



## Reading performance in post-colonial contexts and the effect of instruction in a second language

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### SUMMARY

The IEA's Progress in International Reading Literacy Study (PIRLS) 2011 provided evidence which showed differences in the reading achievement of students who spoke the language of assessment at home and those who did not for many countries including a selection of the participating "post-colonial countries". Colonization of these countries by different European nations occurred as early as the 1600s, through to the 1800s. The language of the colonizing nation was most often imposed (formally and informally) upon indigenous population(s) and became the official (legally or by its widespread use) language(s) of the country. These countries are now presented with challenges surrounding finding an appropriate balance between having policies that support and value indigenous and heritage languages, and policies that promote and support the official or colonizing language(s). It is not uncommon in countries such as Australia, Canada and New Zealand, for the dominant colonizing language(s) to be viewed as being of greater value, particularly when supporting new immigrants without local (colonizing) language skills. Understanding the effect of language policies, both past and present, is important to interpreting the achievement differences for these countries. Although beyond the scope of this brief, countries and systems that are developing language policies for populations, especially for their minority groups, may also learn from these countries' experiences. Out of the nine education systems investigated, the language of learning was found to have a positive relationship with reading achievement in most post-colonial contexts and, in particular, in English-speaking contexts, even when the socioeconomic status of the students was taken into account.

### CONTENTS

SUMMARY	1
INTRODUCTION	2
DATA	2
METHOD	4
RESULTS AND DISCUSSION	5
DISCUSSION	8
POLICY IMPLICATIONS	9
REFERENCES	10
COLOPHON	12

### DEFINITIONS USED IN THIS BRIEF

- Post-colonial: refers to the period of time occurring or existing after the end of colonial rule and, in this study, refers to contexts where there had been occupation and settlement by the UK, France and/or Spain.
- Test language: the language in which the participants were assessed, with the test language primarily being the language of instruction.
- Home language: the main language spoken by the students at home; sometimes referred to as "mother tongue", "first language", "heritage language", or "native language".
- Second language students: students who are attending school where the medium of instruction is not their home language.

<sup>1</sup> Opinions expressed in this article are those of this author and do not necessarily reflect those of the New Zealand Ministry of Education.

## INTRODUCTION

In many countries, languages were appropriated and indigenous languages were overtaken by languages of colonizers (Ashcroft, Griffiths, & Tiffin, 2013), in particular those from European countries. The language of the colonizing nation was most often imposed upon indigenous population(s) (Heugh, 2009; Marky, 2011). Consequently, language is an area of substantial negotiation, debate and even conflict, leading to dominance of cultures and resistance in several parts of the world (Heugh, 2009; Chimbutane, 2011; McKinney, 2017). Clearly there are complex relationships between language and power (McKinney, 2017). Post-colonial countries have the challenge of finding an appropriate balance between supporting and valuing indigenous languages, while continuing to implement policies that are underpinned by beliefs that the colonizing language(s) are of greater value. The home language of the students and teachers (where it is not the medium of instruction) may be considered to be of secondary importance in education (Marky, 2011) resulting in code-switching in classrooms in multilingual language contact settings (see Gibson, 2003, for a review of cases in Hong Kong, Brunei, Sri Lanka, Malta, Burundi, Botswana, South Africa and Kenya). Post-colonial debates about language are also influenced by issues such as gender, class, and education opportunities. Furthermore, some societies may regard children as “linguistically-deficient” (McKinney, 2017, p.4) when learning in a second language, as they may underperform in the schooling context.

Previous research has noted the generally positive difference in achievement in school subjects between those fortunate enough to learn in their home language and those unable or denied the possibility to do so (Heugh, 2009; Chimbutane, 2011; Makgamatha, Heugh, Prinsloo, & Winnaar, 2013; Marky, 2011). The Education for All initiative promoted the use of the home language as the language of instruction (UNESCO, 2015) and some research stresses the benefits of learning in the home language (Heugh, 2009; May, Hill, & Tiakiwai, 2004; McKinney, 2017). However, while in many countries this is possible, this is not always the case in countries with long colonial pasts (for a variety of reasons) where, in particular, the languages from European countries (such as the UK, France, the Netherlands, Portugal and Spain) were imposed upon the local populations (Marky, 2011; McKinney, 2017; Milligan, & Tikly, 2016).

Without a common basis upon which to compare the effects across countries, there has not been an empirical basis upon which to judge the effects of colonizing languages on the education of indigenous populations. Studies investigating the role of language specifically focus on or use single country data (Heugh, 2009; Hohepa, 2008; Makgamatha, et al, 2013; Marky, 2011).

The study aimed to explore the relationship between home language and reading achievement in the context of differing instructional languages, across a variety of post-colonial contexts.

This was done by applying two statistical techniques to analyze the relationship between speaking the test language at home and reading achievement, as measured in the International Association for the Evaluation of Educational Achievement’s Progress in International Reading Literacy Study (PIRLS) 2011 in a selection of post-colonial countries. These countries have a range of language policies in place to support language revival and heritage maintenance, or provide support for recent immigrants who are learning the official or main language of the country.

The policy and practice of students’ home language being the language of instruction in schools (and therefore the language(s) of the PIRLS assessment) varies considerably across education systems. In this study, although additional ethnicity/ethnic identity and/or language-related information was collected from students in national-specific questions for some education systems (for example in Australia, New Zealand and South Africa), this does not appear to be the case for all the education systems under investigation. Students’ reports of the frequency of speaking the language of the test at home, a variable common to all the countries, was ultimately selected to illustrate the relationship with achievement.<sup>2</sup>

Countries (also referred to as education systems) representative of former colonies of European powers (the UK, France and Spain) were selected for inclusion, where English, French or Spanish was a language of instruction. This resulted in the selection of Australia, New Zealand and Singapore (English in Asia), Botswana and South Africa (English in Africa), Canada (English and French in the Americas), and Colombia and Honduras (Spanish in the Americas). South Africa participated in PIRLS as a benchmarking participant due to it administering PIRLS at Grade 5 and in just two of the 11 instructional languages (Afrikaans and English). Honduras and Botswana tested Grade 6 students, not Grade 4. The Canadian province of Quebec was also a benchmarking participant, and was included here because it is a region where the French language is dominant.

Each country’s situation is unique in terms of its colonial history, post-colonial context and the experiences of its indigenous populations. Furthermore, there is diversity within countries, as indigenous populations are not necessarily homogeneous in terms of their culture and language; some groups have a higher profile because they form a relatively higher percentage of the country’s population. In some of the countries and education systems there may also be ongoing high rates of immigration; it is also important to acknowledge such factors when interpreting the results. Effectively, this means that it is not relevant to compare the results across these countries, and demonstrates the value of conducting this type of analysis within each country.

2 Parents/caregivers also gave information on language(s) spoken in the home, however using this as a source for analysis for all countries was problematic given the level of non-response for some countries.

## DATA

PIRLS is an international assessment of reading comprehension at the fourth grade that has been conducted every five years since 2001. In 2011, nationally representative samples of middle primary students in 49 countries (and nine education systems or regions) participated in PIRLS and prePIRLS<sup>3</sup> (see Mullis, Martin, Foy, & Drucker, 2012a, p.5).

Country-level data for nine of the education systems was sourced from the PIRLS 2011 International Database (for details, refer to Foy, & Drucker, 2013a). For each of the nine countries/education systems, we established language context, namely official language(s), main language, number of indigenous languages and other languages commonly spoken (Table 1).

Table 1: Languages (official, indigenous, and other major languages) spoken in the post-colonial countries/systems

Country/education system	Official and/or indigenous languages	Examples of other languages (major immigrant/heritage languages)
Australia	Main language (by widespread use): English 214 indigenous languages	Vietnamese, Cantonese, Italian, Greek, Mandarin, Arabic
Botswana	Official: English, Setswana 25 indigenous languages	Chinese, Sesotho, Sepedi, isiXhosa, isiZulu, Gujarati
Canada	Official: English (in some provinces, it is a <i>de facto</i> official language) and French 77 indigenous languages (in Nunavut and Northwest Territories, indigenous languages have been given official status)	Arabic, Eastern Punjabi, Mandarin, Portuguese, Spanish
Quebec	Official: French Six indigenous languages	English
Colombia	Official: Spanish 65 indigenous languages (these languages are recognized as official languages in their respective territories)	English, Catalan, Vlax Romani French, German
Honduras	Official: Spanish Eight indigenous languages	Arabic, Armenian, Yue Chinese
New Zealand	Official: Māori ("Te Reo", indigenous), NZ Sign De facto official (due to its widespread use): English	Samoan, other Pacific Islands languages (such as Tongan); Hindi, Mandarin, other Asian languages (such as Tagalog); Afrikaans, Arabic
Singapore	Official: English, Malay (also, the national language), Mandarin, Tamil	Hindi, Hokkien, Telugu
South Africa	Official: Afrikaans, English, isiNdebele, isiXhosa, isiZulu, Sepedi, Sesotho, Setswana, Siswati, Tshivenda, Xitsonga	Hindi, Tamil, Portuguese, Greek

Sources: Baker & Prys-Jones (1998); Mullis, Martin, Minnich, Drucker, & Ragan (2012b); Lewis, Simons, & Fennig (2016).

3 PrePIRLS, now known as PIRLS Literacy, is equivalent to PIRLS in scope and reflects the same conception of reading as PIRLS. It was introduced in PIRLS 2011 to extend the effective measurement of reading literacy at the lower end of the PIRLS achievement scale. Countries whose fourth-grade students are still developing fundamental reading skills can participate in the PIRLS Literacy assessment and still have their results reported on the PIRLS achievement scale as from PIRLS 2016.

## METHOD

### Phase 1

In PIRLS 2011, students were asked about speaking the language in which the PIRLS assessment was administered. They were asked to respond on a three-point scale how often they spoke the test language: “always/almost always”, “sometimes”, or “never”.<sup>4</sup> Responses to the lower frequency groups (the last two groups) were combined and compared with the higher frequency group.

Linear regression techniques were applied to estimate the (mean) difference between the two groups of students. Reading achievement was the dependent variable, and the intercept (B00) was the estimated mean reading score for students who “sometimes or never” spoke the test language at home. The difference between the two language categories was represented by the first regression coefficient, (B01). A *t*-test was performed to determine if the difference between the two groups was statistically significant (Table 2).<sup>5</sup>

To ensure socioeconomic status (SES) was not confounding the relationship between reading achievement and speaking the test language at home, a proxy for socioeconomic status, the ordinal variable “books in the home”, was subsequently added into the model first, before “test language spoken in the home”.

The number of “books in the home” was assessed by the student questionnaires, with estimations given on a five-point scale (1 = “none or very few (0–10 books)”; 2 = “one shelf (11–25)”; 3 = “one bookcase (26–100)”; 4 = “2 bookcases (101–200 books)”; and 5 = “3 or more bookcases (more than 200 books)”. This proxy of SES is a long proven stable indicator of SES that has been used across IEA studies<sup>6, 7</sup> (Brese, & Mirazchiysk, 2013; Caro, & Cortes, 2012). This method was subsequently replicated for each of the test languages used in a country.

The statistical software package SAS (SAS Institute, 2012) was used to undertake all analyses. A custom-written macro, JACKREGP, described in the PIRLS 2011 User Guide was

included to take account of plausible value methodology and the complex design survey used in PIRLS (see Foy, & Drucker, 2013a, pp. 39–75).

### Phase 2

PIRLS is not designed to measure failure; nor does it specifically set out to identify children that cannot read (decode). PIRLS is designed to assess children’s reading comprehension skills and is thus able to discriminate between those students who demonstrate very well-developed comprehension skills for their age and those who have weak comprehension skills.

Using PIRLS, it is possible to identify the characteristics of students who record lower reading achievement. Defining lower achievement is country-specific. For example, not reaching the PIRLS Intermediate International Benchmark could be a defining point for some systems, like Australia or New Zealand, because of the types of skills and comprehension processes that this particular group of students had difficulty in demonstrating in PIRLS and how these relate to the curriculum expectations for an education system’s students at the middle primary level (see the Australian and New Zealand national reports; Thomson, Hillman, Wernert, Schmid, Buckley, & Munene, 2012, p. 17; Chamberlain, 2013, pp. 54–58).

To further illustrate the relationship between speaking the test language at home and achievement, each education system’s 25<sup>th</sup> percentile was used as an upper limit to define the group of students who were in the “lower achievers’ group”.<sup>8</sup> The odds of students who spoke the test language infrequently being in this group were compared with the odds of students who frequently spoke the test language at home being counted in this group.<sup>9</sup> From this, we were able to determine a type of effect size, or an odds ratio (OR), for each education system.<sup>10</sup> If the OR was greater than 1, the event was more likely to happen than not (that is students where the home language was never or infrequently spoken were more likely to be among the lower achievers); if the OR was less than 1, then the chance was less likely, particularly as OR approached zero.

4 The (international) response options were framed as “I always or almost always speak <test language> at home”; “I sometimes speak <test language> and sometimes speak another language at home”; and “I never speak <test language> at home”.

5 Where 0 = sometimes or never spoke the test language; and 1= always/almost always speak the test language)

6 This information is also collected by the Organisation for Economic Co-operation and Development’s Programme for International Student Achievement and used in their index of economic, social, and cultural resources.

7 Six out of the nine education systems showed clear positive relationships between achievement and the number of books in the home. The exceptions were Botswana, Colombia and Honduras, where the pattern was curvilinear, with the groups reporting the greatest number of books in the home (more than 100) typically achieving lower scores than students reporting fewer books in the home (26–100).

8 That is, 25% of students achieved a score below this point and 75% of students achieved a score higher than this point.

9 Odds, like a probability, are a way of representing the chance of something happening. The relationship between the two is that the odds of an event occurring is the ratio of the probability of the event occurring to the probability of the event not occurring.

10 STATTOOL, a custom written SAS program was used to perform these calculations. The program took account of the survey design, the sample weights, and the five plausible values.

Table 2: Percentage of students speaking the language of the PIRLS assessment at home and average achievement difference between scores of students speaking the test language or not speaking the test language

Country/ education system	Test language in PIRLS	Students always/ almost always spoke the test language at home (%)	Students sometimes/ never spoke the test language at home (%)	Average achievement difference between students in two home language categories (SE)	Is the difference between average scores significant?
Australia	English	79	21	18 (4.8)	▲
Botswana	English	10	90	-9 (11.2)	●
Canada	English and French	74	26	11 (1.8)	▲
Colombia	Spanish	88	12	-1 (7.4)	●
Honduras	Spanish	92	8	6 (12.6)	●
New Zealand	English and Māori	74	26	43 (4.9)	▲
Singapore	English	32	68	30 (3.1)	▲
South Africa	English and Afrikaans*	43	57	60 (8.6)	▲
<i>Benchmarking participant</i>					
Quebec	French and English	73	27	5 (3.1)	●

Notes: SE = Standard error of the difference. We set the significance level set at  $\alpha = 0.05$  to compare differences between average (mean) scores.

▲ indicates students who always/almost always spoke the test language at home achieved significantly higher scores than students who sometimes/never spoke the test language at home.

● Indicates there was no significant difference between students who always/almost always spoke the test language at home and those who sometimes/never spoke the test language at home.

\* Afrikaans is a language derived from Dutch.

Source: PIRLS 2011 International Database. Methodology described by Foy & Drucker (2013a).

## RESULTS AND DISCUSSION

To ensure that all their middle primary school student populations would be able to take part in PIRLS and were not excluded on the basis of instructional language, three of the post-colonial countries/education systems administered PIRLS in more than one language, namely Canada (including Quebec), New Zealand and South Africa.

Most of the students in the nine countries/education systems that were examined completed the PIRLS assessment in a language they always spoke at home, with the exception of

Botswana, Singapore and South Africa (see Table 2). In these three cases, the majority of children were learning in a second language.<sup>11</sup> Children in Botswana enter school and begin learning in Setswana, and then switch to learning in English from Grade 2. Most students in South Africa switch from an African language in Grade 4 to Afrikaans or English, an additive bilingualism model. It is not standard practice for every student

<sup>11</sup> Students may also speak the first language, but academic learning is in the second language.

to be educated in his or her first language (Howie, & Van Staden, 2012, p. 607). In South Africa, English (First Additional Language) has recently been introduced as mandatory for non-English speakers from Grade 1 (Department of Basic Education, 2011), apparently to support the transition. However, in Singapore, English is the medium of instruction for all school subjects from Grade 1, an immersion model, accompanied by a bilingual education policy to encourage students to be proficient in English; English is the language of administration and commonly spoken by Singaporeans in addition to their mother tongue, if it is not English (Ang, Chan, Foo, Ng, Pang, Poon, Saharudin, & Wong, 2012, p. 567).

An important feature of the New Zealand education system is Māori-medium education, stemming from efforts of the Māori people to help ensure the survival of their language and culture. Only a very small proportion of New Zealand students (2%) in PIRLS were assessed in Māori.<sup>12</sup> These students were learning in the Māori language in either a full-immersion school or in a full-immersion class in an English-medium school (see Chamberlain 2012).<sup>13</sup> Formal or academic English instruction for students in Māori-medium settings sometimes begins in about the fourth year of schooling but is more likely to be delayed until the seventh year of schooling; children will already be speakers of English (Hill, 2016).

For each country/system, students were allocated by response to two broad home language categories, and the average achievement difference between students was calculated for these two language groups (Table 2).

Education systems where children completed the test in a language they frequently (always/almost always) spoke at home tended to do better than those who rarely (sometimes or never) spoke the language at home, with four notable exceptions. Botswana, Colombia, Honduras and Quebec showed no significant difference in achievement between their two groups of students.

#### **How does the reading achievement compare across systems when taking into account socioeconomic status and the language of the test?**

The difference between students who frequently spoke test language and those who sometimes or never did by test language was calculated after taking into account SES using the proxy of reported number of books in the home (Figure 1).

After taking into account the possible confounding effects of SES and repeating the analysis to take account the language of the test, education systems revealed that there appeared to be a considerable language effect. For seven of the nine education systems, students who frequently spoke the test language at home scored higher on average than students who sometimes or never did. Botswana was still an exception. Its students who spoke the test language, English, at home scored an average of 13 points lower than its students who sometimes or never spoke English in the home; however, the difference was still not statistically significant. In South Africa, the difference between student home language groups tested in Afrikaans was notably smaller than the difference observed for students assessed in English. This occurs to a lesser extent in New Zealand (English) and in Singapore (English), where the average difference was at least 20 score points, which equaled half a year's equivalence<sup>14</sup> in education terms. In the case of South African students, the difference was so large for those learning in and tested in English and not or only sometimes speaking it at home that it could be equivalent of nearly two years of learning.

#### **What is the extent of variance explained by test language only?**

The results revealed that the language spoken by the students mattered in most education systems. As only one factor explaining the achievement of the students, it contributed most in the systems that assessed in English, with as much as 16% of the score variance accounted for by this factor in the case of New Zealand students assessed in English, and 14% for Singaporean students. Test language seemed to matter least in Botswana, an exception to the education systems that provide instruction in English and those systems that assessed in Spanish.

#### **What are the odds that a student who did not speak the test language at home was a lower achiever?**

For each education system, the odds (and odds ratios) were estimated that a student who did not speak or rarely spoke the test language at home scored below the education system's 25<sup>th</sup> percentile (Table 3).

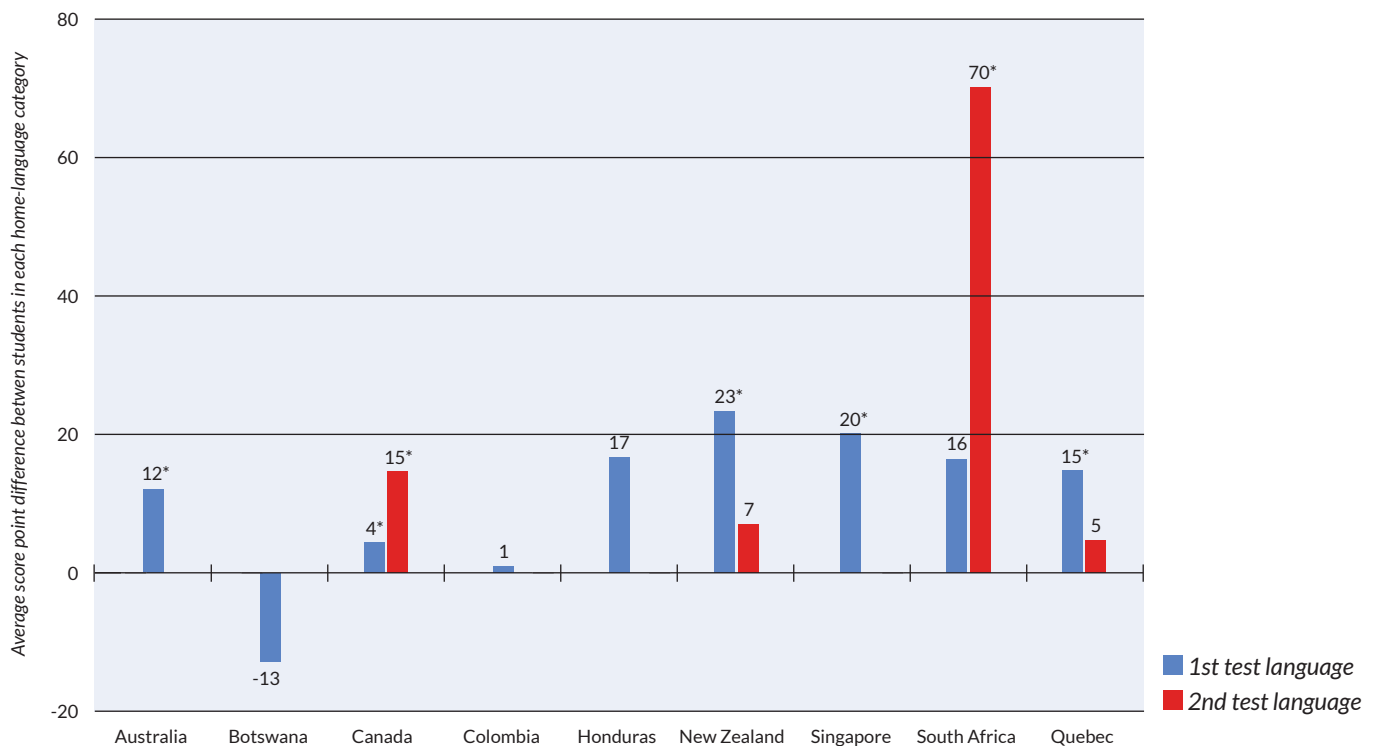
In all but one education system (Botswana), the odds ratios were greater than 1, which indicates that the chance of being among the lower achievers was much greater for students who rarely or never spoke the test language at home than it was for students who did speak it.

12 At the time of PIRLS 2011, Māori students accounted for more than one-fifth (22%) of the New Zealand middle primary population; most were learning in English-medium settings and spoke English at home.

13 Māori can also be learnt as a "second language" as children learn, say, Japanese or French.

14 The international studies regard 40 points as being equivalent to a year in education terms (Howie, 2015; OECD, 2016, pp. 63-64).

Figure 1: Average difference between students who frequently spoke test language and those who sometimes or never did by test language



Notes: \*Average difference is statistically significant; significance level set at  $\alpha = 0.05$  to compare differences between average scores for students in each home/test language grouping.

Canada: 1st test language 72% (English) of students; 2nd test language 28% (French) of students; New Zealand: 1st test language 98% (English), 2nd test language 2% (Māori; the difference calculated for Māori is based on a small sample, and is presented for illustrative purposes only); South Africa 1st test language 39% (Afrikaans), 2nd test language 61% (English); Quebec 1st test language 36% (English); 2nd test language 63% (French).

Source: PIRLS 2011 International Database. Methodology described by Foy & Drucker (2013a).

Table 3: Odds and odds ratio that a student is a low achiever when the language of test is spoken rarely or never at home

Country/education system	Probability (%) of not speaking test language and having a score lower than 25th percentile	Odds of not speaking test language and having a score lower than 25th percentile	Odds ratio (OR)
Australia	31	0.44	1.43
Botswana	23	0.30	0.57 *
Canada	30	0.42	1.42
Colombia	28	0.39	1.26 †
Honduras	32	0.47	1.57 †
New Zealand	37	0.59	2.31
Singapore	29	0.40	1.98
South Africa	29	0.40	2.09
Quebec	28	0.39	1.28

Notes: The odds ratio (OR) is the ratio of the odds of being a lower achiever and not speaking test language compared with the odds of being a lower achiever and speaking the test language.

\* For Botswana: , the odds of speaking the test language at home and being a lower achiever were higher than the odds of not speaking the test language at home (OR < 1).

† Although the odds ratios were greater than 1 for Colombia, Honduras and Quebec they were not statistically significant (because the confidence intervals for the ORs included the value of 1).

## DISCUSSION

In seven of the nine post-colonial education systems, most of the students reported they frequently (always/almost always) spoke the language of the assessment. The three exceptions were Botswana, Singapore and South Africa. In keeping with the overall results from PIRLS 2011, as evident in Foy and Drucker (2013c), students who were assessed (and instructed) in the same language as they spoke in the home tended to have higher reading literacy achievement than those students who spoke it less frequently or not at all, although there were exceptions from an English language context (Botswana) and a Spanish language context (Colombia and Honduras). What we also know is that students who sometimes or never spoke the language of the test or instruction at home were more likely to be among the lower achievers in their country than their counterparts who spoke the test language at home.

However, this type of analysis is limited as it does not provide any other information about this group of students. For example, are they indigenous students who are mainly speaking an indigenous language at home? Are they students born in another country and relatively “recent” arrivals to the country? Are they children who are from immigrant backgrounds who are speaking their heritage language? Furthermore, it is important to remember that speaking another language in the home does not preclude students from achieving well; we do not have information on students’ level of bilingualism (multilingualism) or whether they are biliterate, but there is ample evidence that bilingualism and gaining an additional language is an asset and not a deficit in learning (Baker, & Prys-Jones, 1998). For example, in this study, while 68% of Singaporean students reported sometimes or never speaking another language at home, according to their parents/caregivers, 82% of them were able to speak English at school entry (Mullis et al. 2012a, p. 118). Whilst there are countries in many regions around the world that see bilingualism as the norm, the dominant practice is still often monolingualism. This can lead to difficulties for immigrants entering new environments with a language different from the official or main language of their new country (see for example Baker, & Prys-Jones, 1998, p. 10)

Information is captured from parents/caregivers on the immigration status of the students in PIRLS, but having a question that can be answered by from the student perspective would be highly desirable, given that parents/caregivers tend to respond at a lower rate than students. While countries and systems can choose to include this type of question (as a national question only), it would allow cross-country analysis to at least disentangle the complexity around students’ immigration status: whether or not they are “new” students of language, or speaking a heritage language through maintenance.

The parents/caregivers of the students who took part in PIRLS were asked a number of language-related questions (such as which language was most often spoken in the home). The questions are linked to the language(s) of the PIRLS assessment,



and there is also an opportunity to collect information on languages commonly spoken in the country. Colombia and Honduras, for example, included an option whereby the respondent could report speaking an aboriginal language.<sup>15</sup> Neither Australia nor Canada asked parents/caregivers specifically about speaking an aboriginal language, although the option “another language” could capture this response (Foy, & Drucker, 2013b).

It is not obvious that many students in this small sample of post-colonial contexts are learning in an indigenous language, with the colonial languages widely used as the main instructional languages. However, according to Castellanos (2012), most Honduran ethnic groups receive education in both their own native language and in Spanish at public schools; interestingly, almost all the PIRLS Honduran students reported speaking Spanish at home. However, the picture is mixed amongst the English/French-language systems. For instance, in Canada, the educational settings for indigenous<sup>16</sup> students is more complex, with many learning in their communities, while others are learning in public elementary and secondary schools in cities and towns (Council of Ministers of Education, n.d.). Many First Nations’ schools offer some type of indigenous language learning program, while some offer education in full immersion programs (Assembly of First Nations, 2012).

<sup>15</sup> Chinese Taipei also included a response category for speaking an aboriginal language.

<sup>16</sup> Includes First Nations, Inuit and Métis peoples.



However, indigenous schools were not included in PIRLS 2011 (Joncas, & Foy, 2012). In Botswana, South Africa and New Zealand, education is offered in indigenous languages for part or all of the schooling period; in Botswana and South Africa, this is only for 1–3 years, while in the case of New Zealand, Māori-medium schools may teach students in the indigenous language throughout schooling (and into tertiary education), as well as in dual medium environments where Māori-immersion classes co-exist in English-medium schools, although the numbers of such schools and students are relatively small. South Africa and New Zealand both offer assessment in the indigenous language(s).

Greater attention to language-in-education models, particularly in post-colonial contexts, is needed in an increasingly diverse world, where significant migration in urban environments is occurring internationally. There are a greater range of language models used in a number of countries practice, varying from full immersion to increasing degrees of additive bilingualism at primary school through to secondary schools than previously (Chimbutane, 2011; Hohepa, 2008; Hill, 2016; Marky, 2011). However, even where language policies are well established, national language policies and implementation practices need to continue to be examined, as there is often a mismatch between the two (Trudell, 2016). Policy decisions regarding language have not necessarily been guided by research but rather “political pragmatism” (Chimbutane, 2011. p. 21); at least this is the African experience. Effective language-in-education policies and strategies can contribute to well-being and to overcoming pedagogical, institutional and social barriers (Hohepa, 2008; Tikly, 2016) in addition to improving performance. While language is central to learning it is rarely given sufficient prominence in international debate (Milligan, &

Tikly, 2016). There are many polarizing debates around language in education, however most authors are in agreement on one issue, namely that “more needs to be done to support students who are struggling to learn effectively” (Milligan, & Tikly, 2016, p. 277) in second language contexts, as well the need to develop proficiency in both indigenous and global languages.

This research depended on the variable “books in the home” as a well-established proxy for SES, as noted in the methodology section (Brese, & Mirazchiysk, 2013; Caro, & Cortes, 2012). However, given recent technological developments, the extent to which this variable will continue to serve as a good and stable indicator for SES across countries is debatable, at least for those systems where digital forms of reading are readily available. Finally, according to our research, it is clear that language-in-education policies vary considerably in terms of their features, goals and their apparent impact on reading achievement in post-colonial contexts. The challenge is to maintain central educational goals in the medium of instruction implementation, obtaining sufficient government support without allowing political motivations to dominate the process. Furthermore it is essential that there must be a thorough understanding of the language ecology in order for any language policy implementation to be successful. The literature suggests that it is vital for governments’ to carefully consider the consequences of moving ahead without a plan or making sudden and abrupt changes that may result in language policy development failing (Kaplan, & Baldauf, 2003) and the need for regular evaluation. International studies can play an important role in providing an independent monitoring mechanism for this need; they also have the potential to help countries determine which students are at risk of not achieving.

## POLICY IMPLICATIONS

- Countries/education systems in post-colonial contexts and countries with large, new immigrant populations have to consider and prioritize a range of language-in-education options. For example, while an immersion-type approach appears to be effective in a higher-income system, such as Singapore, this is not necessarily the case for all, and particularly for lower-income systems.
- In developing contexts, the lack of access to books may hamper children’s reading development and achievement, and therefore increasing access to books within schools and via community libraries is particularly important for children from low socioeconomic status backgrounds.
- Social justice considerations regarding language-in-education and the use of home language are increasingly required in many systems. More needs to be done to support students who are struggling to learn effectively in second language contexts, as well as supporting the development of proficiency in both indigenous and global languages. Learning in a second (or even third) language is a long process. There is a considerable body of research that points to supporting and encouraging a learner’s ability to use their first language when they are learning in a second language. The learner who at least maintains or continues to develop academic proficiency in their first-language generally achieves better in the second language than the learner who has not maintained their first language.
- Central to any language-in-education policy are a country’s educational goals; these, along with an awareness and understanding of the language ecology, are essential for the policy to be developed and implemented. Using evidence from studies such as PIRLS, and undertaking country relevant secondary analyses, may potentially support better policy development in this area.

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# **IEA** POLICY BRIEF

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