

CANADIAN EDUCATION STATISTICS COUNCIL

KEY FACTORS TO SUPPORT LITERACY SUCCESS IN SCHOOL-AGED POPULATIONS

A LITERATURE REVIEW



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Table of Contents

EXECUTIVE SUMMARY.....	5
METHODOLOGY	5
THE CANADIAN PICTURE	5
 READING DEVELOPMENT AND INSTRUCTION	 6
1. <i>Comprehensive approach to reading instruction</i>	6
Special considerations: Kindergarten to grade 3 students	7
Special considerations: Middle and secondary school students	8
2. <i>Articulated standards of competency and assessments to monitor progress and inform instruction</i>	8
3. <i>Resources and professional capacity to ensure effective delivery</i>	9
Professional capacity: Initial and continuing teacher education	9
4. <i>Effective intervention for children experiencing difficulties</i>	10
Children with learning disabilities	10
Aboriginal students	10
Students whose first language is neither French nor English	10
Parents and community	11
Community-based programs supporting reading.....	11
 CONCLUSION	 12
INTRODUCTION	13
METHODOLOGY	13
OVERVIEW OF THE REPORT	13
THE CANADIAN PICTURE	13
 SECTION A. RESEARCH ON READING DEVELOPMENT AND INSTRUCTION FOR ALL STUDENTS.....	 16
1. COMPREHENSIVE APPROACH TO READING INSTRUCTION.....	17
2. ARTICULATED STANDARDS WITH ASSESSMENT DATA USED TO MONITOR PROGRESS AND INFORM INSTRUCTION	22
3. THE RESOURCES AND PROFESSIONAL CAPACITY TO ENSURE EFFECTIVE DELIVERY	24
4. EFFECTIVE INTERVENTION FOR CHILDREN EXPERIENCING DIFFICULTIES	28
GAPS IN THE RESEARCH	30
IMPLICATIONS FOR POLICY AND PRACTICE	31
 SECTION B. RESEARCH ON READING DEVELOPMENT AND INSTRUCTION FOR ABORIGINAL STUDENTS.....	 33
LANGUAGES AT HOME AND IN SCHOOL.....	33
ABORIGINAL STUDENTS LEARN TO READ WELL IN DIFFERENT LANGUAGES.....	34
TIME TO DEVELOP READING PROFICIENCY.....	35
SPECIAL CONSIDERATIONS.....	35
GAPS IN RESEARCH	36
IMPLICATIONS FOR POLICY AND PRACTICE	37
 SECTION C. MINORITY-LANGUAGE STUDENTS OF NEITHER OFFICIAL- LANGUAGE	 38
PRACTICE IMPLICATIONS FOR ESL STUDENTS	38

PRACTICE IMPLICATIONS FOR FSL STUDENTS.....	38
<i>Gaps in research</i>	39
IMPLICATIONS FOR PRACTICE AND POLICY APPROPRIATE TO NEEDS OF MINORITY STUDENTS	39
<i>Gaps in research</i>	41
SECTION D. PARENTS AND COMMUNITY	43
GAPS IN RESEARCH	45
IMPLICATIONS FOR POLICY AND PRACTICE	45
CONCLUSION.....	46
REFERENCES	47

EXECUTIVE SUMMARY

The purpose of this literature review commissioned by the Canadian Education Statistics Council (CESC) is to summarize the research evidence on key factors and practices supporting literacy success for school-aged students. The review will focus exclusively on reading, or the ability to get meaning from print, because it is fundamental to the literacy development and continued school success of all children (Canadian Council on Learning 2007).

METHODOLOGY

The reviewers examined a wide range of studies, with emphasis on the most current research and evidence drawn from the Canadian and international literature, summarizing program effects and identifying approaches demonstrated to be most effective in promoting reading. The relevance of the findings was tested through the feedback from a range of organizations involved in delivering and supporting reading programs.

The report is divided into four sections:

1. Research concerning reading development and instruction for students from kindergarten through grade 12 and for students with reading disabilities
2. Research concerning reading development and instruction for Aboriginal students
3. Research concerning students whose first language is neither of the two official languages of Canada
4. Discussion of the role of family and community involvement in reading development

Within these sections, we have identified gaps in the research and the implications for policy and practice.

THE CANADIAN PICTURE

In Canada today, there are approximately 5 million school-aged students. Over 90 per cent of them are enrolled in provincial and territorial schools. No data are available on the number of Aboriginal students enrolled in band-controlled and federal schools (O'Sullivan and Goosney 2007).

Approximately one-quarter of Canadian youth do not graduate from secondary school. Only 52 per cent of the population over 16 years of age reads at or above the level determined to be essential for living and working in a modern society (Ministers National Working Group on Education 2002). These figures threaten Canada's economic capacity to ensure a literate and educated workforce to compete with other countries that have higher rates of graduation from secondary school.

Reading is the best school-based predictor of secondary school graduation and, although many Canadian students perform at acceptable levels of reading, the challenge for Canada is to raise the bar and close the gap for all our students. *When leaders at all levels of our education systems say*

that reading is their number one priority and that reading success is their expectation for every student, the stage is set for establishing excellent reading instruction.

READING DEVELOPMENT AND INSTRUCTION

We expect all Canadian students to learn to read well enough to support their continued success in school. The essential component of good reading and the goals for instruction for all students must include **fluency** — the ability to identify words accurately and quickly; **comprehension** — the ability to understand, reflect on, and learn from text; and **motivation** — an interest in reading and a desire to read. With excellent reading instruction, all students, regardless of gender, language, cultural background, or socioeconomic status can learn to read well.

Excellent school-based reading programs

No single model guarantees excellent school-based reading programs, but 35 years of international research have identified the knowledge, skills, and supports that students need in order to become successful readers; and how to design effective reading programs for both teachers and the students in their classrooms. Such programs include the following four essential and interactive components:

- a comprehensive approach to reading instruction
- articulated standards with data used to monitor progress and inform instruction
- the resources and professional capacity to ensure effective delivery
- effective intervention for children experiencing difficulties (Snow et al. 1998)

1. Comprehensive approach to reading instruction

The essential elements of a comprehensive approach to instruction described below include sufficient time dedicated to reading each day and to developing the strategies that build oral language, fluency, comprehension, and motivation (Ontario Ministry of Education: Early Reading Expert Panel 2003).

Teaching oral language: The development of language and reading are inseparable (*Pathways to Reading*, National Institute of Child Health and Human Development [NICHD], Early Child Care Research Network 2005). In the primary grades, teaching that emphasizes oral language is essential (O’Sullivan and Goosney 2007). But oral language development throughout the school years remains essential in supporting students as they learn to read, understand, and think about text across all the curriculum areas.

Teaching for fluency: Fluency refers to the speed and automaticity with which students can decode words. It mediates word identification in all readers and affects reading comprehension. Fluency requires knowledge about how sounds are connected to print, or phonological awareness. Phonological processing, involving phonological awareness and decoding, is considered to be the most significant underlying cognitive process used

in reading acquisition (Siegel 1993; Stanovich 1988; Stanovich and Siegel 1994). It is also a core deficit in reading disabilities (Siegel 1993). Early reading instruction that includes explicit teaching of sound-symbol knowledge and word attack strategies reduces the number of children who will experience reading difficulties. Students who lack fluency have to apply their cognitive energy to low-level decoding tasks that would otherwise be applied to comprehension (Rasinski, Padak, Wilfong, Friedauer, and Heim 2005).

Teaching for understanding: If students can identify words but do not understand them, they are not achieving the goal of reading. For all readers, understanding demands that they use their pre-existing knowledge and textual cues. Particularly from grade 4 on, understanding requires the abilities both to summarize texts and to infer meaning from them.

Teaching for motivation: Through practice using materials appropriate to their culture, children can strengthen their ability to read, begin to see themselves as good readers, and become more motivated to read (Ontario Ministry of Education: Early Reading Expert Panel 2003). As they move on in successive grades, it's important to teach subject concepts in an interdisciplinary way that increases the students' interest in and enjoyment of reading the content and, in so doing, increases their willingness to read. Such teaching supports a mastery orientation as the students focus on comprehending the conceptual framework and vocabulary of the different disciplines (Guthrie and Alao 1997).

Special considerations: Kindergarten to grade 3 students

No evidence has been found of a direct relationship between the age at which reading instruction begins and subsequent reading achievement (O'Sullivan and Goosney 2007).

Preschool and pre-kindergarten: The availability of pre-kindergarten programs varies across Canada. There is some evidence that these programs are especially beneficial for children at risk, but early childhood education programs of good quality offer more advantages to more children and do so at less cost to government than pre-kindergarten (Morrissey and Warner 2007).

Kindergarten and early intervention: Ninety per cent of eligible Canadian children attend kindergarten, which is available but not compulsory in all provinces and territories. Kindergarten is the first school-based opportunity for early intervention with children at risk for reading difficulties. With appropriate intervention in kindergarten, children can enter grade 1 ready to read.

In the K–3 years, all children should be taught to read in their regular classroom. Children who need additional instruction can participate in small groups that are provided in addition to the whole-class instruction they receive in their regular classroom.

Class size and instructional time: Having a small number of students in one class does not guarantee effective educational practice unless accompanied by professional development and planning for, with, and by the teachers, which must be available to support the desired changes

in curriculum, instruction, and assessment; nor does more time guarantee effective practice (Snow et al. 1998). When reading is what counts, organizational issues such as timetabling should be addressed in ways that give priority to reading.

Special considerations: Middle and secondary school students

The need for explicit reading instruction in both middle schools and secondary schools

Many of the students who reach secondary school have problems in comprehension, inadequate vocabulary, insufficient background knowledge, poor reading fluency, and little or no motivation to read. These students need to develop appropriate levels of proficiency to learn from the textbooks that include conceptual and technical language in the different curriculum areas. The students who drop out of school as soon as their age allows are likely to be poor readers (Maughan, Hagell, Rutter, and Yule 1994; Knighton and Bussière 2006).

Effective reading instruction in the secondary school years

Research into reading instruction in secondary schools (Slavin, Cheung, Groff, and Lake 2008) has shown a dearth of effective programs. Recommendations for more effective strategies (in a report to the National Governors Association Center for Best Practices: Adolescent Literacy Panel 2005) included the following:

- research-based interventions
- specific strategies to develop reading skills and monitor student progress
- classroom-based strategies for improving student reading
- professional development for subject teachers, including training in the use of research-based reading instruction
- comprehension strategies across the curriculum
- evaluation

2. Articulated standards of competency and assessments to monitor progress and inform instruction

All levels of our education systems as well as teacher education programs must be guided by articulated competencies specifying what students should know and be able to do as readers. Educators and parents should be able to determine how well the individual child, school, or system is doing in relation to expected competencies when they are clearly established, communicated widely, aligned with curriculum and assessment, and supported by standards.

For individual teachers, summative assessments are not enough to inform instruction on a continuous basis. Formative and summative assessments should be coordinated to create meaningful indicators for improving student achievement. Ongoing formative assessment practices, including frequent and regular teacher observation, classroom discussion, and reading with students to monitor progress have been found to inform classroom instruction (Black and Wiliam 1998).

3. Resources and professional capacity to ensure effective delivery

Resources for reading include materials, teacher-librarians, and Internet access. Although they are essential, appropriate **materials** (e.g., books, curriculum resources, assessment tools) in the language of student instruction are not widely available in all languages (e.g., some Aboriginal languages) and are difficult to access in some jurisdictions (e.g., French-language minority and remote communities). The value of a **teacher-librarian** to students of every socioeconomic status and grade level is well established. In 2003-04, 99 per cent of provincial and territorial schools had computers, and more than 97 per cent were connected to the **Internet**, but the speed of the connection varied widely across the country. Equity of access to the Internet can provide literacy opportunities for children around the world (International Reading Association 2002), and provide valuable support for teachers in remote and isolated communities.

Professional capacity: Initial and continuing teacher education

Despite abundant evidence indicating its central importance, teacher expertise remains the most under-rated, under-recognized, and under-valued component of reading achievement (O’Sullivan and Goosney 2007). Although all jurisdictions require teachers to have a degree in education, none specify the competencies and academic background they require for teaching reading. Teachers cannot be expected to raise the bar and close the gaps in reading unless they are provided with appropriate and ongoing supports and resources.

Initial teacher education: The International Reading Association (1998) recommended that primary teachers have 280 hours of instruction in reading and how to teach it, but Canadian teacher education programs fall substantially short of that goal. Many elementary school teachers report feeling inadequately prepared when beginning to teach reading, especially when they find the children are struggling (O’Sullivan and Goosney 2007).

Many teachers in secondary school consider themselves subject-area specialists first. Even teachers of English at the secondary level are not prepared to teach reading skills; rather, they focus on literature, poetry, and other areas of their discipline. Teachers of the other subject areas regard reading instruction as the responsibility of English teachers or of special education programs. Teaching reading must be part of all high school teachers’ professional responsibility, and all must receive initial and continuing professional education in reading instruction.

Continuing teacher education: Appropriate ongoing professional development in reading serves the three important purposes outlined below:

1. Teachers are more likely to incorporate data on student achievement when they receive recommendations on how to integrate this information into their instruction (Fuchs, Fuchs, Hamlett, Phillips, and Bentz 1994).
2. Professional development facilitates transference and implementation of research- and evidence-based practices into teachers’ educational practices in the classroom.

3. Professional development can help teachers learn strategies to use a variety of instructional components such as peer tutoring and establishing engaging learning environments to increase students' motivation (Fuchs et al. 1994).

4. Effective intervention for children experiencing difficulties

Children with learning disabilities

Research on children with learning disabilities (LD) shows the importance of early identification of these difficulties because if such children fall behind in kindergarten and grade 1, they will, without intervention, fall further and further behind over time (Lyon 1995, as cited in Lipka and Siegel 2007).

The reading skills that are particularly important for students who have reading disabilities to acquire should be taught using direct and explicit instruction — phonological processing (including phonemic awareness and phonics) and reading comprehension. Students should be provided with opportunities to practise these skills through sustained and extensive time engaged in literacy activities. Teachers may support struggling readers in the classroom by having books at various reading levels (O'Connor, Bell, Harty, Larkin, Sackor, and Zigmond 2002) and by using resources such as technology (MacArthur, Ferretti, Okolo, and Cavalier 2001).

A model that has had positive results when working with students who are showing difficulties learning to read is “response to instruction” (RTI) which focuses on screening, instructional intervention, and continual monitoring of students.

Aboriginal students

The limited data available on the reading achievement of Aboriginal students indicate significant and persistent gaps between Aboriginal and non-Aboriginal students on national and international assessments (Crocker 2003). As is true for all students, however, Aboriginal students learn to read well when they receive excellent instruction that respects the interdependence of language, culture, and identity. Language at home, language at school, and the match between them, all have significant effects on reading achievement, effects that must be taken into account when decisions are made about the language of instruction. Several models that promote reading achievement for Aboriginal students in more than one language are available in Canada and other countries.

Students whose first language is neither French nor English

Because of the high number of immigrants making Canada their home in the last decades, the students attending many urban Canadian schools come from diverse cultures and speak the language(s) of those cultures. Other students live in minority-language environments. The needs

of minority-language students, whether ESL (English as a second language) or FSL (French as a second language), pose distinct challenges for both instruction and assessment. Research into the language learning of ESL students suggests that, although their performance in measures of phonological processing, word reading, and spelling is similar to that of their peers, their syntactical skills are weaker (Lesaux et al. 2007).

For both ESL and FSL instruction, it is important to support students in their first language while they learn French or English as a second language (L2).

Parents and community

Although the influence of socioeconomic level on reading decreases with effective classroom instruction (D'Angiulli and Siegel 2004), students from lower socioeconomic levels tend to perform less well on measures of reading achievement. They are also more likely to drop out of school than their counterparts from higher socioeconomic backgrounds (Arnold and Doctoroff 2003; McLoyd 1998; Yeung, Linver, and Brooks-Gunn 2002).

Parental involvement

Although research findings in this area are mixed, parental involvement and expectations are regarded as critical elements in supporting students from lower socioeconomic backgrounds. There is sufficient evidence to indicate that parents' involvement in their children's schooling and their aspirations for their children's educational achievement are important factors in increasing student reading achievement, particularly for students from disadvantaged backgrounds (O'Sullivan and Howe 1999).

Community

There is relatively little empirical research to support causal statements about which community characteristics encourage or discourage student achievement. Emory, Caughy, Harris, and Franzini (2008) reported that in low-income neighbourhoods, high expectations for educational achievement and high collective socialization (school-related behaviours and attitudes) were associated with higher performance for students on standardized reading tests. Research is needed to determine what conditions in these atypical communities give rise to social processes that benefit students' achievement.

Community-based programs supporting reading

Communities and community leaders who value reading and education are more likely to establish and maintain relevant community-based resources and programs that support families. Many of these programs, however, rely on short-term funding and do not remain in place long enough to demonstrate conclusively their impact on reading achievement.

We do know enough to encourage community members to convey a positive message about reading to children and families. Libraries, the visual representation of the importance of reading, are not available in many Canadian communities. The Government of Canada does

not directly fund public libraries for First Nations on-reserve, and the funding and public library services to First Nations from local or provincial governments vary.

CONCLUSION

The gaps in research identified in the preceding analysis point to the need for a strategic, targeted, and coordinated research agenda that will build on existing knowledge to inform policy and practice more precisely and specifically for the Canadian context. The recommendations provided in this report could be included in the mandate for a united and continuous approach to teaching readers whose competency enables them to benefit from all areas of instruction and to graduate and become contributing adults in Canada's society.

INTRODUCTION

The purpose of this literature review commissioned by the Canadian Education Statistics Council (CESC) is to summarize the research evidence on key factors and practices supporting literacy success for school-aged students. The review will focus exclusively on reading, or the ability to get meaning from print, because literacy is fundamental to the development and continued school success of all children (Canadian Council on Learning 2007).

METHODOLOGY

The reviewers examined a wide range of studies, particularly the most current research and evidence drawn from the Canadian and international literature, summarizing program effects and identifying the approaches proven to be the most effective in promoting reading. Particular attention was paid to generalizations that can be made about promising practices at each level of the system and for all students; also, to identifying knowledge gaps and the most promising lines of inquiry for addressing them. The relevance of the findings was tested through the feedback of a range of organizations involved in delivering and supporting reading programs.

OVERVIEW OF THE REPORT

This report is divided into 4 sections:

1. First, the research concerning reading development and instruction for students from kindergarten through grade 12 and for students with reading disabilities is addressed.
2. Second, the research concerning reading development and instruction for Aboriginal students is reviewed.
3. Third, the research concerning students whose first language is neither of the two official languages of Canada is reviewed.
4. Fourth, the research concerning the role of family and community involvement in reading development is discussed.

In each of these sections, the gaps in research are identified and we offer recommendations for policy and practice.

THE CANADIAN PICTURE

Canada is one of the most ethnically and culturally diverse nations in the world. The majority of the population of 32.6 million people live in the southern part of the country — 62 per cent live in Ontario or Quebec; 80 per cent live in urban areas. The Aboriginal population (First Nations, Métis, and Inuit) recently reached the 1 million mark, but that population is diverse, each group having distinct cultural traditions and, in total, speaking over 60 different languages (Statistics Canada 2008a).

Overall, Canada's population is aging and changing. In the 2006 Census, 31 per cent of the population was under 25 years of age, a significant decline from 48 per cent in 1971. The younger

cohorts in the Aboriginal population are increasing more quickly than those in the non-Aboriginal population.

In total, two-thirds of the growth in Canada's population over the last decades has been due to immigration. The majority of the immigrants settle in Toronto, Montreal, and Vancouver. In Toronto and Vancouver, approximately one-quarter of school-aged children in 2001 were immigrants, and over 50 per cent of these had a first language other than French or English (Statistics Canada, 2008).

Of the approximately 5 million children and youth of school age, over 90 per cent are enrolled in provincial and territorial schools. No data are available on the number of Aboriginal students enrolled in either band-controlled schools or the federal schools for Aboriginals (O'Sullivan and Goosney 2007) ¹

In 2006, declining enrolments were reported in all provinces except Alberta where enrolment was up slightly (1%) from 1999–2000. Rates of decline ranged from a low of 0.6 per cent in Ontario to a high of 18.4 per cent in Newfoundland and Labrador (Statistics Canada 2008). Approximately 75 per cent of youth graduated from public secondary schools in the 2005–06 school year. Between 2001 and 2006, the proportion of Aboriginal Canadians graduating from high school grew to 75 per cent of Métis, 49 per cent of Inuit, 70 per cent of First Nations people living off-reserve and 50 per cent on-reserve (Statistics Canada 2008).

The fact that at least one-quarter of its youth do not graduate from secondary school represents a serious challenge to Canada at a time when there will be fewer people of working age to support our aging population, when most new jobs will require a literate and well-educated workforce, and when Canada is competing with countries that are graduating a higher proportion of their secondary school students — many proficient in more than one language.

Reading is the best school-based predictor of graduation from secondary school (Snow, Burns, and Griffin 1997), and ensuring that students learn to read fluently is the most important and fundamental aspect of teaching in formal schooling (O'Sullivan 2009; O'Sullivan and Goosney 2007). Children who do not read well by the end of grade 3 are at risk of dropping out or failing to graduate, which tends to lead to chronic unemployment or low-income jobs in adulthood along with the associated difficulties.

International comparison of the performance of Canadian students on the 2006 Programme for International Student Assessment (PISA) was stable compared to the results for the 2000 and 2003 administrations of PISA. In contrast, Hong Kong and South Korea improved and out-performed Canada. Finland again led the world in scores for performance in reading (Bussière, Knighton and Pennock 2007). Within Canada, there were regional differences; Alberta had the highest reading achievement scores and the Atlantic Provinces the lowest. These differences were replicated on the Pan-Canadian Assessment Program (PCAP), which includes a sample of 13- and 16-year-olds from each of the northern provinces and territories (but not students in band-controlled schools). To date, neither PISA nor PCAP has yet included student sampling from all the territories or First Nations students from the reserves and federal schools.

Outcomes on national and international studies reveal significant and persistent differences between official language groups, by gender, by socioeconomic status and by Aboriginal status (Crocker 2002). These findings are not unique to Canada. Furthermore social capital, the long-term capacities in communities/school districts which affect achievement but are outside the explicit control of the school (e.g., social and economic institutions, characteristics of the families in the area) tend to be lower in remote communities, contributing to wider reading gaps among children in remote communities compared with those in urban areas. (Demmert, Grissmer, and Towner 2006).

Only 52 per cent of the population over 16 years of age reads at or above a level determined to be essential for living and working in modern society (Ministers National Working Group on Education 2002). It might be expected that older people would have lower scores than those in their 20s, but across every jurisdiction one-third of the group of 16- to 25-year-olds reads below that level (Human Resources and Skills Development Canada and Statistics Canada, 2005).

Although there are different levels and forms of literacy, it is reading, the basic ability to get meaning from print, that is fundamental to school success (Canadian Council on Learning 2007). It is unacceptable for Canadian youth to attend school for 10 years or more and emerge unable to read and write well enough to live and work in modern society. Although many students perform at acceptable levels of reading, the challenge for Canadians is to raise the bar and close the gaps for all our students.

Although this report is focused on students from kindergarten through grade 12, reading development begins long before children start school and continues throughout life as they experience language naturally in the family and community. Integrated policy and practices that address the lifetime of the reader are more likely to be successful than exclusively school-centred policy and practice. We acknowledge that excellent reading for Canadian students relies on leadership not only in schools but also at all levels of government, school, and community. *When education leaders at all levels communicate that reading is their number one priority and that success in reading is the expectation for every student, the stage is set for establishing excellent reading instruction.*

SECTION A. RESEARCH ON READING DEVELOPMENT AND INSTRUCTION FOR ALL STUDENTS

In Canada today, we expect all students to learn to read well enough to support their continued success through both elementary and secondary school. Typically, this has been interpreted to mean that children should read well enough by grade 4 to learn from textual materials in the different curriculum areas and to write about what they have learned and what they think (Snow et al. 1998). As students progress through the grades, reading fluently increasingly involves the capacity to understand and think about sometimes technical language specific to different curriculum areas, particularly mathematics and the sciences. Currently, reading instruction in schools is concentrated in the early grades, from kindergarten through grade 3, with less emphasis on instruction in the middle grades (4 through 6), and little or none beyond grade 6. Education research on reading development and instruction follows a similar pattern.

Students who read well demonstrate **fluency** — the ability to identify words accurately and quickly; **comprehension** — the ability to understand, reflect on, and learn from text; and **motivation** — an interest in and desire to read. These are the essential components of good reading and the goals of instruction for all students. There is no evidence that some students (e.g., boys, Aboriginal students) learn to read differently from others. For example, on national and international assessments girls typically outperform boys. However, gender interacts with economic status, culture, and language so that there are wider reading differences among all boys and among all girls than there are between boys and girls. Simplistic policies and practices focused solely on “the boys” fail to take these complex interactions into account, so will not reduce the gaps between some boys and some girls (Lingard, Marino, and Mills 2009). With excellent reading instruction, all students can learn to read well.

Excellent school-based reading programs

Schools and school systems in Canada and in many other countries have long searched for “magic bullet approach” to reading instruction. School boards spend many millions of dollars (the precise cost cannot be calculated) every year on reading programs from educational publishers and other sources. Many of these commercial programs have never been the subject of research; for those that have, there is little evidence to support their use. There is no simple or single model that guarantees excellent school-based reading programs, but 35 years of research from around the world have described the knowledge, skills, and supports that students need to have success in reading and how to deliver them in classrooms.

School-based reading programs that integrate organizational issues with coherent classroom instruction and that recognize, respect, and incorporate the characteristics of the community they serve are essential (Ontario Ministry of Education: Early Reading Expert Panel 2003; Tunmer, Chapman, and Prochnow 2003). Such programs include four essential and interactive components:

1. a comprehensive approach to reading instruction

2. articulated standards with data used to monitor progress and inform instruction
3. the resources and professional capacity to ensure effective delivery
4. effective intervention for children experiencing difficulties (Snow et al. 1998)

1. *Comprehensive Approach to Reading Instruction*

There is no strict “recipe” for comprehensive instruction, but the essential elements include sufficient time dedicated to reading each day and strategies that build oral language, fluency, comprehension, and motivation (Ontario Ministry of Education: Early Reading Expert Panel 2003). Students who experience difficulties learning to read, even those with identifiable learning disabilities, do not need radically different instructional support, although they may need more intensive support (Snow et al. 1998). Comprehensive instruction helps students build on and use their language, their background knowledge and experience, and their values to make sense of what they are reading. It teaches them to think about reading, how to monitor their understanding, how to figure out what they know and need to know to make sense of different texts. Most research on reading instruction is focused on the early grades because of its critical link to school success.

Teaching oral language: The development of language skills is inseparable from reading (NICHD Early Child Care Research Network 2005). For children, language is the link to their family, their cultural background, their values, and their experiences. Their language helps children connect what they are reading to their own lives, and the more connections they make the better their understanding of what they are reading (Pressley 2002). In primary grades K to 3, teaching that emphasizes oral language is essential, especially for children with limited language experience and opportunities. These groups include the minority-language communities in which the language of the school represents a second language for the children (O’Sullivan and Goosney 2007). The teachers themselves must model appropriate language use (Pressley 2002). As students progress through the grades in school, a focus on oral language development remains important, in fact essential, for learning to read, understand, and think about text in the different curriculum areas.

Teaching for fluency: Fluency refers to the speed and automaticity with which students can decode words. It requires knowledge about how sounds are connected to the letters of the alphabet, alone and in combination. Fluency allows children to read with increasing understanding and enjoyment, and fluency is critical for continued development in reading. There is considerable research on the importance of teaching children how to connect the sounds that they hear with the printed letters on the page (Tunmer et al. 2003), although most of that research has been conducted with children who are learning to read in English. Phonological processing involves phonological awareness and decoding. It is considered to be the most significant underlying cognitive process used in acquiring skills in reading (Siegel 1993; Stanovich 1988; Stanovich and Siegel 1994). Also, one of the core deficits found in those with reading disabilities is the lack of phonological awareness (Siegel 1993). As well, there are strong

phonological influences on word identification across languages (Pugh, Sandak, Frost, Moore, and Mencl 2006). When early reading instruction includes explicit teaching of sound-symbol knowledge and strategies, the effectiveness of reading instruction is increased and the number of children experiencing difficulties is reduced. For example, the reading achievement gap between English-speaking Maori and non-Maori children in New Zealand was eliminated by the end of grade 2 when instruction included explicit teaching of sound-symbol relations (Tunmer et al. 2003). As children progress through the early grades, the teaching of spelling contributes to reading achievement (Pressley 2002).

Frequent practice in reading helps make the process of reading become automatic, and this automaticity is related to students' ability to comprehend the stories and text that they read and that are read to them, and comprehending what they read usually leads to enjoyment in reading (Horner and Shwery 2002). Fluency has been found to mediate word identification in all readers and to affect students' reading comprehension abilities. As students in grade 5 and beyond encounter 10,000 or more multi-syllabic words per year in their curriculum, fluency and strategies to decode unknown words become even more important (Fisher 2006). Students who lack the degree of fluency appropriate to their level apply a significant amount of cognitive energy to low-level decoding reading tasks that take away from their comprehending what they are reading (Rasinski, Pada, Wilfong, Friedauer, and Heim, 2005).

Teaching for understanding: Understanding what we are reading is the purpose of reading. If children can identify and read the words but do not understand, that is, cannot take meaning from what they are reading, they are not achieving the goal of reading. The strongest correlations with components of reading achievement have been seen with comprehension knowledge (Evans, Floyd, McGrew and Leforgee 2001). For both novice and expert readers, "constructing" meaning involves using their existing knowledge along with cues from the text, including the knowledge that students bring to their reading tasks and the strategies they use to develop comprehension. Additionally, reading comprehension, particularly at grade 4 and beyond, entails identifying the gist and structure of the text, summarizing and drawing inferences, as well as determining the importance of events and characters from the story. These strategies lead to an active comprehension of the text (Dole, Duffy, Roehler, and Pearson 1991). A constant focus on oral language, vocabulary development, and morphology is important. Receptive vocabulary is related to students' decoding performance, and expressive vocabulary to visual word recognition and reading comprehension (Ouellette 2006). Similarly morphology instruction is vital as morphological awareness is related to reading and spelling (Siegel 2008), vocabulary development (Anglin 1993 as cited in Nagy, Berninger and Abbott 2006) and reading fluency (Berninger, Abbott, Billingsley, and Nagy 2001 as cited in Nagy, Berninger, and Abbott 2006).

Teaching for motivation: In the early grades, meaningful practice with reading materials consistent with cultural backgrounds serves as a bridge to reading English and scaffolds the development of children's fluency and comprehension. Through reading practice, children strengthen their reading ability, come to see themselves as good readers, and develop an increasing interest in and desire to read, coupled with the expectation that they will succeed

(Ontario Ministry of Education: Early Reading Expert Panel 2003). As students gain basic reading skills, motivating them to engage in reading and teaching them strategies to become self-regulated, students become important factors in raising literacy levels. Being a motivated, self-regulated student involves having specific and realistic goals and having the ability to monitor students' own reading and understanding of the material read (Horner and Shwery 2002). It is important for teachers to ensure that their literacy program builds student choices into what they are reading, and opportunities to investigate and incorporate real-world experiences with stories and other information resources to increase students' motivation to read. Additionally, as students move into higher grades, teaching the concepts and vocabulary of different subjects in an interdisciplinary way, such as teaching language arts and math jointly, increases students' interest in, enjoyment of, and willingness to read, and supports their orientation toward mastery as they focus on learning and acquiring conceptual goals (Guthrie and Alao 1997).

Special considerations: Kindergarten to grade 3 students

Importantly, no evidence has been found of a direct relationship between the age at which reading instruction begins and the subsequent reading achievement of the participants (O'Sullivan and Goosney 2007). The age at which compulsory schooling begins varies around the world (age 7 in Sweden, Finland and Denmark, age 6 in Norway and Iceland). Compulsory schooling begins at age 6 across Canada, except in Manitoba and Saskatchewan where children begin school at age 7.

Pre-Kindergarten: Availability of programs for children of pre-kindergarten age varies across Canada. There is some evidence that these programs are especially beneficial for children at risk, but good quality early childhood education programs offer more advantages to more children and do so at less cost to government than pre-Kindergarten (Morrissey and Warner 2007). In many countries (e.g., Finland, Sweden), preschool education is recognized as the first step in lifelong learning and the ministries of education are responsible for preschool as well as the all school-based education, and they have developmental curricula in place (O'Sullivan and Goosney 2007). Preschool offers distinct advantages to children who will attend schools where the language of instruction is a second language. In the Swedish-language-minority communities of Finland, there are language-cultural centres for children, who learn Swedish and go on to attend school through the medium of Swedish. Children in French-language-minority communities who do not speak French at home but will attend school in French could benefit from such preschool immersion opportunities. Children immersed in a second language at preschool outperform those who begin immersion at age 5 or 6 (Cummins 1998).

Kindergarten: Kindergarten is available in all provinces and territories and, although not compulsory, 90 per cent of eligible children attend. There is some evidence that full-day kindergarten is more effective than half-day kindergarten in promoting children's emergent literacy development, especially for children at risk for reading difficulties (da Costa and Bell 2001), but the respective effects of program length, teacher and curriculum, and teacher effectiveness have not been distinguished from one another.

Early intervention: In the K–3 years, all children should be taught to read in their regular classroom. Kindergarten is the first school-based opportunity for early intervention with children at risk for reading difficulties. With appropriate intervention in kindergarten, children are able to enter grade 1 ready to read. Canadian 4- and 5-year-olds who enter kindergarten with the least well-developed oral vocabulary struggle with reading at ages 8 and 9 (Hoddinott, Lethbridge, and Phipps 2002).

Children who need additional instruction can participate in small groups in addition to the regular whole-class instruction. In the schools that have large numbers of children underachieving, the quality of the school reading program should be reviewed before funds are spent on add-ons. Although no studies indicate that special education classes improve reading achievement, Aboriginal children, children from low-income families, children whose first language is other than English or French and, increasingly, boys are referred to special education (Mattson and Caffrey, 2001; Lingard et al. 2009).

Class size: Class size of 21 or fewer students per teacher has a small positive effect on reading in the primary grades; larger class sizes limit the quantity and quality of teacher-student interactions. The effect of small class size is short-term, and is no guarantee of the best instructional practices unless supported by professional development and planning that accompanies the desired changes in curriculum, instruction, and assessment (Snow et al. 1998).

Instructional time: Instructional time has a positive effect on children’s reading in the primary grades, but only if the additional time is spent on tasks that have been well planned and designed to match high expectations. Ineffective classes move at a slow pace, involve low or uneven rates of interactive teaching, minimal planning and a preponderance of “ditto sheets” and other relatively un-engaging tasks. Like class size, more time does not guarantee the best instructional practices (Snow et al. 1998). When reading is what counts, organizational issues (e.g., timetabling) are addressed in ways that give priority to reading (e.g., an uninterrupted block of reading instruction). Principals also need to play an active role monitoring what is actually happening in classrooms during instructional time.

Small schools and combined grades: School districts serving remote communities may cover a large territory, and be responsible for schools separated from each other and from district offices by vast distances. In some provinces, there is only one French-language school board responsible for all French schools throughout the province. Several First Nations communities are in special access regions that have fewer than 500 residents and a small school with combined grades. Small schools with combined grades are the reality in every remote area in Canada as well as in other northern countries. For example, more than half the schools in Finland enrol fewer than 100 children and the schools might have only one teacher to cover grades 1–9 (<http://www.oph.fi>). *There is no evidence that small schools or combined grades in and of themselves contribute to lower reading achievement for young children* (O’Sullivan and Goosney 2007).

Special considerations: Middle and secondary school students

The need for explicit reading instruction: Much effort has been invested in research on early reading. However, “many excellent third graders will falter or fail in later-grade academic tasks if the teaching of reading is neglected in the middle and secondary grades” (Biancarosa and Snow 2006). Unacceptably high dropout rates and the approximately 40 per cent of 16-year-old Canadian students who do not reach expected levels of reading proficiency indicate the need to increase the emphasis on reading in the middle and secondary school years (Education Quarterly Review 2000; Statistics Canada 2008). Many students arrive at secondary school with problems in comprehension, inadequate vocabulary development, insufficient background knowledge, poor reading fluency, and little or no motivation to read. At this level, students need proficiency to learn from both textbooks and other resources in different curriculum areas that include conceptual and technical language. Students who drop out of school are likely to be poor readers (Maughan, Hagell, Rutter, and Yuke 1994; Knighton and Bussière 2006). The evidence indicates that even many graduates lack the expected reading proficiency (Knighton and Bussière 2006).

Acknowledging that students can improve reading in the later years of school: An essential step in improving high school reading skills is the recognition that reading skills can be improved at that level. The emphasis on the early school years may have led to the conclusion that there is little that can be done to develop or improve reading skills after grades 3 or 4. Students who feel they cannot read sufficiently well may be less motivated to engage in it (Bandura 1986; Hall 2005). Langer (2001) reported that teachers in low-performing schools seemed to blame students, not themselves, and appeared to believe that students were not capable of doing better. It is necessary to reconsider how teachers think about struggling readers and reading instruction in secondary schools. Evidence shows that students can improve their reading skills during the middle and high school years (Alvermann and Moore 1991; Coulter 2004; Kamil 2003; Manset-Williamson and Nelson 2005; Biancarosa and Snow 2006; Phelps 2005) and this must be clearly conveyed to parents, teachers, school administrators, and the students themselves.

Effective reading instruction in the secondary school years: Recently Slavin, Cheung, Groff, and Lake (2008) completed an extensive review of the research on middle and high school reading programs. No study of secondary-level reading curriculum met the review’s requirements for inclusion. No programs were found to be highly effective. Slavin et al. reported moderate evidence of effectiveness for approaches that had cooperative learning at the core and where students worked in small groups in which success of the team depended on the individual learning of each student. Similar findings on the importance of secondary school students working together and interfacing with and learning from each other in ways that improve reading skills have been reported by others (Langer 2001). Programs aimed at improving the core of classroom practice and improving teaching and strategy instruction were also moderately effective. In spite of the amounts of money spent on computer-assisted programs, Slavin et al. found little effect for such approaches. Kulik (2003) and others (Willms 2004) have also reported that using instructional technology in elementary and secondary schools had little effect on student reading. These conclusions were reinforced by the publication of the report, *Reading to Achieve*, by the National Governors Association Center for Best Practices: Adolescent Literacy

Advisory Panel, 2005. The report's recommendations for improving adolescent reading included:

- reading interventions that are research-based
- specific strategies to develop reading skills and monitor student progress
- classroom-based strategies for improving student reading
- professional development for subject teachers including training in the use of research-based reading instructions
- comprehension strategies across the curriculum
- evaluation

Across Canada, different language arts courses are offered in secondary school for students of different reading abilities. The courses aimed at helping the lower-achieving reader are usually offered by English language and literature teachers, the majority of whom have not had initial or continuing education in reading instruction; this is particularly significant in secondary school (Stainthorp 2000). Special expertise is often required to assist those who lack the reading skills that should have been developed in the lower grades. Students who have arrived at that level but are reading and writing significantly below grade require intensive additional services, which may or may not be offered within the classroom. For example, students require a variety of reading materials, which are both appropriate for adolescents and at a reading level that will encourage and improve skills. Interventions may differ according to student need or preference since a variety of supports (e.g., one-on-one instruction, small-group instruction, after-school tutoring) have been reported to be effective in improving reading achievement for secondary students (AMBE 2007; Houge, Geier, and Peyton 2008; Paterson and Elliott 2006).

2. *Articulated Standards with Assessment Data Used to Monitor Progress and Inform Instruction*

Teachers, schools, and school systems should be guided by articulated competencies specifying what students should know and be able to do as readers. Articulated competencies are also important to guide education programs that are preparing teachers to teach reading and to help parents assess how well their children are doing. For example, what is successful reading for a 9- or 10-year-old? According to New Zealand's Literacy Expert Group (1999), successful reading by age 9 means comprehending in print much of what children are expected to comprehend in spoken language. That definition is relative, rather than absolute. It is relative to the language of instruction, the language through which the children are taught and expected to learn in school; the language in which they first learn to read. When expectations about competency are established, aligned with curriculum and assessment, and supported by standards, educators and parents are able to determine how well the individual child, school, or system is doing in relation to the expected competencies. Reading curricula, assessment, and standards are established by provincial and territorial ministries or departments of education and further defined at the

district level (O'Sullivan and Goosney 2007). Most of these bodies present curriculum goals and expectations on their Web sites.

Every province and territory except Nunavut (which became a territory in 1999) has system-level standards and requires students to participate in system-level assessments. These assessments differ in many ways including the grade levels that participate and the format of the assessment (e.g., multiple choice or written response). These summative assessments are conducted for accountability purposes to evaluate the overall effectiveness of programs or student groups. Conclusions are limited to the particular assessment used, how well it is aligned with curriculum and the population involved. Many band authorities are reluctant to require their schools to participate in provincial assessment programs because of concerns regarding control, cultural bias and unfair comparison of schools (Bell 2004).

Reading assessments in French are available but most were designed in Europe, or in the United States and translated into French. Research is underway in Canada to establish normative data and reading milestones for children learning to read in French including those in French language minority schools (<http://www.cllrnet.ca>). There has been no systematic collection and analysis of reading data for children learning to read in Aboriginal languages. Without those data it is difficult to establish viable standards and measures.

In New Zealand, researchers established normative data on reading development for children learning to read in the Maori language during their first 17 months in school (Literacy Task Force, 1999). This has potential to set realistic competency expectations in reading for the first two years in school, to locate student performance in relation to an age cohort, to develop clear profiles of overall achievement, and to meet monitoring and reporting requirements (Rau 2001). The work in New Zealand is rooted in the Maori world view, and research and frameworks of this kind are badly needed in Canada. Ongoing summative assessment at the jurisdictional system level that provides useful evidence for policy-makers regarding student performance is important for improving student learning. However, expertise concerning the meaning of such assessment outcomes is rare in the education system (Ungerleider 2006).

When system-level summative assessments are not well aligned with curriculum, they have limited usefulness for informing policy and practice. Furthermore, system-level assessments are not administered at every grade level (typically grades 3, 6, and 9) and provide no information about how well children are progressing toward the standards. Many jurisdictions, school boards, and individual schools are developing their own benchmarks for these between grades and aligning them with summative assessments to monitor children's progress and to inform practice at the local level. For example, in the NWT, children in grade 3 take the Alberta Achievement Test. The Alberta test is not directly aligned with the curriculum standards in the NWT and in 2004 an assessment of Functional Grade Level was introduced to balance out the limitations of the Alberta test. Comparing the Functional Grade Levels of children in grades 1, 2, and 3 with the proportion of grade 3 children who meet the standard on the Alberta test, enables educators to establish baseline statistics against which progress can be monitored and improvements planned (NWT Department of Education, Culture, and Employment, 2005).

Locally developed standards aligned with assessments are emerging for Aboriginal languages in Canada (e.g., Kitikmeot school district in Nunavut) and other countries (e.g., for Yupik in Alaska).

Students in Finland, a bilingual country with a population of 5.3 million, are consistently among the highest achievers in worldwide assessments in reading, mathematics, and science. Finland has no national or system-wide assessment. National standards, tied to a national curriculum and aligned with assessment at the classroom level, guide instruction in the classroom (Finnish Education Evaluation Council, 2004–05). The Finnish experience suggests that it is alignment between curriculum, assessment, and standards that matters rather than the level at which the assessment is conducted (e.g., class, system, or both).

For individual teachers, summative assessments are not enough to inform instruction on a continuous basis. Ongoing daily or weekly assessment of student progress is essential to inform instructional practices and provide feedback to students about their progress (Biancarosa and Snow 2006; Wiliam and Black 1996). These formative assessments may include teacher observations, classroom discussion, and reading with students to monitor their progress (National Institute for Literacy, 2007). If instruction is not closely informed by ongoing formative assessment, teachers may overlook important gaps and improvements in their students' progress in reading (Biancarosa and Snow 2006).

Ongoing formative assessment practices to inform classroom instruction have been found very beneficial (Black and Wiliam 1998). For students in middle school, for example, frequent assessment feedback enhances their learning by making them aware of what they need to improve, and how to improve (Black and Wiliam 1998). Formative and summative assessments should be coordinated to create meaningful assessments for improving student achievement. Teachers who have access to the performance of their students in a variety of contexts and over extended periods of time should play a far greater role in the design of summative assessments (Wiliam and Black 1996).

3. *The Resources and Professional Capacity to Ensure Effective Delivery*

Resources

Materials: Appropriate materials (e.g., books, curriculum resources, assessment tools) are essential but not easily obtained in some schools and jurisdictions. For example, a national survey of teachers in French schools in minority-language settings found more than half of 672 respondents identified the lack of library resources and community resources in French as a problem (Gilbert, LeTouzé, Thériault, and Landry 2004). Resources in the Aboriginal languages are non-existent in some languages and not widely available in others. Many Aboriginal communities are actively involved in the development of resources to support school reading instruction (O'Sullivan and Goosney 2007). For some Aboriginal languages, there is no heritage of literature or written records, and in some communities the preservation of the oral tradition in written form is not encouraged (Stiles 1997). Resources must be culturally appropriate; where these resources are scarce, teachers spend considerable time developing them (e.g., NWT).

Specialized educational personnel and services in reading (e.g., diagnostic reading assessments) are differentially available around the country and rare in remote schools (but could be made available via technology if schools had access) and when available may not be appropriate. For example, no valid reading assessment tools specific to Aboriginal languages are available, and in remote French-minority-language communities, access to diagnostic reading services in French is next to impossible.

It is difficult to buy books in small remote communities without a bookstore or Internet access. Even those families who can afford reading resources may not be able to access appropriate materials. Common curricula such as the Western and Northern Canadian Protocol (WNCP) and its Common Curriculum Framework for English Language Arts (K–12) provide a framework for developing and disseminating culturally appropriate resources. WNCP includes Manitoba, Saskatchewan, Alberta, British Columbia, the Yukon, the Northwest Territories, and Nunavut.

Teacher-Librarians: A well-stocked up-to-date school library (either district or integrated with a public library) and the presence of a teacher-librarian is essential for reading development. Links between children's reading and the library and a librarian have been demonstrated as essential across grade levels, socioeconomic levels, and across rural and urban schools. Most Canadian elementary schools have a library¹. Schools with a teacher-librarian are more likely to have links to the library on their website; students' reading test scores are higher where networks provide remote access to library resources (Lance 2002). Securing a teacher-librarian is often dependent on a funding formula based on student population, and many remote schools do not qualify. Data are not available for band-controlled schools.

Technology: In 2003–04 more than 99 per cent of provincial and territorial schools had computers and more than 97 per cent were connected to the Internet.² Rural and remote schools (20%) are more likely than urban schools (5%) to use relatively slow connections and the NWT, Nunavut, and Prince Edward Island had the lowest proportion of schools with high speed access. In that same year only 7 per cent of schools in Canada had videoconferencing technology (Ertl and Plante 2004). In contrast, Norway and Finland have broadband Internet access and videoconferencing in almost every school. Over 50 per cent of teachers in Finland and Norway have laptop computers and continuing education in technology is free. Access to the Internet and videoconferencing promises great returns for reading achievement in remote communities. Teachers can join together in professional networks to share resources, learn together and, importantly, decrease the sense of isolation. Canada is a world leader in the use of broadband technologies and has the highest cable broadband coverage of all OECD countries <http://www41.statcan.gc.ca/2006/2256/ceb2256_002-eng.htm>. However, many remote communities cannot access this technology because of their small customer base, and the high cost of deploying technology over long distances (Ertl and Plante 2004). Equity of access to the Internet will provide literacy opportunities for children around the world (International Reading Association 2002).

1 Nationally the median expenditure on the school collection in 2003/04 was \$2,000, which covers the cost of one encyclopedia series. Data and information on the availability of libraries in band-controlled schools is not available.

2 Data is not available for band-controlled schools.

Positive associations have not been found between the use of computer software in reading instruction for students and student reading scores (e.g., Slavin, Cheung, Groff, and Lake 2008; Willms 2004). This is not surprising given that secondary school teachers have not normally been prepared to teach reading. Computer software may prove to be an effective adjunct to helping secondary school students improve their reading ability when their teachers better understand the reading process, the strategies, and the intensity of instruction needed to improve reading in students who have not been successful for the first 8 or 9 years of school. With this understanding, secondary school teachers can make informed choices about incorporating software into instruction and recognize the potential for resources such as computer software to help improve the reading performance of secondary school students.

Professional capacity: Initial and continuing teacher education

Among all the school-based variables contributing to children's reading, quality of teaching is essential (Snow et al. 1998). "A focus on standards and accountability that ignores the processes of teaching and learning in classrooms will not provide the direction that teachers need in their quest to improve" (Stigler and Hiebert 1997 as cited in Black and Wiliam 1998, 139). When England's National Literacy Strategy was implemented across that country over nine years, benefits to children's reading directly attributable to the strategy were negligible; evaluations indicated the need for substantive professional development beyond that made available during implementation (Earl et al. 2003). *Despite all the evidence, teacher expertise remains the most under-rated, under-recognized and undervalued component of reading achievement* (O'Sullivan and Goosney 2007). Different jurisdictions have different licensing requirements for teachers; although all ask for a degree in education, none specify the competencies and academic background required in the jurisdiction for teaching reading. Changes to the Agreement on Internal Trade come into effect this year and will apply to the teaching profession. Licence requirements that reflect the importance of reading could contribute to equity in reading education for all Canadian children and to increased public confidence in Canada's schools.

There is a shortage of teachers worldwide, and schools that are pressed by the need to fill teacher vacancies frequently waive the minimum requirements for certification (International Reading Association 2003). Recruitment of qualified teachers is especially challenging for northern and band-controlled schools (O'Sullivan and Goosney 2007). Aboriginal teachers with expertise in reading instruction, who can infuse Aboriginal students' culture and language through the reading program, offer advantages for Aboriginal students. Recruitment and retention of Aboriginal teachers (Bell 2004) and francophone teachers in French schools outside of Quebec (Canadian Teachers' Federation 2001) are particular challenges. Many northern teachers have graduated from mainstream programs and come to northern communities, an essential for teaching reading. Few northern teachers teaching through English or French to children whose first language is an Aboriginal language have an educational background in French or English as a second language (Spada and Lightbown 2002). This situation is not unique to Canada's North; the Sámi University College in Norway was established to prepare Sámi teachers for Sámi schools (in Norway, Sweden, and Finland). Since 1989, it has graduated 141

Sámi-speaking school teachers and 70 preschool teachers (2006 data). Provincial universities in partnership with community colleges deliver teacher education in the Territories. Canada is the only circumpolar country without a university in the Far North.

Initial teacher education: The International Reading Association recommends that initial teacher education programs for Primary-Elementary teacher candidates include 180 hours in reading and how to teach it (International Reading Association 1998). A review of the programs offered by 45 Canadian institutions found that typical graduates begin their careers with little more than 24 to 36 hours. Unsurprisingly, many beginning teachers report feeling inadequately prepared to teach reading well, especially when children are struggling (O’Sullivan and Goosney 2007). In the United States, a national investment in teacher education about reading has been called for (International Reading Association 2003). A similar call should be heard in Canada. Teachers cannot be expected to teach reading well without the necessary educational preparation and support.

Until recently, struggling readers at the intermediate and secondary school levels were taught reading primarily in special education classes. Unsurprisingly, teachers at these levels consider themselves subject area specialists, with more specialists in English language than any other subject area (Ball 2005). These teachers are prepared to teach English literature, poetry, and other areas that make up English language education, but not reading. Teachers in other subject areas regard reading instruction as the responsibility of English language teachers or reading specialists. If we are to increase the numbers of adolescents reading at an acceptable level, teaching reading must be embedded into teaching in all content areas. To do this, high school content area teachers must be given initial and continuing professional education in reading instruction, and must see that teaching reading is part of their professional responsibility. Requiring pre-service reading courses will provide new teachers the attitudes and skills required.

Continuing teacher education: Appropriate ongoing professional development in reading is necessary in order to sustain or implement new instructional practices effectively and to have an impact on student achievement (Biancarosa and Snow 2006). Professional development serves three important purposes:

First, research findings suggest that teachers are more likely to incorporate data on student achievement as measured by ongoing formative and curriculum-based assessment into their planning when they receive recommendations on how to integrate this information into their instruction (Fuchs, Fuchs, Hamlett, Phillips, and Bentz 1994).

Second, professional development serves to facilitate transference and implementation of research and evidence-based practices into teachers’ educational practices. One way in which this practice may be initiated is to set up and support pilot primary and secondary schools and to educate teacher mentors in implementing evidence-based classroom practices. Other teachers may visit these schools to see how important evidence-based practices are implemented. Pilot schools may receive support from evaluators or researchers who can work alongside teachers and mentors in developing successful reading practices (Black and Wiliam 1998).

Third, professional development is needed to help teachers learn strategies to use a variety of instructional components such as peer tutoring and establishing engaging learning environments to increase students' motivation (Fuchs et al. 1994).

Professional development may be built into regular school hours and be targeted to foster professional learning communities by promoting dialogue among teachers and other professionals in the school to sustain reading initiatives (Biancarosa and Snow, 2006). To be effective and promote long-lasting change, professional development must be ongoing, long-term, and system-wide and include classroom and resource teachers, reading mentors, librarians and administrators. Although concentrated professional development for practising teachers is associated with improved reading achievement (Phillips, McNaughton, and McDonald 2002), few professional development opportunities meet this standard.

4. *Effective Intervention for Children Experiencing Difficulties*

Early identification of reading difficulties is essential for intervention to be effective (Lesaux, Rupp, and Siegel 2007). Research on students with learning disabilities (LD) shows the importance of the early identification of students with LD and that children who fall behind in kindergarten and grade 1 because of LD will fall further and further behind over time (Lyon 1995 as cited in Lipka and Siegel 2007).

Children with reading disabilities: Identifying particular strategies and methods that work with students with reading disabilities is particularly important in addressing the needs of all students in the classroom. Several instructional approaches have been suggested to address these needs — reading instruction methods, using teaching aids and technology, and teachers' collaboration in teaching teams. Instruction in reading skills (particularly phonological processing, including phonemic awareness and phonics, and reading comprehension) is important for students who have reading disabilities. These skills should be taught using direct and explicit instruction. Students should be provided with opportunities to practise these skills through sustained and extensive time engaged in literacy activities.

Teaching reading skills to students with reading disabilities

Phonemic awareness: Phonological processing is the central cognitive process in reading acquisition (Siegel 1993; Stanovich 1998; Stanovich and Siegel 1994). Instructing students on phonemic awareness (how to manipulate phonemes in speech) is effective in helping children learn to read and spell (NICHD, National Reading Panel 2000). Several programs are available to teach phonemic awareness; for example, the Auditory Discrimination in Depth program developed by Lindamood and Lindamood (1975) has been recommended as a good program for teaching phonemic awareness. Students learn how to separate phonemes in words by using visuals and through kinesthetic techniques such as monitoring how changes occur in their mouths as they pronounce words or phonemes (NICHD, National Reading Panel 2000).

Phonics: Phonics entails teaching students how to use letter-sound correspondences to

decode or spell words. The use of a planned and sequential approach to teaching phonics is recommended, as is integrating instruction in phonemic awareness skills with phonics.

Reading comprehension: Teachers should teach students reading comprehension strategies such as summarizing, using clues from text, and drawing inferences (Dole et al. 1991). The use of specific teaching aids such as graphic organizers, prompted outlines, structures reviews, paraphrasing, and guided discussion are recommended when instructing students with reading disabilities to help them better understand the material they read and remember the content they are learning (Langer 2001).

Using technology and other resources to support students with reading disabilities: teachers may support struggling readers in the classroom by using resources such as technology (MacArthur, Ferretti, Okolo, and Cavalier 2001) and having books at various reading levels (O'Connor, Bell, Harty, Larkin, Sackor, and Zigmond 2002). For example, teachers may help students with reading disabilities improve diverse aspects of literacy including spelling, decoding, fluency, vocabulary, and comprehension, and of writing by using specific computer programs designed to increase students' literacy skills (MacArthur et al. 2001). Students with reading disabilities may benefit from the availability of high-interest and low-vocabulary books that provide access to grade-level content but that do not require grade-level skills in decoding and comprehension (O'Connor et al. 2002). These students could then follow school curricula, which might increase their motivation to read and engagement in reading. In addition, peer tutoring can help students with reading disabilities, not only on comprehending specific content areas but also on practising reading strategies.

Models of Instruction

Collaborative Teaching Teams: A joint effort of all educators is required to increase students' literacy levels. Content area teachers can promote literacy by planning and focusing on critical comprehension strategies in the content they are teaching. In so doing, different teachers can support students' learning of literacy skills, and the students may benefit from extra time to practise particular literacy skills. Teachers need to organize and deliver instruction in a way that encompasses literacy goals in addition to their content areas. This framework can be supported by having teacher teams composed of different professionals (librarians, reading specialists, literacy coaches, resource team teachers) meet and collaboratively plan instruction. Because students with reading disabilities need extra support to practise and learn literacy strategies, this support may be provided by special education teachers, reading teachers, and other support personnel (Vaughn, Hughes, Schumm, and Klingner 1998).

Response to Instruction: Early intervention for students with reading difficulties is particularly important. A model that has had positive results when working with students who are showing difficulties learning to read is "response to instruction" (RTI). Response to instruction starts with effective classroom instruction. A group of students in a particular grade or classroom is selected (e.g., the lowest-performing 25% of the grade) as students at risk or needing extra support. Once at-risk students are identified, their response to reading instruction is monitored. The monitoring

process may occur by re-testing those students using a classroom-based test to see how they are progressing. Students who are not showing improvement may receive more intense instruction on the skills with which they are having difficulty in or outside the classroom with a resource teacher or other support personnel. Ongoing or formative assessment is central to inform the rate of student progress and to direct practice (i.e., which skills students need to practise, which instructional material the teacher needs to use, or how to modify instruction based on the student's learning progress (Fuchs and Fuchs 2006). The RTI approach focuses on prevention and intervention through screening, instructional intervention and continual monitoring of students (Boscardin, Muthén, Francis, and Baker 2008).

GAPS IN THE RESEARCH

1. What are the benefits of pre-Kindergarten, of full-day versus half-day Kindergarten? What are the contributions of teacher, program, and time? (Research on kindergarten programs in Canada is almost nonexistent.)
2. How much instructional time is spent teaching early reading? What do teachers actually do when teaching? What is the relationship of these practices to children's reading achievement?
3. What are the reading practices in schools that serve a high-needs population and demonstrate high reading achievement?
4. What are the reading practices in schools where Aboriginal children have high reading achievement in a first or second language?
5. What are the essential components in teacher education programs that will prepare K–3 teachers to teach children to read, prepare teachers of grades 4–8 to teach children to read, and prepare secondary school teachers to teach students to read?
6. What are the use and costs of commercial reading programs across the country? What research exists on their effectiveness?
7. What is the relative effectiveness of instructional strategies for students having different learning needs and how do we promote their uptake in classroom practice?
8. What is the relationship between fluency, phonological awareness, and comprehension and how do those components relate to reading motivation?
9. How do we facilitate collaboration among researchers, policy makers, and educators to raise standards and enhance learning?
10. What are the reading milestones and developmental trajectories for children learning to read in Aboriginal languages?

11. How do we increase reading proficiency for intermediate and high school students?
12. What interventions are available for students in high school who lack enough proficiency in reading to benefit from the secondary school curriculum? How effective are they?

IMPLICATIONS FOR POLICY AND PRACTICE

1. All policy and practice about the teaching of reading must be informed by empirical research that identifies the components of excellent reading instruction.
2. Pan-Canadian competency expectations in reading relative to the language of instruction should be established and communicated to the public. Policy makers at all levels and in different jurisdictions should be guided by these expectations when developing specific standards, curriculum, and assessment in their jurisdiction.
3. A separate teaching licence should be developed for the early years, with requirements that reflect the expertise necessary to teach young children to acquire the reading competencies expected of 9- to 10-year-olds in Canada.
4. Each primary school should have clear benchmarks aligned with curriculum and assessment from kindergarten through grades 1, 2, and 3.
5. In primary-elementary and middle schools where large numbers of children are underachieving, the quality of the school reading program should be reviewed and reformed before add-on programs are considered.
6. Pan-Canadian competency expectations in reading for secondary school graduates should be established and communicated to the public.
7. Licensing requirements for middle and secondary school teachers should include prerequisite course work in reading instruction particular to those grade levels.
8. Reading specialists should be educated to teach secondary school students with significant difficulties in reading.
9. Sustained professional development in reading instruction must be made available to teachers at all grade levels, including high school.
10. All schools should have teacher-librarians.
11. Fast Internet access should be established for teachers in every school, with priority given to Northern remote and band-controlled schools.
12. A Web-based forum for Aboriginal storytellers, Elders, grandparents, teachers, and students

to write and share age-appropriate and reading-level-appropriate written materials for students in their own language(s).

13. School funding formulas should be based on need, taking into account the costs of providing excellent reading instruction to students in remote and in band-controlled schools.
14. A Pan-Canadian Centre for Reading to collate existing research, conduct new research to inform decision-making and to serve as a centre for the dissemination of reading research, data and resources should be established.
15. A university in Canada's Arctic region to provide teacher education programs specialized for northern and remote schools should be established.

SECTION B. RESEARCH ON READING DEVELOPMENT AND INSTRUCTION FOR ABORIGINAL STUDENTS

A comprehensive and accurate picture of the reading achievement of Aboriginal students is not currently possible because data are not available on the numbers of Aboriginal children attending provincial and band controlled schools. In the provincial systems, the Western provinces have self-identification policies in place, but only British Columbia makes the data public. The limited data available indicate significant and persistent gaps between Aboriginal and non-Aboriginal students on national and international assessments (Crocker 2002). Although these outcomes are not unique to Canada, other countries have addressed this gap much more successfully (Rau 2001).

As is true for all students, Aboriginal students learn to read well when they receive excellent instruction. All the components of excellent programs, qualified teachers, resources that are culturally and linguistically appropriate, curriculum and assessment in the language(s) of instruction are essential and have been addressed in previous sections of this report. The focus in this section is on the importance of language and the need for policy and programs to be informed by the evidence relating to language at home, language of instruction in school, and reading achievement.

LANGUAGES AT HOME AND IN SCHOOL

Oral language is the bridge to reading, and proficiency in oral language scaffolds early reading achievement. According to the 2006 Census (census figures underestimate the Aboriginal population more than other segments of the population, according to Statistics Canada.), there are approximately 348,900 Aboriginal youth under 15 years of age in Canada (O'Sullivan 2009). Of these, most (99%) have one language as their mother tongue (i.e., the language first learned at home and still understood at the time of the census); for 81% that language is English and for 15% it is an Aboriginal language. Only in Nunavut is an Aboriginal language the sole mother tongue for most youth under 15 years of age, 75%. An additional 2175 young people report English and/or French plus an Aboriginal language as their mother tongues (<http://www12.statcan.ca/census-recensement/2006/dp-pd/89-635>).

Language of instruction is both the medium that children learn through and the object that children learn about in school. It is the language in which children first learn to read. Fifteen percent of Aboriginal children have an Aboriginal language as their mother tongue. There is little research on the development of reading in Aboriginal languages, but the work that exists supports the conclusion that Aboriginal children learn to read more easily — and better — and demonstrate more positive self esteem if they receive excellent instruction initially in their language. By reinforcing language, culture and ways of understanding the world that are consistent with those at home, Aboriginal children are offered real access to reading (Literacy Experts Group 1999).

For some Aboriginal students the language of instruction in school is the language of their home and community. For others it represents a second language, one they are first exposed to in school and that may or may not be the dominant language of the community. The match between the students' home language and the language of instruction in school influences how well and how quickly

children achieve proficiency in one or more languages. The evidence is clear that

1. Aboriginal children, like all children, must learn to read well enough in the language of the school to support continued school success
2. Children who achieve proficiency in the language of the school learn to read in other languages with relative ease
3. Learning to read and speak in more than one language increases cognitive, academic, social, and economic pathways for Aboriginal children (Cummins 1998; O'Sullivan 2009).

ABORIGINAL STUDENTS LEARN TO READ WELL IN DIFFERENT LANGUAGES

There are many examples of outstanding reading achievement for Aboriginal students attending provincial/territorial and band-controlled schools in Canada. These success stories should be the basis for policy and practice in schools across Canada (O'Sullivan and Goosney 2007). For example, 95 percent of the children attending Mount Carmel School in Kenora, Ontario, are First Nations with English the language spoken in their homes. The school was selected for Ontario's Turnaround Schools Program because of a chronic systemic history of underachievement in reading at grade 3. Following a school-based intervention that addressed organizational and instructional issues in reading (e.g., standards set and assessment aligned with them, teaching oral language, and consistent professional development) the reading performance of the children improved, significantly surpassing most other schools in the province (Pervin 2005).

Like all children, Aboriginal children who learn to read in one language can transfer their reading skills when learning to read in a second language. Aboriginal children who spend more time learning to read in their first language can achieve excellent academic results in both first and second languages. A number of models from Canada and other countries have been shown to be very successful for Aboriginal children learning to read well both in English and their Aboriginal language (O'Sullivan and Goosney 2007). Examples include:

1. The Kahnawake Mohawk immersion program. The first Aboriginal language immersion program in Canada, it is modeled after French immersion. Longitudinal evaluation of the children's English language skills showed that by grade 4 children in the Mohawk immersion program performed as well as students in English programs on reading and mathematics in the English Canadian Test of Basic Skills (Holobow, Genesee, and Lambert 1987).
2. The Fort Defiance Elementary Immersion program in Arizona where English-speaking children learn to read first in Diné (Navajo). At grades 3 and 5 in English reading, writing, and mathematics, they out-perform those in English programs in the district on the Arizona state assessment, Arizona Instrument to Measure Standards (AIMS) (Johnson and Legatz 2006).
3. The Nawahi School in Hawaii, where the home language of students is English and the language of instruction is Hawaiian from kindergarten through grade 12, develops high

fluency and literacy in Hawaiian as a primary language and English as a second language. The benefits for Native Hawaiian students is a much higher level of fluency and literacy in their indigenous language plus psychological benefits to their identity that encourage high academic achievement and pursuit of education to the end of secondary school and beyond. Native Hawaiians have a low academic profile in the public schools and a lower graduation rate than other ethnic groups. The Nawahi School has 100 per cent graduation rate and college attendance rate of 80 per cent since its first graduation in 1999 (Wilson, Kamanä, and Rawlins 2006).

TIME TO DEVELOP READING PROFICIENCY

The time to establish enough reading proficiency to support school success will not be the same in all circumstances. When language of instruction is switched before children achieve proficiency, an imperfectly learned first language and sometimes an underdeveloped second language can result. This is a vital consideration for some schools and communities where bilingual programs switch the language of instruction and where the availability of qualified teachers proficient in the language of instruction cannot be guaranteed from year to year. For example, at the Cree School Board in Nunavik (Northern Quebec), Cree is the language of instruction through grade 3 after which students switch to English or French. Research from the Board indicates that many children have not developed sufficient reading proficiency in Cree to support learning to read in English or French when the language of instruction is switched. In grade 6, 24 per cent of students read at grade level in English and 16 per cent in French. Consequently, they have insufficient skill in academic reading and writing to support success in all curriculum areas, which contributes to a graduation rate of 8.6 per cent compared with 60.1 per cent for the province of Quebec (Cree School Board 2008). Their language development in Cree does not continue to grow as well as might be hoped once they reach Grade 3 and beyond (Spada and Lightbown 2002), and their self-esteem also suffers. Similar outcomes have occurred in some Nunavut schools when instruction is switched in grade 3 from Inuktitut to English or French (Martin 2002). There is every reason to expect that with strong bilingual programs Aboriginal students can develop reading proficiencies in more than one language. This should be the expectation in Canada. Government support for languages facilitates these successful outcomes (Martin 2002; O'Sullivan and Goosney 2000; Taylor, McAlpine, and Caron 2000).

SPECIAL CONSIDERATIONS

Language at school entry: Some Aboriginal children do not have a strong base in any language at school entry. The most prevalent form of developmental delay reported among northern Aboriginal children is speech-language delay. Some children use a non-standard variety of English at home and in their communities (Ball 2005). Children in smaller remote communities may develop a restricted language code or a communication system that relies on non-verbal gestures, such as facial expressions. This system of communication may be fully functional in their home community, but it does not provide the language base necessary to learn to read well early (Ball 2005; McDonald 2003). Schools must focus on developing oral language proficiency as a base for reading.

Decline of Aboriginal language: In an effort to stop the decline of their language, the Maori

introduced total language immersion in Maori language programs for preschool children in the 1980s. Revitalization of language is the primary focus of language nests, but they also offer distinct advantages to Aboriginal children whose mother tongue or home language is English but who will attend school where the language of instruction is an Aboriginal language (McIvor 2005). In the United States, Hawaiian medium preschools are available throughout the state of Hawaii. In the 1980s fewer than 50 children spoke Hawaiian; now, more than 2,000 have been educated through the Hawaiian medium. Language nests based on Maori and Hawaiian models have been introduced in Canada, and in the Northwest Territories alone, there are over 20 language nests for preschool children (O’Sullivan and Goosney 2007).

Hearing: Learning to read involves, in part, learning to associate sounds with letters, and children need adequate hearing ability to distinguish sounds within words. Hearing loss is linked with deprivation of language and reading, especially if English is a second language. The frequency of mild hearing impairment secondary to chronic ear infection is elevated among Aboriginal children, reaching 50 per cent in some Inuit communities (Bowd 2004). Similar statistics have been reported in other circumpolar countries. In most schools, including new schools, the quality of the acoustic environment is not adequate. New school construction should conform to acceptable acoustic standards.³ The installation of FM sound enhancement systems in existing schools has a positive effect on early reading achievement (O’Sullivan and Goosney 2007).

Consistency of schooling: Excellent instruction must be consistent throughout schooling to facilitate success. Migration of Aboriginal families from reserve to large towns and within towns themselves is common (Norris and Clayworthy 2006). Students who move from school to school lack consistent reading instruction or other educational services. This is exacerbated by the absence of pan-Canadian competency statements in reading, by instructional practices that often fail to make contact with the students’ languages and cultures, and by infrastructure variations between provincial and band-controlled schools.

Over-representation in special education: Although there is no evidence indicating that reading disabilities are more common among Aboriginal students, they are over-represented in special education programs. (Most Aboriginal students now attend provincial and territorial schools.) Low teacher expectations and socioeconomic factors, the struggles inherent in learning to read in a second language, and cultural conflicts place Aboriginal students at serious risk (B.C. Human Rights Commission 2001; International Reading Association 2003).

GAPS IN RESEARCH

1. What benefits for children’s reading are associated with participation in language nests/very early immersion in Aboriginal languages?
2. What models of bilingual education are most effective for whom and where?
3. What do teachers know and understand about how Aboriginal students learn to read and

3 Nunavut has a guideline in place.

how they should be taught?

4. How do teachers form expectations about Aboriginal children's reading achievement? How do those expectations impact teaching and learning? How can those expectations be modified?
5. What benefits are associated with the installation of FM sound amplification systems in existing school buildings, especially for young children?
6. What proportion of young Aboriginal children are referred to special education for reading difficulties? What programming is in place? What are the associated costs of those programs? What are the benefits for Aboriginal children?

IMPLICATIONS FOR POLICY AND PRACTICE

1. Decisions and policies about language of instruction must take into account the effects on children's reading development and the eventual impact on school success.
2. Policies that support Aboriginal languages should be developed and implemented.
3. Policies that promote, and practices that support, reading proficiency in more than one language should be established.
4. Self-identification policies should be encouraged, and all provincial and territorial jurisdictions should set ongoing targets and target dates for improving reading achievement and secondary school graduation rates for Aboriginal students.
5. All teachers and educational leaders must have the highest expectations for Aboriginal students' reading achievement and school success.
6. Partnerships between band-controlled schools and provincial schools that involve sharing professional development, reading resources, and expertise should be encouraged.
7. Special education services and policies that guard against inappropriate placements in special education must be developed and enforced.
8. Standards for the quality of the acoustic environment in classrooms, especially for young children should be established and enforced.

SECTION C. MINORITY-LANGUAGE STUDENTS OF NEITHER OFFICIAL-LANGUAGE

Presently there are high numbers of immigrant students attending Canadian schools. Findings from the 2001 Census show that immigration to Canada attained its highest level in 70 years (Statistics Canada 2001 as cited in Lipka and Siegel, 2007), and that approximately 18 per cent of Canadians spoke a native language other than one of Canada's official languages (Statistics Canada 2007). Currently large numbers of students attending English-language schools in Canada have limited proficiency in the language of classroom instruction because they are learning English as a second language (ESL). The first language they speak at home with parents, grandparents, or siblings is not English (Lipka and Siegel 2007). Likewise, students who do not speak French at home attend schools in which French is a second language (FSL) for them.

This pluralistic classroom environment poses challenges for educators in devising approaches to learning the meet the needs of their students' diverse backgrounds in their goal of becoming literate.

PRACTICE IMPLICATIONS FOR ESL STUDENTS

In order to teach, support, and assess ESL students effectively, it is important to examine the development of reading skills for these students as compared to native-speaker (L1) students. Studies suggest that the development of ESL students' reading skills is similar to the development of reading skills in native English speakers (Lesaux and Siegel 2003). In addition, children who come from ESL backgrounds are at no further risk of reading difficulties in grade 3 after 4 years of instruction in English (Lipka and Siegel 2007). ESL and L1 peers perform similarly in measures of phonological processing, word reading accuracy, and spelling (Lesaux et al. 2007). ESL children can develop reading and spelling skills that equal or exceed those of children with English as their first language. However, their knowledge and awareness of syntax, the grammatical structure of the language, is not as proficient as that of L1 children (Lesaux et al. 2007).

PRACTICE IMPLICATIONS FOR FSL STUDENTS

In Quebec, as in the rest of the country, many students attending schools come from various cultures and speak many languages other than French, the language of classroom instruction (Armand 2000), so they must learn French as a second language (FSL). Few studies have been conducted with FSL students in Quebec or other French-speaking regions of the country. A greater number of studies have been conducted with FSL students in immersion settings, where the children have usually been anglophone but where increasing numbers of allophone students have been enrolled. In typical French immersion settings, the students are introduced to reading instruction in French in kindergarten or grade 1, and English is not introduced until grade 3 (Bournot-Trites 2008). As with ESL students, supporting students' first language while they learn French as a second language (L2) is important. For example, working with and supporting students' phonological awareness in both their first language and their second has been associated with developing increased skills at decoding French words (Comeau, Cormier, Grandmaison, and Lacroix 1999). It is important, as well, to support and provide systematic and sustained opportunities for students to

develop their L1 oral proficiency skills while learning French as L2 (Geva 2006).

When working with FSL students who have reading difficulties, it is important to assess reading strengths and difficulties and to look beyond their difficulties with oral language proficiency (Geva 2006). When assessing FSL students, it is important to assess students' word-based reading skills including word recognition, pseudo-word decoding, and spelling. In addition, it is informative to assess students' abilities to read in L1, because of the high correlation between L1 and L2 reading skills (Geva 2006). Additional evidence that might be used to understand FSL students' skills might be gained through examining students' report cards from their home countries and previous formal assessments (Geva 2006). In addition, research has shown that an assessment of phonological awareness skills in English or in French provides a valid method to identify immersion students who are likely to have difficulties with French word decoding (Bournot-Trites 2008).

Gaps in research

1. Investigation is needed into the syntactical abilities of ESL and FSL students throughout their schooling and into the effects that instruction has on these abilities, both for young students and for students in higher grades.
2. Identification and development of culturally responsive professional development for educators on instruction and assessment of diverse students' literacy skills that focuses on evidence-based literacy methods.
3. Identify what works, when, and for whom, and implement strategies that are evidence-based and are targeted to specific students' needs.

IMPLICATIONS FOR PRACTICE AND POLICY APPROPRIATE TO NEEDS OF MINORITY STUDENTS

1. It is important to foster professional development for teachers on topics such as culturally responsive teaching. Such topics include becoming knowledgeable about multicultural and bilingual education, the language acquisition process, and English or French as second language teaching methods (Klinger and Edwards 2006).
2. When teaching minority-language students, it is important that teachers use a both/and rather than an either/or orientation. Students should be encouraged to maintain and improve their first language (L1) (Peterson and Heywood 2007).
3. The growth of students' L1 can be encouraged by providing opportunities for students to practise speaking and reading in their L1. Implementing heritage classes is one way of enabling students to continue learning their L1, as is making available books and resources in those languages available at public and school libraries. (Krashen 2003).

Practice implications French-first-language students: Students who have difficulty decoding words may overload their working memory and may not have enough energy to process and understand what they are reading (Boulc'h, Gaux and Boujon 2007). It is essential for teachers to

ensure students learn to decode words automatically, which will leave them with more of their mental resources available for comprehension of what they are reading and related tasks. It is also important to teach irregular spellings of French words to students, such as words ending with silent letters (e.g., *part*, *pars*, and *pare*) (Demont and Gombert 2004).

Teaching syntax and morphology, the skills closely linked to improved reading comprehension, to young readers and particularly pre-adolescents is essential (Gaux and Gombert 1999). For example, when students encounter a word they do not understand, they may be taught to use their knowledge of syntax or sentence structure to substitute a word (e.g., a noun) that they do not understand for another word that serves the same function (another noun). This word substitution technique may help students to become aware of the sentence structure used in French and to learn word attack strategies they can use with unknown words. In addition, teaching students the morphology of French words (such as prefixes and suffixes) helps them understand longer and more difficult words. This is particularly beneficial for students who have difficulty with reading comprehension (Gaux and Gombert 1999).

Practice implications for allophone immigrant students: Immigration is a difficult process for children and their families as they leave their familiar culture and language for a new cultural environment. Some of the strategies described to support minority-language students would also be helpful for allophone immigrant students, those who have not had formal schooling in their first language in their home country or in the country to which they are immigrating. These students may start learning to read in a second language.

The time that students engage in reading and their motivation to read are also closely related to reading achievement and reading comprehension. It is important for teachers and principals to find ways to strengthen and encourage these students' home-school connections. For example, teachers and principals may increase immigrant families' motivation by valuing their culture and language. When students feel valued, they are more likely to apply themselves academically, and when their parents feel valued, they are likely to become more involved within the school environment and support their children's reading and writing efforts at home. It is particularly important to value students' first language while developing their second language and focus on students' strengths, including the knowledge and experiences they bring with them (Peterson and Heywood 2007).

Some ways in which immigrant parents can be supported include offering parents books in their L1 to read with their children, having access to dual-language books and tapes (in students' L1 and English or French) and providing materials to read or listen to in students' L1 in classrooms and libraries. If dual-language books are not available, teachers could ask parents to help make these books. Another way to integrate parents into the school's efforts would be to show them how to select appropriate grade level reading material for their children and to send book lists home (Peterson and Heywood 2007).

When teaching ESL and minority-language students, a balanced literacy program based on learning sound-symbol relationships, letter identification, with direct phonological awareness instruction in small groups for at-risk children is beneficial (Lesaux and Siegel 2003). In older grades, classroom

instruction should focus upon time spent reading and engaging in the application of reading strategies (Au 2002). Although ESL or minority-language students are at no further risk of developing reading difficulties, a small percentage of ESL students, similar to that of native language students, have reading difficulties. (Lipka and Siegel 2007).

Implications for practice with struggling readers, who are from language minorities or who are allophone immigrant students: These students pose challenges in identification and accurate assessment of learning disabilities. It is important to note that there is a tendency within schools to overlook or delay addressing the possibility that ESL children are having difficulties with word decoding or language processing (Limbos and Geva 2001 as cited in Lesaux and Siegel 2003). Oral language proficiency is often regarded as the main cause of students' difficulties and education difficulties are often attributed to acculturation issues.

As for all students, early identification of reading disabilities is vital (Lesaux et al. 2007). If students are having difficulty reading in their L2, it is important not to delay intervention, but instead to examine factors beyond oral proficiency to assess their reading skills (Klingner and Edwards 2006).

Development of accurate assessment mechanisms to work with these students is needed, as is training of teachers and other educators on how and when to make referrals for those with suspected RDs.

School-based educator teams must have members with knowledge in culturally responsive pedagogy and assessment. A bilingual or ESL or FSL specialist should be involved as part of the school-based team when the student is an English or French language learner (Klingner and Edwards 2006). Interpreters should be available to work with parents who come from LM or are AI. School-based team members should propose meaningful intervention strategies based upon observations of students in the class, and take into consideration students' cultural and linguistic backgrounds.

Gaps in research

1. Research into identification and assessment of students who are allophone immigrants or who come from language minorities and have reading disabilities. It is particularly difficult to distinguish whether learning difficulties are due to language differences or whether reading difficulties are in fact due to a reading disability or a language disability (Lipka and Siegel 2007).
2. Identification of valid and meaningful assessment methods for students that do not draw on linguistic abilities have not developed.
3. In order to determine whether the development of ESL students' reading skills differs significantly from those of L1 students, longitudinal studies in comparing the reading development of L1 and ESL students are important and necessary (Lipka, Siegel, and Yukovic 2005).
4. Further research should examine whether lack of fluency in the language of instruction

has an impact on reading acquisition for ESL children compared to children whose native language is English (Lesaux and Siegel 2003).

5. Investigation into whether phonological awareness and phonological processing develop in the same way for ESL as compared to L1 speaking peers would be of value (Chiappe and Siegel 2006).
6. Examination of the influence of different educational methods on the development of reading skills such as phonological skills in ESL and minority-language students (Lipka et al. 2005) may provide evidence regarding which educational methods would lead to greater literacy gains.

SECTION D. PARENTS AND COMMUNITY

The relationship of socioeconomic status (SES) and reading achievement is well documented. Students from higher socioeconomic backgrounds tend to experience reading success. Although the influence of socioeconomic level on reading decreases with effective classroom instruction (D'Angiulli and Siegel 2004), students from lower socioeconomic families tend to perform less well on measures of achievement in reading, and are more likely to drop out of school than their counterparts from higher socioeconomic backgrounds (Arnold and Doctoroff 2003; McLoyd 1998; Yeung, Linver, and Brooks-Gunn 2002).

The economic resources available to families have an impact on the quality of the literacy environment in the home. Numerous books in the home, educational resources in the home, and cultural activities in the home, all of which are related to reading achievement, are more commonly available in families from higher socioeconomic levels. Poorer families anywhere in Canada are less able to afford books and other literacy resources. This is particularly difficult in Northern and remote areas of Canada where many families are not only poorer than other Canadians but also find their cost of living is high. In addition, these and other socioeconomic factors (e.g., parents' education and occupation) may indirectly affect students' expectations, attitudes, and self-perception as regards reading skills (Aikens and Barbarin 2008).

Parental Involvement

Although the relationship between family background and reading achievement is strong and consistent, the mechanisms of that association are not clearly understood. Many students from lower socioeconomic backgrounds do well in school; many schools serving low-income populations are extremely successful. One factor that has received considerable attention is parental involvement, which is becoming a central component of school reform across Canada and the United States. Research findings in the area, however, have been inconsistent: some studies demonstrate a positive relationship between parental involvement and academic success (e.g., Hill and Taylor 2004); others have found little, if any, effect (Mattingly, Prislun, McKenzie, Rodriquez, and Kayzan 2002). Still others have found that poor academic performance often stimulates parental involvement. For example, the National Longitudinal Survey of Children and Youth reported that parents were more likely to participate in reading activities when children were ranked near the bottom rather than the top of their class (Willms 2002). Such results lend support to the complex, potentially bi-directional relationships between involvement and achievement (Grolnick and Slowiaczek 1994).

There are many ways in which parents can be involved in their children's education: restriction of children's time watching television, communication with children about school, contact with the school, involvement in parent-teacher organizations, volunteering at the school, supervising out-of-school activities, and demonstrating high educational aspirations for their children. Because of the multi-dimensional structure of parents' involvement, there is a lack of agreement and understanding of the role and importance of parental involvement in their children's academic achievement.

In order to ascertain what factors might be more important than others, Fan and Chen (2001)

conducted a quantitative meta-analysis to study the relationship between the dimensions of parental involvement and students' academic achievement. They identified four dimensions of parental involvement: parent-child communication, home supervision, education aspirations for their children, and school contact and participation. They reported that aspirations and expectations for children's educational achievement had the strongest relationship with actual achievement. Similarly, Urdan, Solek and Schoenfelder (2007) suggest that parental involvement enhances children's motivation to learn, which improves school performance. Importantly, O'Sullivan and Howe (1999) found that low-income parents' expectations for their children's reading influenced their children's own expectations which, in turn, reliably predicted their actual reading achievement.

Although at first glance the body of literature on parental involvement appears large, upon close inspection, it becomes evident that only a small number of these studies are empirically based (Fan and Chen 2001). This lack of empirical evidence makes any definitive causal statement premature. Nevertheless, there is sufficient evidence to indicate that parents' involvement in their children's schooling and parents' aspirations for their children's educational achievement are important factors in improving their performance in reading, particularly for students from disadvantaged backgrounds (O'Sullivan and Howe 1999).

Community Involvement

Researchers have consistently identified a positive association between a neighbourhood's socioeconomic status and the academic achievement of its residents (Aikens and Barbarin 2008). Often children who come from economically disadvantaged homes live in communities that put them at risk in multiple ways (Evans, 2004). Aikens and Barbarin (2008), in keeping with an ecological theory of development, argue that as children get older their reading competence is more strongly associated with settings beyond their family, including their community. As in studies on parental involvement, studies on the relationship between neighbourhood and students' achievements are important because neighbourhood characteristics may be amenable to change through policy intervention. There is relatively little empirical research to support causal statements about which community characteristics encourage or discourage student achievement.

Emory, Caughy, Harris, and Franzine (2008) reported that, in some low-income neighbourhoods, high expectations for educational achievement and high collective socialization (school-related behaviours and attitudes) were associated with higher performance for students on standardized reading tests. In other words, students performed better if they resided in neighbourhoods where residents formed a social network and provided educational supports — even if the neighbourhood was economically disadvantaged. Importantly, when neighbourhood social processes were taken into account, SES no longer predicted failure rates, which suggests a possible protective factor offered by the social processes within low-income populations of certain neighbourhoods. Research is needed to determine what conditions obtain in these atypical communities that give rise to social processes that benefit students' achievement.

Community-based programs supporting reading

Communities and community leaders who value reading and education are more likely to establish and maintain relevant community-based resources and programs that support families. These include early childhood education, family resource centres, family literacy programs, after-school and homework programs, sports and other extra-curricular activities, and libraries. These resources and supports must be available to and accessible by all children and families regardless of their economic situation or geographic location. Although there is very little research directly linking these supports and resources to students' reading, this does not mean that programs are not effective. It may simply mean that adequate research has not been done. Many of these programs rely on short-term funding and, without sustained funds, it is impossible to demonstrate their impact on reading achievement.

We do know enough to encourage community members to convey a positive message about reading to children and families. A library's presence is a visual representation of the importance of reading in a community (O'Sullivan and Goosney 2007). A library with up-to-date materials and technology and collections that engage readers of all ages should be available in all communities. Many Canadian communities lack a public library. Small communities sometimes integrate the public library with school libraries to make resources more widely available. Travelling libraries have almost disappeared from Canada, but are a way of life in other northern countries. For example, in Sweden, Norway, and Finland, many schools operate library buses that deliver reading resources (including computer access) to children in remote communities. There is no funding from the federal government directly targeted for First Nations public libraries on-reserve, and public library services and funding to First Nations from local or provincial governments vary.

GAPS IN RESEARCH

1. What are those aspects of parental involvement that directly influence students' reading achievement?
2. What are the characteristics of low-income communities where students read at higher-than-expected levels?
3. What effects do community-based programs have on students' reading?

IMPLICATIONS FOR POLICY AND PRACTICE

Programs to increase parental involvement must include emphasis on the importance of parents' expectations for their children's reading.

Libraries with up-to-date materials and technology as well as collections that engage readers of all ages should be available in all communities.

An integrated system of community-based programs that complement and reinforce each other,

with funding to sustain those systems long enough to produce and document their effects must be established.

CONCLUSION

In this review, the authors have summarized the findings of research into reading development and instruction in four areas:

1. for students in K–12 and for those with reading disabilities
2. for Aboriginal students
3. for students whose first language is neither French nor English
4. for students in the contexts of their family and community

The research gaps identified point to the need for a strategic, targeted, and coordinated research agenda that will build on existing knowledge and inform policy and practice more precisely and specifically for the Canadian context. Our recommendations provide a mandate for a united and continuous approach to teaching reading skills to a level of competency that will enable students to benefit from all areas of instruction and all disciplines to graduate and become contributing adults in Canada's society.

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(Endnotes)

1 The federal government provides for the education of registered Indians and Inuit people with the exception of the Cree, Inuit and Naskapi of Quebec whose education is the responsibility of that province. Funding from the federal government supports instructional services in on reserve schools and costs for on reserve students attending provincial schools. The Territories deliver educational services to all residents including Status Indians and Métis.

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