

A School-Based Professional Learning Community Improving Equity and Inclusion for At-Risk Readers in French Immersion

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Résumé de l'article

Cette étude longitudinale s'appuyant sur une méthodologie mixte présente l'élaboration d'un programme de dépistage et d'intervention précoce en matière de conscience phonologique auprès d'élèves à risque de développer des difficultés d'apprentissage de la lecture dans une école d'immersion en français au Manitoba. Le programme a été créé par une communauté d'apprentissage professionnelle composée du directeur de l'école, d'enseignants et du personnel de soutien clinique. Cet article décrit le processus du développement du programme ainsi que l'intervention. Quarante-deux enfants ont suivi les interventions en conscience phonologique pendant 10 semaines. L'intervention a été donnée en anglais pendant la maternelle. Des gains significatifs ont été trouvés dans les compétences de conscience phonologique des enfants qui ont participé à l'intervention. Les résultats ont également indiqué que les compétences en conscience phonologique en anglais prédisent le niveau de lecture en français en 1ère année. De plus, nous donnons un aperçu des rôles joués par les membres clés de la communauté d'apprentissage professionnelle de l'école grâce à l'analyse qualitative d'une série d'entrevues semi-structurées. Le travail de la communauté d'apprentissage professionnelle de l'école offre un modèle qui peut être mis en place par d'autres écoles pour promouvoir l'équité et l'accessibilité pour tous les apprenants des programmes d'immersion en français.

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**A School-Based Professional Learning Community Improving Equity
and Inclusion for At-Risk Readers in French Immersion**

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Abstract

This longitudinal, mixed-methods study reports on the development and implementation of an early phonological awareness screening and intervention program for struggling emergent readers in a French immersion school in Manitoba. The program was created by a professional learning community made up of the school administrator, teachers, and clinical support staff. This paper describes the process of developing the phonological awareness program and the intervention itself. Forty-two children participated in the phonological awareness intervention that lasted 10 weeks. The intervention was given in English in kindergarten. Significant gains were found in the phonological awareness skills of the children who participated in the intervention. Results also indicated that children's phonological awareness skills in English predicted their French reading levels in Grade 1. In addition, we provide insight into the roles played by key members of the school's PLC through qualitative analysis of a series of semi-structured interviews. The work of the school's professional learning community offers a model that may be implemented by other school teams to promote equity and accessibility for all learners in FI programs.

Résumé

Cette étude longitudinale s'appuyant sur une méthodologie mixte présente l'élaboration d'un programme de dépistage et d'intervention précoce en matière de conscience phonologique auprès d'élèves à risque de développer des difficultés d'apprentissage de la lecture dans une école d'immersion en français au Manitoba. Le programme a été créé par une communauté d'apprentissage professionnelle composée du directeur de l'école, d'enseignants et du personnel de soutien clinique. Cet article décrit le processus du développement du programme ainsi que l'intervention. Quarante-deux enfants ont suivi les interventions en conscience phonologique pendant 10 semaines. L'intervention a été donnée en anglais pendant la maternelle. Des gains significatifs ont été trouvés dans les compétences de conscience phonologique des enfants qui ont participé à l'intervention. Les résultats ont également indiqué que les compétences en conscience phonologique en anglais prédisent le niveau de lecture en français en 1ère année. De plus, nous donnons un aperçu des rôles joués par les membres clés de la communauté d'apprentissage professionnelle de l'école grâce à l'analyse qualitative d'une série d'entretiens semi-structurés. Le travail de la communauté d'apprentissage professionnelle de l'école offre un modèle qui peut être mis en place par d'autres écoles pour promouvoir l'équité et l'accessibilité pour tous les apprenants des programmes d'immersion en français.

A School-Based Professional Learning Community Improving Equity and Inclusion for At-Risk Readers in French Immersion

Introduction

In 1965, French immersion (FI) programs were introduced for Anglophone children in Québec to promote English-French bilingualism (Lambert & Tucker, 1972). Since then, FI programs have been implemented widely across Canada. Despite the popularity of these programs, retention rates are relatively low, particularly among children who experience reading-related difficulties (Canadian Parents for French, 2019). Struggling readers are often counselled out of FI and into English-medium programs where they have a better chance of receiving necessary instructional support (Wise & Chen, 2015). Indeed, in the province of Manitoba where this study took place, reading-related difficulties are cited as one of the main reasons children are withdrawn from FI programs (Manitoba Education, 2021). Moreover, FI students are generally not assessed for reading difficulties until Grades 2 or 3 (MacCoubrey et al., 2004; Wise & Chen, 2009) despite empirical evidence that argues in favour of early screening and intervention targeting children identified as at-risk readers (Fuchs & Fuchs, 2006).

Against this background, we conducted a study employing mixed methods to report on the development and implementation of a kindergarten screening and intervention program created by a multidisciplinary professional learning community (PLC) in a FI school. Using quantitative methods, we report results indicating that the program was effective in promoting skills in phonological awareness among children identified as at-risk for reading difficulties. In addition, we provide insight into the roles played by key members of the school's PLC through qualitative analyses of semi-structured interviews conducted with each member individually. Importantly, the work of the school's professional learning community offers a model that may be implemented by other school teams to promote equity and inclusion for a diversity of learners in FI programs.

The Canadian FI Context

Canadian FI programs currently serve almost half a million students nationwide (Statistics Canada, 2021). In early FI, one of many models of FI programming distinguished primarily based on age of intake, non-Francophone children receive integrated content and language instruction in French beginning in kindergarten or Grade 1. In Manitoba, students are taught exclusively in French in kindergarten and Grade 1 and begin to receive English language arts instruction in Grade 2. As a result, students are expected to acquire competence in oral and written French while acquiring academic knowledge and skills (Manitoba Education and Advanced Learning, 2016). At the school whose early literacy initiative we report on here, students attended a half-day kindergarten program and were taught exclusively in French.

FI classrooms are becoming more inclusive as they welcome students with diverse learning challenges (Bourgoin, 2014). Appropriate support must be put in place to meet the needs of these children. Students deemed at-risk for reading difficulties are of particular concern because skilled reading is critical for academic development and overall well-being into adulthood (Snowling & Hulme, 2012). Universal early screening and targeted intervention may play a significant role in identifying and supporting students at-risk for

reading difficulties, leading to a significant decrease in the number of students who struggle to learn to read (e.g., January & Klingbeil, 2020; Jenkins et al., 2007; Jimerson et al., 2016). In the case of FI programs, they may also contribute to a reduction in attrition among at-risk readers, promoting equity and inclusion in FI education. Reducing attrition rates in FI may, in turn, lead to higher levels of English-French bilingualism among children and youth in Canada. Indeed, research findings highlight the many benefits of bilingualism. For example, studies have shown that bilingual children consistently outperform their monolingual counterparts on various skills including language processing and executive control (Bialystok, 2005; Genesee, et al., 2004).

The early literacy screening and intervention designed by the team at the FI school was based on the Response to Intervention (RTI) model. The RTI model has been widely implemented throughout school systems as a preventive multi-tiered process of assessment and instruction to address the needs of students who are at-risk of reading failure (McIntosh, et al., 2011). RTI was developed to promote teachers' role as first interventionist by allowing them to flag a child who may be at-risk for reading difficulties and adjust their classroom practices to better meet the child's learning needs (Mesmer & Mesmer, 2008). The model consists of three tiers of instruction: Tier I represents high-quality, evidence-based classroom instruction delivered to all students, Tier II represents instruction provided in small groups to at-risk children as a means of supplementing classroom instruction, and Tier III represents individualized instruction (Vaughn et al., 2007). Thus, the progression across tiers is characterized by more systematic and explicit instruction, increased duration or frequency of lessons, smaller group size, reliance on colleagues with specific expertise such as clinical support staff, and increased practice time on a target skill (Fuchs & Fuchs, 2006).

A School-Based Professional Learning Community to Deliver Kindergarten Phonological Awareness Training

It is within this broader context that this FI school established an early screening and emergent literacy intervention program for its kindergarten children. The focus of the program was phonological awareness, a key literacy-related skill, defined as the ability to attend to, isolate, and manipulate the sounds in words at the syllable, onset-rime, and individual phoneme levels (Wagner et al., 1999). The impetus for the program was recognition that as school enrolment grew over time, the number of students requiring remedial reading and writing instruction offered in Grade 2 would likely exceed capacity. Screening and intervention in kindergarten were seen as a means for minimizing, as much as possible, the number of students requiring later literacy support.

This practical problem triggered the inception of a Professional Learning Community (PLC) at the FI school. Members of a school-based PLC engaged in continuous reflective and collaborative professional inquiry intended to support instructional change through innovation and experimentation with the goal to promote student learning, improve learning outcomes, and facilitate systemic change (e.g., Antinluoma et al., 2018; DuFour, 2004; Stoll et al., 2006; Williams et al., 2012). Ultimately, their purpose is to foster a collective sense of responsibility for student well-being and student learning (Stoll et al., 2006). To achieve this goal, a school-based PLC engages in a cycle of learning that begins with the collection and analysis of student data (Hirsh & Crow, 2017). Data helps the community to identify areas of instruction in need of

change to better meet student needs. Based on student data, a professional learning community sets teaching and learning goals, then initiates a process of individual and collective learning. Professional development in support of a PLC can take many forms, including expert-led workshops, or work-based learning opportunities such as coaching and mentoring, observation of peers, co-teaching, or joint planning (Stoll & Louis, 2007). PLC members reinvent practice in a way that reflects their shared professional growth and is attentive to the needs of all learners. Changes in teaching and assessment practices are continuously evaluated based on student data, and instructional practices are modified accordingly. This iterative process of collection and analysis of student data, reflection, and change is what drives a PLC (Hirsh & Crow, 2017).

The PLC at the FI school was composed of an interprofessional team that included the school's administrator, literacy, resource and classroom teachers, speech-language pathologist, and school psychologist. To begin the process of developing an early intervention to support struggling readers in FI, the school's PLC turned to data collected by the school division in order to identify possible areas for the focus of their intervention. Among the sources of data available to them were kindergarten phonological awareness test scores that were routinely collected by the school but that team leaders recognized were under-exploited and not fully understood. Yet extensive research has highlighted the important role of phonological awareness in reading development for monolingual (e.g., Assad & Eviatar, 2014; Míguez-Álvarez et al., 2022; Shu et al., 2008) and bilingual children (e.g., Krenca et al., 2020; Marinova Todd et al., 2010; Verhoeven, 2007) from a variety of language backgrounds. In studies of early reading development conducted in both English and French, there is consensus that phonological awareness is a strong predictor of first language (L1) reading success (e.g., Boyer & Ehri, 2011; Landerl, et al., 2019; Melby-Lervåg et al., 2012; Plaza & Cohen, 2007). In other words, there is consistent empirical evidence indicating that young children who exhibit poor phonological awareness have difficulty learning to read and lag behind their peers with stronger PA skills (Scanlon et al., 2005). The disparity in reading outcomes between these children continues to grow as they progress through the elementary grades (Keep, 1993), a pattern found among children in FI as well (Genesee, 2007).

Of relevance to the FI context are findings reported in the empirical literature demonstrating that phonological awareness developed in the first language (L1 English), is correlated with the development of second language (L2 French) phonological awareness and early word reading (Bruck & Genesee, 1995; Comeau et al., 1999; Erdos et al., 2014; Haigh et al., 2011). This may be because phonological awareness skills acquired in the L1 in the preschool years (through exposure to nursery rhymes, for example) are transferred across languages to support L2 learning (Chung et al., 2019; Koda, 2008). Moreover, studies involving FI students have revealed that school-based early identification and intervention provided in the student's L1 have positive outcomes for students who are showing signs of difficulty in acquiring skills in L2 reading (Genesee & Geva, 2006; MacCoubrey, 2003; Wise & Chen, 2010; Wise & Chen, 2015; Wise et al., 2016). By assessing FI children's performance in phonological awareness in English, their stronger language, in the early grades, teachers can identify at-risk readers before they are sufficiently proficient in French to demonstrate awareness in the L2. Importantly, assessing children in their stronger language allows teachers to rule out the possibility that a student may be struggling because of limited language proficiency rather than a reading-related deficit per se. Once identified, children can receive immediate additional support either in

small groups or individually. Indeed, early reading interventions provided in FI in English have been shown to contribute to improved phonological awareness and word reading skills in French L2 (D'Angelo et al., 2014; Genesee, 2007; Wise & Chen, 2010, 2015). Thus, early identification and intervention may afford at-risk readers the opportunity to develop oral and written skills in French and English and to reap the benefits of bilingualism (Gándara & Slater, 2018).

The Present Study

The FI school PLC's leadership team reached out to university-based researchers with expertise in the areas of FI education, bilingual literacy acquisition, and early reading difficulties to assist in its evaluation of the screening and intervention procedures the school had put in place and, subsequently, to offer guidance in refining assessment procedures and tools. The researchers conducted statistical analyses of the data collected by the teachers to evaluate the effects of the intervention program. Specifically, we tested whether the English phonological awareness skills of FI students identified as at-risk for reading difficulties improved after participating in the intervention. To do so, we compared phonological awareness scores obtained in the fall of kindergarten (pre-intervention) to those obtained in spring of the same year (post-intervention). Furthermore, we examined whether gains made over time in kindergarten on English phonological awareness predicted French reading one year later (i.e., end of Grade 1) among children who had participated in the intervention.

In addition to quantitative analyses evaluating intervention effects, we carried out semi-structured interviews with key members of the PLC leadership to gain insights into their roles in developing and implementing the early screening and intervention program at the FI school. We considered this an important goal of our study given the paucity of research on PLCs in Canadian FI schools (Cranston, 2011; Dressler, 2018; Ferguson, 2013). Indeed, to our knowledge, this study is the first to address the importance of establishing school-based interprofessional PLCs to better support struggling students in FI classrooms with the goal of promoting equity in practice.

Method

Participants

The children who participated in this study were enrolled in an early FI program in a publicly funded school in Southern Manitoba. The school offers FI programming from kindergarten to Grade 6. The kindergarten program at the school runs for a half day, five days per week. All instruction is delivered in French until Grade 2, at which point 20 to 25 percent of instructional time is dedicated to English language arts. Therefore, the children were in the early stages of acquiring language and literacy skills in French. A total of 85 kindergarten children (M age = 76 months, SD = 3.45) from five classrooms in the same elementary FI school participated in the study. Participants' language status was determined based on language exposure in the home as reported by the child's parent. Of the 85 children, 69 (79%) were exposed only to English in the home and 18 (21%) were exposed to a language other than English at home. The home languages represented in the sample were Arabic (n=1), Bengali (n=1), Chinese (n=1), Nepali (n=1), Portuguese (n=1), Punjabi (n=1), Spanish (n=2), Tagalog (n=4), Tringinga (n=1), Ukrainian (n=1), Urdu

(n=3), and Vietnamese (n=1). All children had exposure to English in the broader community as it is the societal language in the region in Manitoba in which this study was conducted.

The children were assessed in the fall of kindergarten using the English Phonological Awareness Screening Tool-Revised (PAST-R: Kilpatrick, 2016) to identify those who were at-risk of reading difficulties. Of the 85 children, 42 (49%) scored below the 50th percentile on the total score of the PAST-R and were selected to participate in the phonological awareness intervention.

Measures

To collect quantitative data, children were assessed in the fall and spring of the school year in kindergarten on the PAST-R (Kilpatrick, 2016), which was an English measure of phonological awareness. It took about 20 minutes to complete the measure at each time point. In the following year, when children were in Grade 1, they received three French measures. They were assessed in French rapid automatized naming (RAN) and French working memory at the start of the school year and French reading at the end of the school year. Each testing session again lasted 20 minutes. All the tasks were administered by trained teachers who were highly proficient in both English and French.

Phonological Awareness

Phonological awareness was assessed in English using the Phonological Awareness Screening Tool-Revised (PAST-R: Kilpatrick, 2016). It was administered to all kindergarten children at the beginning of the school year in the months of September and October (Time 1) and a second time in May and June (Time 2). The task consisted of eight subtests evaluating: (a) rhyme awareness (e.g., Listen to these words: “hat-cat”. Do they rhyme?); (b) rhyme expression (e.g., Tell me a word that rhymes with “set”. I say “set”, you say “get”.); (c) syllable segmentation (e.g., I am going to say a word. I want you to clap for each part of the word.); (d) initial sound awareness (e.g., Tell me if these words start with the same sound “bed” and “boy”.); (e) initial sound expression (e.g., Tell me the first sound you hear in the word “sun”.); (f) phoneme blending (e.g., Tell me what this is: “/s/ - ē”.); (g) phoneme segmentation (e.g., Tell me each sound in “dog”.); and, (h) final sound expression (e.g., Tell me the last sound you hear in the word “bug”). Each subtest contained five items, and the total number of items was 40. The total score was calculated as the number of correct responses in each subtest.

Rapid Automatized Naming

Rapid automatized naming (RAN) is a cognitive skill that supports reading achievement (e.g., Clark et al., 2005; Liberman et al., 1982). RAN was assessed in French with a digit naming task in which children were presented with a series of familiar digits and asked to name them as fast as possible. Raw scores represent the time in seconds it took the child to complete the task.

Working Memory

Working memory was assessed via a French task called the Outil de DÉpistage des DYSlexies (ODÉDYS: Jacquier-Roux, et al., 2002). The children were told to listen to sequences of digits and were asked to repeat them in the order in which they heard them. The task began with a sequence of two digits and gradually increased to a maximum of eight digits. The task consisted of 12 items in which each item was repeated twice. The task was discontinued when the child made two consecutive errors. The test also contained two practice items. The raw score represented the longest sequence of digits that was repeated correctly.

Reading Assessment

French reading achievement levels were determined based on performance on the Groupe Beauchemin (GB+) (Nelley & Smith, 2003), a measure of children's instructional reading level determined by the ability to accurately read words in text and to answer comprehension questions following the reading. The GB+ was administered by teachers to children at the end of Grade 1. All children began reading aloud a level 1 text as the teacher followed along marking each word as read correctly, incorrectly, or as self-corrected. The proportion of words read correctly relative to the total number of words in the text was calculated as a measure of reading. A score of 95-100% accurately read words indicated the text was too easy and the child was asked to read a text of the next highest level; a score of less than 90% accuracy indicated the text was too hard so the child was given an easier text. When children successfully read 90-94% of words in a given text, the teacher had them stop reading and asked them two to three retell questions followed by two to three factual questions and two to three inferential questions to gauge comprehension of the text. If the child responded correctly to all questions, the teacher repeated the steps with a more difficult text until an instructional reading level was established and if the child answered one of the questions incorrectly, the teacher repeated the steps with easier text until an instructional reading level was determined. Children who did not pass level 1 during testing time received a score of 0.

The Phonological Awareness Intervention¹

The phonological awareness intervention implemented at the FI school was developed by members of the school's PLC based on the principles of Tier II instruction (McKenzie, 2009). Tier II instruction entails small group instruction for students in need of support beyond the level provided by classroom instruction. Consistent with the RTI Tier II model, kindergarten students identified as at-risk were pulled-out of the classroom for daily periods of 15 minutes to receive intervention from November to January. The intervention ran from seven to ten weeks depending on the child's progress. All instruction was offered in English and followed the scope and sequence of Schuele and Boudreau's (2008) phonological awareness intervention. Trained facilitators provided the intervention in small groups of three to four students. In the initial phase of the intervention, students received rhyming instruction for three to four weeks. Each 15-minute session focused on explicit and systematic instruction and practice in rhyme awareness and rhyme expression. The facilitator would introduce a rhyme by repeating it orally and highlighting it in print (e.g.,

fish/wish). Once students mastered the concept of rhyming, they would move on to rhyme expression in subsequent sessions. The facilitator would guide students in making connections between words that do and do not rhyme by having them repeat the pairs of words out loud (e.g., yes = king/ring; no = horse/cow).

In the second phase, children were taught syllable awareness for one to two weeks. The initial sessions engaged students in counting and segmenting syllables (e.g., the child would say ta-ble for table while clapping out its two syllables). Once students had learned these concepts, they progressed to blending syllables (e.g., the child would blend the syllables spi- and -der to produce spider). In the final phase, lasting three to four weeks, students were taught initial sound awareness. The facilitator would identify and repeat the initial sounds in words before the student would repeat them out loud. The student would practice matching words with the same initial sounds and produce the initial sound in the words presented (e.g., the child was presented with three pictures, an apple, a doll, and a duck, and was asked to match the words with the same initial sound (i.e., doll and duck).

In the months of January and February, the children were reassessed on the phonological awareness skills they had focused on during the intervention. Students who continued to meet at-risk criteria (i.e., a score of less than 80% correct responses) received a second round of interventions that ran from March to May. The same protocols and timeline used in the first round were followed in the second round of intervention. Note that the children received the second intervention only on aspects of phonological awareness on which they continued to struggle. Should a child continue to meet the at-risk criterion at the end-of-year assessment that followed the second round of intervention, parents were contacted by the literacy and student services teachers. The teachers would inform them of their child's difficulties and provide them with literacy activities and strategies to support their child at home over the summer months.

Semi-Structured Qualitative Interviews

Five key members of the school's PLC (the speech-language pathologist, the literacy and student services teachers, the school psychologist, and the principal) took part in semi-structured individual interviews online via the Zoom platform with the first author. We used a qualitative strategy known as deductive analysis in which participants were asked predetermined open-ended questions about their roles as members of the team that developed and implemented the early phonological awareness screen and intervention (Bingham & Witkowsky, 2022) (e.g., What factors such as leadership, professional development, teacher support, principal support, have facilitated and/or hindered the implementation of the intervention?). An interview guide was created to ensure the interviewer followed a standard question-and-answer format. The interviews were transcribed verbatim by trained, undergraduate research assistants who did not participate in the interviewing process. Transcribed data were deductively identified meaning predetermined themes were used to summarize and consolidate the team members' perspectives. The summaries were shared with the interviewees to confirm the accuracy of our interpretation of their responses (Creswell & Gutterman, 2019). We followed the process of triangulation by involving multiple perspectives to enhance depth of understanding and verify our data (Creswell, 1998). Overall, the interviewees validated the accuracy of our findings. To showcase the authenticity of each participant, we chose to discuss each of their experiences separately. This analysis allowed us to highlight the

perspectives and experiences of the members in the PLC and the influence they had in developing and implementing the phonological awareness screening and intervention.

Results

Quantitative Analyses

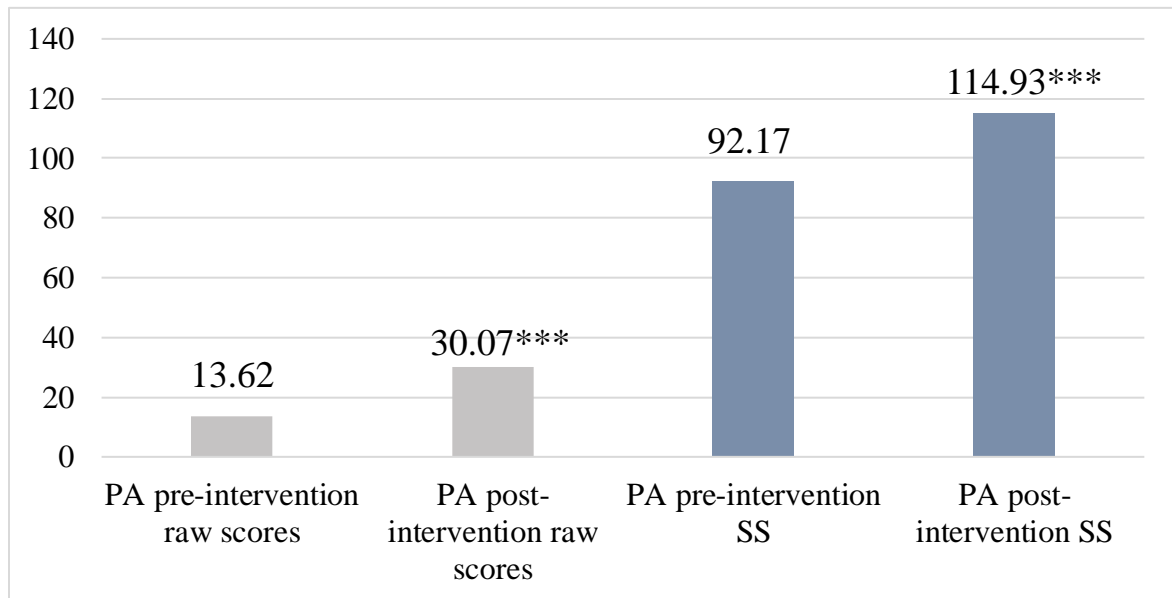
Table 1 presents descriptive statistics for the PAST-R (Kilpatrick, 2016) among children who participated in the phonological awareness intervention. We conducted mean comparison tests (*t*-tests) on raw and standard scores to examine the changes in phonological awareness scores in English between fall (pre-intervention) and spring (post-intervention) of kindergarten. Analysis of raw scores revealed that, overall, children experienced significant growth between pre- and post-intervention test times, $t(41) = 20.68$, $p < .000$. Additionally, analysis of standard scores revealed overall significant gains between pre- and post-intervention scores, attesting to growth in the sample population that is comparable to the normative sample, $t(41) = 20.57$, $p < .000$. Figure 1 illustrates the mean phonological awareness raw scores and standard scores pre- and post-intervention.

Table 1
Descriptive Statistics of the PAST-R

Time	Pre-intervention Scores				Post-intervention Scores			
	Mean	SD	Min	Max	Mean	SD	Min	Max
PA raw scores	13.62	3.62	3	19	30.07	6.67	14	39
PA SS	92.17	5.35	77	100	114.93	9.22	93	128

Note. Min = minimum; Max = maximum; PA = phonological awareness; *SD* = standard deviation; SS = standard scores.

Figure 1
Participants' Mean Scores for the PAST-R



Note. PA = phonological awareness; *** $p < .001$

Notably, four of the 42 children who received the intervention failed to meet the success criterion (i.e., performance at or above the 50th percentile) on the phonological assessment administered after two rounds of intervention. However, while they fell short of the cut-off for success, all four demonstrated marked improvement in phonological awareness between pre- and post-intervention. Specifically, student 1 moved up from the 17th to the 44th percentile rank, student 2 from the 14th to the 34th percentile rank, student 3 from the 17th to the 44th percentile rank, and student 4 from the 4th to the 35th percentile rank.

Table 2 displays the descriptive statistics for all variables administered in Grade 1. Pearson bivariate correlations among all measures are shown in Table 3. Notably, there was a moderate correlation between post-intervention phonological awareness and French reading ($r = .311, p < .05$).

Table 2

Descriptive Statistics of the Measures Administered in Grade 1

	Mean	SD	Min	Max
Working memory	3.22	0.65	2	5
RAN*	125.17	56.37	79	327
French reading	2.78	2.63	0	10

Note. * in seconds; Min = minimum; Max = maximum; SD = standard deviation.

Table 3

Correlations between Measures

	1	2	3	4
Working memory	-			
RAN	.247	-		
PA pre-intervention	.296	.117	-	
PA post-intervention	.300	.159	.640***	-
French reading	-.163	-.390*	.154	.311*

Note. PA = phonological awareness; * $p < .05$, *** $p < .001$

Next, a hierarchical linear regression analysis was performed to examine the role of kindergarten post-intervention phonological awareness on French reading in Grade 1 controlling first for Grade 1 working memory and RAN and kindergarten pre-intervention phonological awareness. As demonstrated in Table 4, working memory was entered in the first step, followed by RAN in the second step, and phonological awareness pre-intervention in the third step. Phonological awareness post-intervention was entered in the final step to examine its unique contribution to Grade 1 French reading after controlling for the variables that were entered in the earlier steps. The model revealed that phonological awareness post-intervention made a significant unique contribution to Grade 1 French reading, accounting for 10% of the variance.

Table 4*Hierarchical Linear Regression Predicting French Reading in Grade 1*

Step/Predictor	ΔR^2	ΔF	B
Working memory	.03	1.16	-.16
RAN	.13	5.37*	-.40*
PA pre-intervention	.02	.92	-.05
PA post-intervention	.10	4.69*	.39*

Note. PA = Phonological Awareness; * $p < .05$.

Qualitative Analyses

Following the quantitative analysis, we examined our qualitative evidence to better understand the roles of the lead team members of the PLC in developing and implementing the early phonological awareness screening and intervention. We summarize key findings arising from the interviews of the school's speech-language pathologist, literacy and student services teachers, school psychologist, and principal, each in turn.

The Speech Language Pathologist

The SLP was a key player in this school-based collaboration. In conversations with teachers, she was often told that children were struggling to acquire early literacy skills. This spurred her to learn as much as she could about phonological awareness and its relation to early reading achievement through professional development workshops and collaborations with colleagues. She was then invited by the school principal to host a full-day professional development workshop on the importance of Tier I (i.e., classroom-based) phonological awareness training for reading achievement for all teachers. The SLP viewed the professional development workshop as the launching point for the early identification and intervention program because it sparked interest among teachers to make the changes needed to achieve better learning outcomes for their students. In her interview with the researchers, she stated:

[The school principal] asked me to do a PD [professional development workshop] on phonological awareness for a half-day with his whole teaching staff. So that was kindergarten to Grade 6. I presented the session in French regarding all areas of phonological awareness with many examples using their classroom routines and curriculum... There were breakout/small group activities for the participants with hands-on phonological awareness activities. There was a lot of discussion, and [the teachers] were like, "wow", it was like, revelational for them.

In hindsight, the PD workshop sowed the seeds for systemic change and fostered the spirit of collective responsibility for student success that pervaded the school. The SLP credits the PLC's leadership team for its role in sustaining the momentum for change that followed the initial workshop. She stated:

I think it also really has to do with the school level staff, especially the school level support team, including the principal...if the principal's talking about the

importance of phonological awareness, if you're hearing it from your leader, then you know it's a priority...I don't think it would have happened or continued and grown as it has without the leadership of the principal... and equally the school team's motivation. Both created the momentum.

Importantly, the SLP indicated during the interview that she believed that the screening and intervention program provided critical support to FI students that previously had been unavailable and that they are key to addressing the problem of attrition in FI programs.

The impact of the SLP's work on phonological awareness education was felt beyond this particular FI school. When the school division made the decision to revamp their literacy curriculum, the SLP was asked to contribute a chapter on phonological awareness that included practical information on why, when, and how teachers should implement phonological awareness activities in the classroom.

The Literacy and Student Services Teachers

The literacy teacher and the student services teacher were essential to the formation of the PLC. It was they, in collaboration with the SLP, who began to exploit phonological awareness data that were routinely collected but underused by the school division. Seeing the value in supporting phonological awareness in kindergarten, the two sought out resources and began to conduct informal interventions with children struggling in kindergarten, working with them on a pull-out basis for a period of about one year. They were guided in their efforts by the SLP who worked with them on the content and sequencing of activities. These informal interventions led to positive learning outcomes for the children in this small-scale intervention. As the value of early identification and intervention became clear, fall screening was introduced and all kindergarten teachers were trained to incorporate phonological awareness skills training in French in the classroom. The literacy teacher and student services teacher took on the role of mentors to their colleagues, observing them as they taught in their classrooms and providing feedback to improve their practices. The partnership between specialist teachers and classroom teachers became a key feature of the school's PLC, according to both interviewees:

And, you know... [the teachers] gradually became more aware of the importance of [phonological awareness] and realized wow, this has to be part of my daily teaching. So, it was... yeah, it was definitely ongoing conversations and really creating a partnership with the kindergarten teachers as well for them too to feel like they could speak to us...whether they had questions, whether they wanted to share stuff they had done, you know, to kind of keep them going with that.

These teachers faced a few obstacles while trying to implement the RTI model. Initially, they felt that they lacked knowledge on aspects of phonological awareness and its relation to reading. Their efforts to learn were supported by members of the PLC lead team, most notably the school SLP. They eventually became sufficiently confident in their knowledge to train the school's kindergarten teachers. However, they found it difficult to work with colleagues who were reluctant to embrace change. Many teachers felt that kindergarten children were too young to participate in an intervention and that the intensity

of the sessions would elicit negative emotions. The student services teacher mentioned, "I'm okay having a kid crying a little bit [because] we will get through it. And this is the kid that's just having a great time coming with us later on." With time and support from their colleagues, teacher concerns abated, and they were brought on board with the program.

The School Psychologist

When the school psychologist joined the team, he assumed responsibility for all aspects of assessment, managing most of the data collection process and data analysis. The psychologist's expertise was instrumental in supporting efforts to refine screening procedures and intervention practices over time, ensuring that they were data-driven and evidence-based. His input in the project also encouraged a whole-child approach that involved monitoring overall student well-being, in addition to literacy skills. He paid special attention to qualitative data in the form of anecdotal notes from teachers and oral or written feedback from parents in addition to tracking quantitative data to assist the team in identifying students at-risk.

Like the SLP, the psychologist's effect on the early screening and intervention program was also felt at the school division level. Through his extensive professional network, he was able to encourage administrators and teachers from across school divisions to collaborate and share their knowledge of assessment. During the interview, the school psychologist stated that until the PLC was formed, he had little opportunity for consultation around programming and interventions. He recognized that through participation in the school's PLC, he had been allowed to contribute in a more impactful way to efforts aimed at reducing the number of at-risk students and creating more equitable classrooms. The school-based early intervention made him reflect on the importance of collaboration and communication as both were critical to the program's success. He stated:

...what was really interesting about what we're doing is that all the clinicians that I work with in that school also see the value in early intervention. And...as we started talking about this, [we] started really seeing the role that everyone could play early on...And it was really through these conversations that we all saw that we have a certain set of skills that all actually fit together...And that makes most sense, because we're all fighting the same problem...you know, figuring out early on where we can actually make a difference.

He, too, believes there are many obstacles to overcome when creating a school-based early intervention program. From his perspective, the main obstacle was a lack of dedicated time due to a full assessment caseload. Psychologists are assigned to many schools and, in his view, are rarely afforded the opportunity to foster growth in students who are at-risk. He felt that through participation in the school's PLC, he was able to rethink service delivery and to assume a broader role in supporting student needs. He sees this as a win for all those involved in supporting at-risk children. He stated:

What I think makes it positive for me, and this is from my perspective, it's allowed me to...collaborate with my clinical peers and teachers in a way that looks very different from what's traditionally done. It's allowing everyone to look at students

and to understand students and to gather so much more information at a much earlier time than we could ever imagine before...And it's easy to sell to a parent that your child's being supported by a whole clinical team, student services team, a teacher and administrator, like, that's awesome for them to hear, right?

The School Principal

The principal was vital in shaping the vision and mandate of the FI school's PLC and in developing and implementing the early identification and intervention protocols. He created a collegial climate based on trust and motivated school staff to want to make the changes needed to improve student outcomes. Inspired by the ideas of Hulley and Dier (2011) that related to effecting change in schools to improve literacy outcomes, he met with key members of his staff to begin sorting out details, such as their respective roles in the screening and intervention process, measurement tools, content of the intervention, and teacher training. The principal provided leadership, direction, and fostered collaboration within the school. He was instrumental in getting teacher and parent buy-in for the screening and intervention program, in program planning and establishing goals, as well as in creating a daily routine that incorporated Tier I and Tier II phonological awareness training in kindergarten.

The principal met often with key PLC members whose expertise he turned to for interpretation of test results, and the development and refinement of the early screening and interventions. He led by example, admitting his own gaps in knowledge, and seeking to address them. The principal participated actively in the assessment process, in teacher training, and in teaching or co-teaching phonological awareness strategies in kindergarten classrooms alongside his colleagues. On occasion, he filled in for teachers to free them up to participate in professional development activities. In this way, he developed trusting relationships with his staff and made clear that the program was a top priority. The principal stated:

If you're going to give advice to a school to get this to happen, though, I think it needs to focus a lot on the school leadership, to get engaged, to get involved, to get knowledgeable on the subject area. But to know that you're learning and show that you're learning alongside the staff, show your vulnerabilities, as you're asking them to show you.

In this way, the principal managed to foster a sense of collective responsibility for the success of every child, drawing on his staff's motivation and strengths to create change. Additionally, to foster a larger professional network, the principal recruited other principals within the school division to introduce early identification and phonological awareness training in their schools. In his current role as a divisional principal, he continues to advocate for universal screening and early intervention and feels this is by far the highlight of his career.

Discussion

The current study employed a longitudinal mixed-methods design to achieve two objectives. First, quantitative analyses sought to evaluate the effects of an early

phonological awareness screening and intervention program conducted in English on kindergarten English phonological awareness skills and Grade 1 French reading skills among children enrolled in a FI school. Secondly, qualitative analyses of data derived from structured interviews sought to illuminate the roles played by key members of the school's multidisciplinary professional learning community during the process of developing and implementing the literacy screening and intervention. In discussing our findings, we will first turn our attention to the quantitative results, then to the qualitative results.

With respect to our first research objective, we found that FI children identified as at-risk for reading difficulties on the basis of an English phonological awareness screening administered in the fall of kindergarten made significant gains in English phonological awareness assessed in spring of the same year following participation in the intervention. Notably, the children in our sample made significant gains on standard scores. This finding attests to the efficacy of the phonological awareness intervention program. The finding is an important one considering the critical role phonological awareness plays in the acquisition of skilled word reading among both monolingual and bilingual children (e.g., Bruck & Genesee, 1995). While speculative, we suggest that the success of the intervention may be attributed to the care taken to develop an intervention program whose scope and sequence was in line with research evidence, and which was delivered within a Tier II instructional setting. Further research comparing performance in the spring of kindergarten of a group of children who met the initial cut-off and did not receive the intervention is needed to clarify the effects of this early literacy initiative on the development of phonological awareness.

Our analyses further revealed that English phonological awareness assessed at post-intervention was found to make a positive contribution to French reading in the spring of Grade 1. Our results were consistent with findings of past early identification and intervention studies conducted in a FI setting which indicates that early screening and intervention are effective in supporting the development of French reading skills in later grades and that they can be conducted in English, the children's stronger language (e.g., Wise & Chen 2010, 2015). Furthermore, our study extends the current knowledge base related to the effects of early identification and intervention in FI programs as it is the first to evaluate the effects of a kindergarten intervention. Our finding that kindergarten post-intervention phonological awareness scores predicted French reading in Grade 1 makes a compelling argument for early screening and intervention; it is of particular importance considering evidence of a growing disparity in reading outcomes over time between children who struggle from an early age and their typically developing peers in FI (Genesee, 2007). Moreover, it suggests that the current practice of delaying identification of at-risk readers until Grade 2 or 3 is ill-founded (e.g., Wise & Chen, 2009). Indeed, research generally indicates more favourable learning outcomes over time following early identification and intervention (e.g., Lovett et al., 2017).

The finding that English phonological awareness supports the development of French reading skills is consistent with previous research suggesting that phonological awareness developed in the first language facilitates the development of early reading skills in a second language through the mechanism of cross-language transfer (e.g., Chung et al., 2018; Erdos et al., 2014; Marinova-Todd et al., 2010). From a practical perspective, early assessment of FI children's phonological awareness skills in English, their stronger language, offers important advantages. First, it favours identification of at-risk status well before children have developed sufficient proficiency in French to meet the language

demands of the test situation. As a result, assessment of skill is less likely to be underestimated. Moreover, assessment of children in their stronger language allows teachers to rule out the possibility that a student may be struggling because of limited language proficiency rather than a reading-related deficit per se. Once accurately identified, children are positioned to receive timely support, optimizing the chance that early reading acquisition will be positively impacted.

Overall, the quantitative results of this study suggest that kindergarten phonological awareness screening and intervention conducted in English, the children's stronger language, may offer a means to enhance reading skills for at-risk readers attending an early FI program. Compelling anecdotal evidence suggests that this may indeed be true in the case of the FI school; following the program's initiation, the school reported a significant decrease in the number of children placed in its Grade 2 remedial reading program despite growth in the student population.

With respect to our second research question, the interview data reveal how a multidisciplinary school-based PLC was created to develop and implement an early screening and intervention program for students at-risk for reading difficulty in a FI school. Consistent with a PLC, all members of the team – the clinical support staff, resource and classroom teachers, and the school administrator – embarked on a process of individual and collective learning to enhance their understanding of the role of phonological awareness in reading development. As a team, they engaged in a cycle of learning that involved analysis of student data, setting of instructional goals, professional development to assist in meeting those goals, implementation of evidence-based teaching practices, and ongoing monitoring of student progress to inform refinements in assessment and practice. Together, they reinvented classroom practice in a way that reflected their shared professional growth and fostered a collective sense of responsibility for student learning. Collaboration - within and across professional disciplines - was at the heart of the PLC's work. To this day, teaching strategies and the choice of assessment measures at the FI school continue to be refined based on student data, input from the PLC's research partners, and the school community's ongoing collaborative learning. The importance of this work cannot be overstated: through their efforts, equity may be achieved for all students.

A notable feature of the school's PLC was its integration of the parents of struggling readers in the learning process. When four of the children failed to meet success criteria on all aspects of phonological awareness following two rounds of kindergarten intervention, the resource and literacy teachers met with their parent(s) to inform them of their child's difficulties and discuss ways that they might become involved in supporting their child's literacy learning. The teachers shared their knowledge about the importance of phonological awareness to early reading achievement with parents. They provided handout activities to share with the parents to work with their children specifically on rhyming, syllable, and initial sounds, as well as practical suggestions to encourage them to incorporate phonological awareness activities in their home literacy practices. In this way, the home-school partnership extended the reach of the PLC through provision of skills and tools for parents that enabled them to assume a share of the collective responsibility for their child's success. Teachers reported some improvement after parents carried out the activities at home during the summer. However, the students were later assessed by a psychologist and received a clinical diagnosis, suggesting that Tier II intervention also serves as an effective means for early identification of children with learning disabilities.

Limitations and Conclusions

There are a few limitations in our measures and our sample size that we need to consider with respect to our research. First, the generalizability of our findings is limited by our use of a phonological awareness measure that was normed only for students in Manitoba. It would be ideal to include additional standardized measures that have been normed on a broader Canadian population. Additionally, we must recognize the tentative nature of our findings in the absence of a no-intervention control group. The absence of a control group is a consequence of a decision made by school personnel whereby children found to meet the established cut-off (50th percentile or above) on the fall phonological awareness screening measure were not re-tested in the spring. Without comparable data at both time points, we cannot say conclusively if gains in phonological awareness made by the intervention group were due to the intervention itself or to extraneous factors such as maturation or classroom instruction. Additionally, unlike previous research (see Furnes & Samuelsson, 2011; Powell & Atkinson, 2021), phonological awareness and RAN were not correlated in our data. Future studies should examine the correlations between these cognitive measures in FI populations.

Despite the limitations, the work of the FI school's PLC offers a model that may be implemented by other school teams to support exceptional learners in FI. In addition to enhancing equitable access to the program, a core principle of publicly funded education in Canada, the model offers a means of reducing attrition due to reading-related difficulties. Indeed, across the country, retention rates in FI are particularly low among children who struggle to learn to read (CPF, 2019). Early screening and intervention in phonological awareness are key to redressing this trend, since phonological awareness is critical to the acquisition of skills in word reading among bilingual children (e.g., Bruck & Genessee, 1995). Moreover, implementing equitable classroom practices in FI aimed at meeting the learning needs of diverse students is key to meeting the program's goal of promoting additive bilingualism, that is, the development of proficiency in oral and written skills in both French and English, for all Canadian children.

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Notes:

¹ To find out more information about the intervention and the school's PLC, please watch our podcasts, "Supporting Struggling Readers in French immersion" Episode One <https://youtu.be/h7LaK7enWcI> and Episode Two <https://youtu.be/PwAfG6ZQz8> .

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