life. The experience of having a pet children can call their own, is perhaps the most trying. This is because it comes with responsibilities and caring. Having a pet also has downsides. This story shows how a pet that has been more or less a member of the family was sadly taken away by old age. The transition from being alive to being demised is one that children almost are not able to cope with, but it is an experience that most children go through.

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Facing a crisis and coping with it is one of the most challenging changes in a child's life. One of the ways to cope with such sadness is to face the problem, by activating memory recall to focus on aspects that have brought much happiness or in some cases, sadness, to life, in this case, the child.

(5) Narrative 5—Ua leiloa la'u ato a'oga (The lost school bag)

The story highlights the consequences of being irresponsible especially when personal belongings are left where they should not be. The boy had been at home from school for a while but when it was time to do his homework, he could not find his school bag. His worries were exasperated by the grandmother who could not speak English and by the absence of the school bag everywhere he looked. However, although the school bag was said by the grandmother to be found in the refrigerator of all places, the boy could not believe it, as it was pulled out from underneath the grandmother's mattress.

The sequence of events that led to the grandmother shows the relevancy of Samoan children's relationships with their elderly relatives. Whilst New Zealand born children, for some, might not lean favourably to having elderly relatives stay with them, the story does infer that elderly relatives especially grandparents are most welcomed in their home. For one, they put things at home in order.

All five narratives were used to assess L1 oral, the first to four assess L1 reading comprehension.

2.4 Validation of Samoan texts

Two Samoan language experts were given copies of the 5 Samoan narratives (including the two translated stories). One was an experienced teacher with special expertise in the early literacy intervention, Reading Recovery (Clay, 1998), and had taught Samoan language at tertiary and secondary levels. The other was a researcher who was Samoan-titled[4] with extensive research experience and expertise in the educational field. Both were members of the Samoan association of teachers in New Zealand (FAGASA—Fa'alapotopotoga mo le A'oa'oina o le Gagana Samoa i Aotearoa) who, keep apart from being fluent speakers of the common and hierarchical oratory Samoan language, and also held influential positions within that organisation. These experts independently graded the texts into three levels of difficulty using judgements of language complexity and topic familiarity suitable for different age levels (school years from 4 to 8). Two passages were graded as being of easy difficulty, one of medium difficulty, and two of high difficulty. The grading was completed independently and they reached 85% agreement on the grading. The two experts were also the testers for the oral retelling task.

2.5 Grading and coding

The selection, grading and levelling of the narratives were based on commonality and familiarity to Samoan students in the different year levels but not, however, limited to these alone. The two experts and the first author took two sessions to develop and define what the terms "difficult" and "familiar" were as criteria for levelling. At the first session, copies of the narratives were given to both experts to grade individually in terms of readable levels calculated namely on three levels: easy, middle and difficult. At the second session, a checking technique to ensure reliability was carried out by comparing the grading from the two experts and checking them against the researcher's for both "difficult" and "familiarity" scores. The levels of inter grade agreement ranged from 89% for "middle" and "difficult" and 100% for "easy".

2.6 Procedure—L1

(1) L1 assessments of oral language

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[4] A titled person in Samoa is someone who holds a "matai" or chiefly title. This title is conferred on a person by a family or community sometimes as acknowledgement of a person's contributions or as a passing on of genealogical responsibilities. To be fluent in the hierarchies of the Samoan language is a necessary aspect of being donned a "matai".

Four weeks after the reading comprehension assessments, oral language assessments were carried out. The same texts were used in a retelling format to assess students' control over Samoan. One text was used with each student, based on the gradient of difficulty, where possible, selected as unfamiliar. Students were individually assessed but, within classes, two different texts were used with half the class receiving one and half the other. This was to control any further bias due to differences between texts in difficulty or topic relevance. After reading, the student was asked to retell the story in his/her own words.

The assessments of language focused on two components of language production. The vocabulary component assessed the kinds of words students used in their retelling. The sentence structure component assessed how students used words to form sentences. Each component was rated on a four point scale with 0 for no response (OT—oge tala—no words). For sentences, 1 (VA—vaega amata—emergent level; e.g., Na mafua? …le maile, na i ai le mean a tupu i le a'oga I le tama o Pele…pau a na…)(The reason? …the dog, there was something that happened at the school to the boy called Pele … that's all…) was coded for simple sentences with no linkages functioning as unconnected labels; 2 (VF—vaega feololo—beginning level; e.g., E fiafia tamaiti ia Trophy… E fa'atali Trophy se i sau le aiga… Ua ma'i Trophy, ua fai le kui.)(Trophy likes children. He waits for the family to come [home]. Trophy is sick, he had an injection.) was coded where sentences were short and simple, with ideas linked by simple conjunctions and covering few main points; and 3 (VM—vaega matutua—fluent level; E masani na alu na ia i le a'oga ma ta'alo fa'atasi ma ana friends, e a'ai fa'atasi ma na fiafia is i le lunch. O le tasi aso na pasi i le maile na pafu ia e le i ou. Na o'o i le a'oga e iloa e leai ni ana uo, sa faitau ma tusi ma a'ai, ma ua fiafia ai Pita.)(He usually goes to school and plays together with his friends. They eat together and he likes lunch. One day he passed a "baf" dog but the dog did not bark. When he got to school he noticed his friends weren't there. He read and wrote and Pita was happy.) was scored where three or more main ideas expressed in complex sentences with linkages providing a coherent narrative structure. For vocabulary, 1 was scored where the student used words which were everyday labels; 2 was scored when more words were used including adjectives but the range was still limited in describing events and characters; and 3 was coded when students used a wide range of descriptive and mood setting words to describe events, characters and places. Training with two assessors to gain high reliability occurred over two sessions and the procedure was pilot tested with six students whose records were coded independently by two assessors, who agreed 100% on total scores.

(2) L1 assessments of reading comprehension

The five narratives with increasing difficulty were designed to test bilingual students' L1 reading comprehension and L1 oral language. For reading comprehension, a listening mode was adopted to avoid complications due to differences in decoding skills. However, the use of written texts and questions which reflect a variety of reading comprehension processes, as well as the availability of the text for students to read were designed to approximate as closely as possible the requirements of reading comprehension. Each narrative had 16 questions grouped into 4 components. Given that each child was questioned on two texts, the total score was out of 32. The first component (which was only one question; each other component had 5) checked the strategy of activating prior knowledge (e.g., A e fa'alogo i le ulutala, "O le fa'alavelave o le matou ta'avale", o a ni mea e muamua lava ona e mafaufau i ai?) (When you hear the title of the story, "The problem with our car", what things do you first think about?). The second component probed the area of identifying main ideas (based on the importance of idea units) and being aware of their significance (e.g., Afai e te fa'amatalaina lenei tala i sau uo ina ia matua malamalama lava, o a ni vaega [manatu] taua o le tala o le a e fa'amatalaina?) (If you were to retell this story to a friend, what parts [main ideas] would you retell in order for your friend to understand?). The third

checked comprehension as an outcome, based on the typical taxonomies of recall (e.g., O fea na tu'u e o iai Mum ma i si tagata i le ta'avale?) (Where was Mum and others going in the car?); simple and complex inferences (e.g., O a mea na aumai i le pamu penisini?) (What did they get from the petrol station?), (e.g., Aisea na fiafia ai lava Mum?) (Why was Mum so happy?); evaluation (e.g., Aisea ua amata ai ona popole le aiga?) (Why did the family start to worry?) and interpretation of language (colloquial) use (e.g., Fai mai le tala; "Na matou feala fa'atasi lava ma manu'. Fa'amata o le a le uiga o lea fa'aupuga?") (The story says, "We woke up together with the birds'. What do you think this might mean?"). The fourth component concerned the strategies and awareness children had about identifying new words; constructing meaning; describing use; identifying sources of information for synthesis and inference (e.g., E i ai se upu e te le malamalama ai? O le a le uiga o le upu foki? Afai e le iloa e lau uo le uiga o le upu, o a ni mea e te ta'ua i ai e iloa ai e ia le uiga o le upu 'foki'? E fa'apefea ona e iloa le tagata na aveina le ta'avale? Ta'u i lau uo le auala na e iloa ai le tagata na aveina le ta'avale.) (Is there a word you don't understand? What is the meaning of the word "foci"? If your friend does not know the meaning of the word "foci" what else can you tell him so that he knows the meaning of the word "foci"? How did you know who drove the car? Tell your friend how you knew who drove the car). Using the scores obtained on the assessments (see below), the components were found to be highly intercorrelated with all but the first component above ($r = 0.80$).

The L1 reading comprehension assessments were carried out at time 4 (T4: the end of the second school year in late 2004). Younger students in years 4, 5 and 6 classrooms received easy and medium difficult texts while older students in years 7 and 8 classrooms received the medium and harder difficult texts. The narratives were read to all the students in the classroom to control for the decoding levels in L1, and the questions were given orally but each student had a written copy of the questions. In this sense, the test was one of the listening comprehensions, and was designed in a reading comprehension format. Students were instructed to listen to the first reading of the first story and try to take in as much as possible of the events in the story before the second reading. After a second reading, the students listened to each question which was read twice, then wrote their responses. The procedure was repeated with a second story. It took one hour to complete assessments on both texts.

3. Analysis

The analysis involved the examination of relationships between L1 oral and L1 reading comprehension achievement. Given the theoretical argument that transfer from a first language to L2 is influenced by the continued development of first language proficiency as well by the development of reading strategies and proficiency in first language (Garcia, 2003), examination of such a relationship was necessary to identify specific areas of first language that were known to transfer to L2. The first aim was to describe developmental patterns in oral language and reading comprehension in L1 where no age-related descriptions for Samoan students have been made. The second aim was to identify specific aspects of language development in both L1 oral and L1 reading comprehension that might have some impact on their L2 achievement.

4. Results

4.1 L1 oral language: General patterns in sentence structure and vocabulary

Overall, students performed slightly above the midpoint of 3 on the retelling task for L1 oral language (M=3.80, SD=2.09, n=147) and performed equally on the two components (M=1.87, SD=1.04 and M=1.93, SD=1.09 respectively), but with large standard deviations (see Table 1).

Table 1   L1 oral component mean scores and standard deviations (total group n=147)

L1 oral component	Mean	SD
Vocabulary	1.87	1.04
Sentence	1.93	1.09
Total	3.80	2.09

4.2 L1 oral language: Development across year levels

A gradual development in performance on the oral assessment was noted from years 4 to 6 with a noticeable drop at year 7 group (see Figure 1). Year 6 students had the highest scores in the language measure (M=4.77, SD=1.47), and highest again in componential scores (sentence structure, M=2.46, SD=0.66; vocabulary, M=2.31, SD=0.85). It should be remembered that there was double the number of children represented in the year 7 and year 8 levels and the second school which only had these year levels drew from primary schools that did not have bilingual classes.
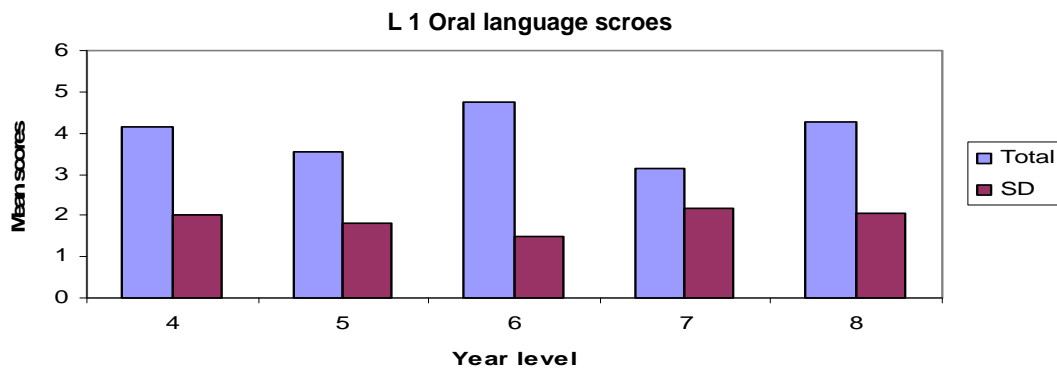

Figure 1   Mean of oral language scores by year level

To identify particular areas of strengths and weaknesses for students in the language assessment tool, analyses of individual categories of sentence structure and vocabulary were examined by year level. These categories were: for sentence structure, OT (no words) was scored for a no response or a response that was not formulated in a sentence or in one-word responses. VA (emergent) response was a response that had one main idea though the sentences were disconnected. Any response that was formulated in sentences but had covered two main points was a VF (beginner). The VM (fluent) category was any response that had three or more main ideas explicitly examined and retold with clarity using proper intonations in sentences from beginning to end. The four codes were also used for vocabulary. OT was when a child did not have or know Samoan words in order to retell. When a child used everyday words to label nouns, pronouns and verbs, the vocabulary was graded VA. When a child knew the words but could not use the words to describe events and people, this was VF. When the child's rich vocabulary and broader knowledge of usage of words were applied to retelling with intonations, events, people and places, it was a VM. In each component OT was a nil score. VA, VF and VM for both components were scored 1, 2 and 3 points respectively giving a total of 6 points.

4.3 Sentence structure

The data indicate that the majority of students in each year level were in the VM (fluent) category (overall mean percentage in VM: m=41.04%). There were no year 6 students and a very low percentage (6.3%) of year 4 and year 5 students in the OT categories of SS (see Figure 2) indicating that these students had less difficulty with sentences when retelling stories in Samoan, and they had greater control in their first language development.
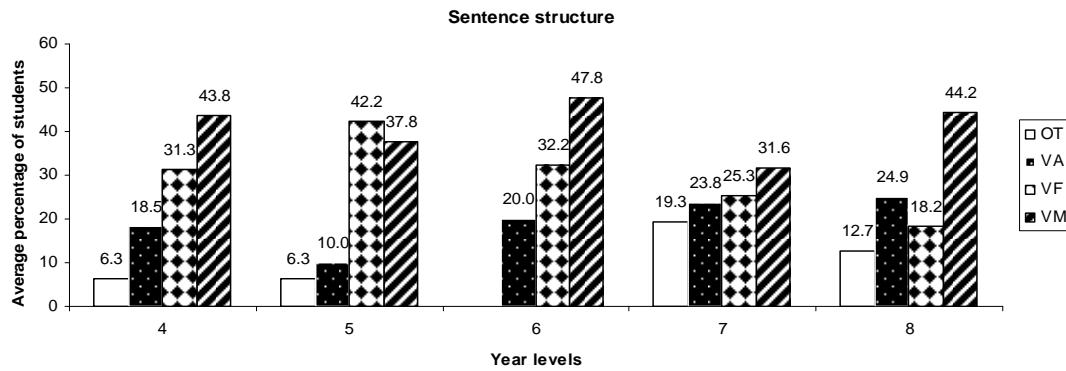
Sentence structure

Figure 2   Average percentage of fluency obtained for sentence structure in Samoan

The retelling of narrative 1 by a year 8 student (graded VM—fluent):

> O le tama o Pita e fiafia e alu i le a'oga. Toeititi ono ona tausaga. Na alu i le a'oga. Sa savali ae lea na iloa iina e le'i i ai ana uo i le a'oga ona popole lea. Toeititi ta le lunch ona tutu lemu lea i luga ua savali ae sau Sam, o le tama fou fai mai le faia'oga e va'ai. Uma le a'oga fiafia lava Pita. (The boy Pita likes going to school. He's almost six years old. He went to school. He walked and he saw that his friends were not at school and he was worried. When it was close to lunch we stood up slowly and started walking when Sam came. He is a new boy that the teacher had to look after. After school Pita was very happy.)

This retelling of the same story by a typical year 6 student (graded VM—fluent):

> O le tala i le a'oga, sa faimai le tala o ananafi i le a'oga, sa fiafia. O lona igoa o Pita, e fiafia ia ma ana uo pe a ta le lunch, e nofonofo ana uo ao isi taimi na o le a'ai. E alu i le a'oga e tu i luga le ulu o le maile ma ou, e le'i timu, o'o i le pa a le a'oga iloa e ia e lei a'oga ana uo, alu i le a'oga ta le lunch e le'i iloa e ia le mea a fai, sa iloa atu le tama fou e igoa ia Sam, sa alu fa'asino le mea e tu'u ai lana ato. (The story is about school, the story said 'Yesterday at School' he was happy. His name is Pita. He and his friends are happy when its lunch, he sits with his friends but other times they just eat. When he went to school the dog's head popped up and barked. It did not rain. When he got to the school fence he noticed his friends were not at school. At lunch he did not know what to do then he saw the new boy Sam. He showed him where to put his bag.)

Both retellings had three or more main ideas explicitly examined and retold with clarity using proper intonations from beginning to end of sentences.

The average percentages of students in the word vocabulary categories were close to sentence structure (see Figure 3). For example, 39% of students were in the VM category and almost 25% in middle vocabulary range (VF). There was a higher percentage (27%) of students in the VA (beginner) compared to the percentages of students in the same category for sentence structure (19%). Again, there were no Y6 students in the OT (no words) category indicating that word knowledge in Samoan was not a weakness for this year level. But this needs to be examined against the L1 reading comprehension.

The general level of vocabulary can be seen in the two retellings. The Samoan words used in both examples were not in the text but their usage illustrate two aspects of student word knowledge: some students had a pool of low frequency words and phrases that they are familiar with; and other students have the ability to use these words and phrases as alternative words to further show their understanding of the texts. In the first example, Samoan words used were: *toeititi* (almost), *iloa* (see, notices), *savali* (walk), *popole* (worried). In the second example, Samoan words and phrases used were: *nofonofo* (sat—plural), *ananafi* (yesterday), *e le'i timu* (it didn't rain), *pa a le a'oga* (school fence).
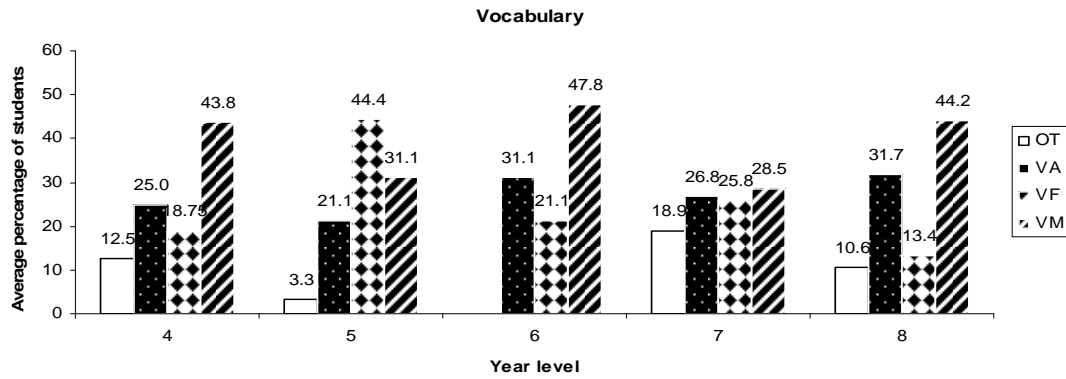
Figure 3   Average percentage of fluency obtained in word vocabulary in Samoan

There were aspects worth noting from the analysis. One aspect was the "slump" at year 7 on both components thus echoing also a drop in development in the L1 reading comprehension noted below. The other aspect is the pattern of year 8 students in both components. The year 8 patterns in sentence structure were similar to the year 8 patterns in vocabulary with the presence of more students in the OT category than students in younger year levels, who could not verbally retell using a sentence (16%) nor had words in order to retell (14.7%) (see Figure 2 and Figure 3).

4.4 L1 reading comprehension: General patterns

The students varied in their performance on the 16 individual questions. The average student had difficulty answering questions 2-6, questions 13, 14, and 16 (see Figure 4).
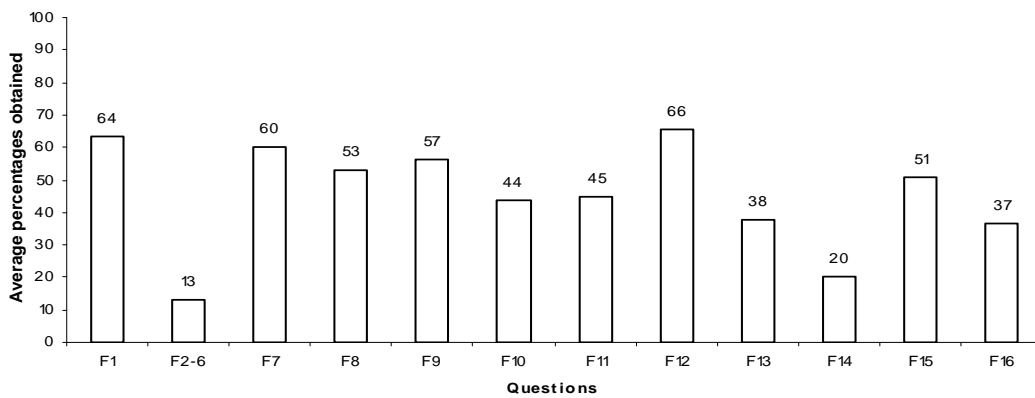

Figure 4   Percentage of students answering individual questions correctly

Question 12 (identifying an unknown word) and question 1 (activating background knowledge) recorded the highest percentages of correct responses with 66% and 64% respectively. A simple recall (question 7) was next highest with 60% of correct responses followed by 57% correct responses on more complex inference question (question 9) and 53% correct responses on simple inference question (question 8). While these bilingual students activated background knowledge and could recall facts and identify unknown words, they had difficulty solving those unknown words in Samoan, even in context, as evidenced in the low percentages of correct responses for question 14 (20%) and question 16 (37%). Both questions asked students (for a correct response) to check and evaluate their answers and how they would help a fellow student get the correct answer from the text. Questions 2-6 which asked students to identify five or more main points in the story was very low (13%). These findings

indicate a possible general issue in the development of metacognition in L1.

4.5 L1 reading comprehension: Development across year levels

To better summarise the development across years, the 16 questions were grouped into the main comprehension components. A trend across year levels was that although there was a steady development in L1 reading comprehension for younger students, a marked drop off occurred for older students at year 7—a trend similar to L1 oral componential achievement. Table 2 indicates this drop was across each component.

Table 2   L1 reading comprehension components mean averages across year levels

Question/s	Component	Year level				
		4	5	6	7	8
1	Activating prior knowledge	39.5	64.7	75.0	59.7	73.4
2-6	Metacognition	42.2	38.3	80.5	60.6	77.0
7-11	Comprehension products	48.9	60.5	70.2	48.7	51.3
12-16	Strategies and awareness	32.6	43.0	67.9	41.8	39.9

The performance in reading comprehension in L1 on the graded texts was consistent with the experts' judgements of the texts providing a gradient of difficulty. There was a spread of scores (*SD*=8.57) and the mean score across the two narratives for reading comprehension was 15.68 (n=157). Again, there was a consistent increase in scores from year 4 to year 6 but again a dramatic drop in scores at year 7.

Table 3   L1 mean (M) oral scores and comprehension scores across year levels and individual dimensions

		Year level					Total
		4	5	6	7	8	*M*
Oral	*N*	19	16	13	55	44	147
Vocabulary (3)*	*M*	2.00	1.75	2.31	1.56	2.11	1.87
	SD	(1.05)	(0.86)	(0.85)	(1.07)	(1.04)	(1.04)
Sentence structure (3)	*M*	2.16	1.81	2.46	1.56	2.16	1.93
	SD	(1.01)	(1.05)	(0.66)	(1.13)	(1.06)	(1.09)
Total (6)	*M*	4.16	3.56	4.77	3.13	4.27	3.80
	SD	(2.03)	(1.82)	(1.48)	(2.16)	(2.06)	(2.09)
Comprehension	*N*	24	13	13	62	45	157
Prior knowledge (2)	*M*	0.79	1.31	1.54	1.00	1.60	1.21
	SD	(0.83)	(0.85)	(0.78)	(0.81)	(0.72)	(0.84)
Main ideas (10)	*M*	2.50	2.62	4.85	3.29	7.13	4.34
	SD	(3.34)	(3.69)	(4.04)	(3.35)	(3.12)	(3.81)
Products (10)	*M*	5.04	5.23	7.54	4.48	6.89	5.57
	SD	(3.57)	(2.92)	(1.27)	(2.97)	(2.48)	(3.03)
Awareness (10)	*M*	3.25	4.54	7.23	3.87	5.42	4.55
	SD	(2.47)	(2.96)	(2.09)	(3.14)	(2.30)	(2.92)
Total (32)	*M*	11.58	13.69	21.15	12.65	21.04	15.68
	SD	(8.77)	(8.45)	(5.71)	(8.37)	(5.78)	(8.57)

Note: * Possible total scores for each dimension included in brackets.

Generally the students had similar accuracy levels on components from year 4 to year 8, but there was a noticeable drop in percentages of students passing each component in year 7 (see Table 3). A number of reasons can be advanced for this pattern. The year 7 and year 8 students were given the more difficult narratives and hence

the pattern of dropping may reflect that increased difficulty.

However, it was also the case that year 8 students had more mixed language instructional backgrounds (shown by the oral assessments). The baseline measures of the sub-tests on the reading comprehension measures in L2 also showed lower scores in year 7 and year 8 which may have been due to the changed format, but also might reflect the lower language levels (Amituanai-Toloa, McNaughton & Lai, in press).

4.6 Relationships—L1 oral and L1 reading comprehension

As expected, within the total group of Samoan children in the bilingual classes there was a significant positive correlation between their oral language scores in Samoan and their reading comprehension scores in Samoan ($r_{(133)} = 0.55$, $p<0.001$) (see Table 4).

Table 4 Intercorrelation between oral and comprehension dimensions

Dimensions	1	2	3	4	5	6	7	8
1. Oral score	--	0.98^{**}	0.98^{**}	0.55^{**}	0.22^{*}	0.30^{**}	0.60^{**}	0.60^{**}
2. Oral—sentence structure		--	0.92^{**}	0.54^{**}	0.23^{**}	0.28^{**}	0.58^{**}	0.55^{**}
3. Oral—vocabulary			--	0.55^{**}	0.20^{*}	0.31^{**}	0.59^{**}	0.55^{**}
4. Comprehension score				--	0.48^{**}	0.83^{**}	0.86^{**}	0.82^{**}
5. Comprehension—prior knowledge					--	0.37^{**}	0.38^{**}	0.24^{**}
6. Comprehension—main ideas						--	0.54^{**}	0.47^{**}
7. Comprehension—products							--	0.69^{**}
8. Comprehension—awareness								--

Notes: (1) * p <0.05, ** p <0.01; (2) Correlation between dimension 1-3 were based on n=148; (3) Correlation on oral scores (dimension 1-3) were based on n=148; (4) Correlation on oral scores (dimension 1-3) vs. comprehension scores (dimension 4-8) were based on n=133; (5) Correlation on comprehension scores (dimension 4-8) were based on n=158.

This indicates that the better the L1 oral ability of a student, the better the comprehension ability that student has, and vice versa. L1 oral ability was most significantly related to a child's L1 product as well as strategic and awareness in comprehension, both correlations were 0.60. In terms of individual dimensions, the sentence structure and vocabulary both had positive relationships with each aspect of the comprehension dimensions. However, the relationship between main ideas in comprehension and the two dimensions in oral ability were of smaller magnitude albeit significant.

5. Discussion

This study contributes to a pressing educational need for Pasifika students in New Zealand, the need for valid measures of reading comprehension and oral language development specific to a language group. The tool designed for Samoan students used common narratives as a base and for both oral and reading comprehension. For reading comprehension, the tool used a listening comprehension format to avoid problems due to possible decoding limitations. The two measures provided a gradient of difficulty with a surprising drop in both oral and reading comprehension at year 7.

We attribute the drop to a change in competencies of some students entering the bilingual classroom at year 7. For example, the mixed levels of both L1 oral and L1 reading comprehension within and across years of schooling likely reflects the varied provision of Samoan in the bilingual classes and the variations across cohorts in different degrees of bilingualism. This is likely due to the make up of the two schools where one was an intermediate school of years 7 and 8 students and, the other a full primary school with students from years 4 to 8. The

intermediate school of years 7 and 8 students drew on a number of primary schools in the area, most of which were without bilingual classes for younger students. The full primary school had bilingual provision from year 1.

Thus, patterns described here reflect schooling provision and choice by families. The year 4 to year 8 students come from one school, in which children had mostly been in bilingual classes since beginning school. The year 7 to year 8 included students from that school plus students from an intermediate school. Some of these students had chosen to be in a bilingual option class but had not been in bilingual provision earlier. This means these students have limited oral proficiency and reading comprehension in Samoan compared with those students who had been in bilingual classes from an early age up to intermediate years.

The patterns suggest two general instructional needs in Samoan bilingual classrooms. One is the need to develop metacognitive components. Pressley (2002), like other research (Paris & Stahl, 2005), has consistently agreed for the need for deliberate and explicit instruction to build awareness of strategies and this effectiveness. A second is the ubiquitous need identified in reading comprehension instruction generally to develop vocabulary, both through oral and written forms (Pearson & Dole, 1987). The issues here just like instruction in other contexts is to provide instruction that predictably impacts on academic and literate use of language in both oral and written forms (Cummins, 1991).

Not surprisingly there was a highly significant relationship between L1 oral at L1 reading comprehension levels, reflecting a general relationship found in other studies of monolingual in L2 language contexts (e.g. Jimenez, 1995). The descriptions there show considerable variation in oral measure both within and across levels. This supports Tabors and Snow's (2001) claim that detailed profiles of children's control over L1 as well as L2 are needed to design more effective instruction. The students in these bilingual classes varied markedly in their control over L1.

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