

**BUILDING A SOLID FOUNDATION FOR READING:**

**An analysis of curriculum, policy, and instructional material documents**

by © Katherine Copeland (Thesis) submitted

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## Abstract

Scientific reading research (SSR) has demonstrated that all students should be taught foundational reading skills (phonological awareness and orthography) to become fluent word readers. Curriculum/policy documents and instructional materials should reflect scientific reading research. In this study, the following research question was examined: Are there differences in the extent to which the reading-related resources (curriculum/policy documents and instructional materials), provided to two different groups of teachers—classroom teachers and resource teachers in one Nova Scotia jurisdiction—reflect evidence from the scientific studies of reading? Content analysis was used to examine the extent to which the reading-related resources (curriculum/policy documents and instructional materials), provided to two different groups of teachers—classroom teachers and resource teachers in one Nova Scotia jurisdiction—reflect evidence from the scientific studies of reading. The content analysis used two approaches to investigate evidence of SSR in the curriculum/policy documents and instructional materials—analysis using an established SSR analytical framework, and keyword analysis of the content of the materials. This study found evidence of different messaging in the curriculum/policy documents and instructional materials for classroom teachers and resource teachers. The implications of the findings for collaborative practice are discussed.

**Keywords:** *scientific studies of reading (SSR), content analysis; fluent word reading, phonological awareness, orthography, curriculum documents, policy documents, instructional materials, teacher knowledge, teaching practice,*

## **General Summary**

Learning to reading is complex and can be difficult for many students. Academic research has demonstrated that all students benefit from being taught foundational reading skills. One important foundation for reading development is fluent word reading. Fluent word reading is dependent on foundational reading skills (phonological awareness and orthography). This study investigated the curriculum/policy documents and instructional materials that classroom and resource teachers use to teach reading in the Halifax Regional Centre for Education to see if the two groups of teachers were instructed to teach reading in similar ways. Teachers need to know what foundational skills of reading are and to be given teaching resources to effectively teach these skills to be effective teachers of reading. This study found that classroom teachers and resource teachers were given resources that encouraged different methods of reading instruction. These different methods influence the effectiveness of the reading instruction that students receive.

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## **Chapter 1: Introduction**

### **1.1 Overview**

Reading is an essential skill to function in a literate society, yet too many students find reading a challenge. The literature on early reading instruction points to the need for teaching methods that are based on scientific studies of reading (SSR) to ensure students develop fluent word reading skills. Word reading competence is contingent on strong knowledge of two underlying skills—phonological awareness and orthographic knowledge (Elhassan et al., 2017; Lonigan, 2005).

The body of research known as SSR strongly endorses the teaching of both phonological awareness and orthography (Lonigan, 2005; Wackerle-Hollman et al., 2015). Many struggling readers have less-developed phonological awareness (Bratsch-Hines, 2020; Høien et al., 1995; Lonigan, 2005); thus instruction is important to ensure all students develop this critical skill. Students also need explicit instruction in English orthography to become fluent word readers to recognize irregular and complex spelling patterns when reading (Elhassan et al., 2017). The teaching of these foundational skills, however, is not widely or thoroughly employed in the teaching practice of many teachers teaching reading (Joshi et al., Washburn et al., 2011). Teachers are often not taught how to implement SSR practices in their pre-service education (Joshi et al., 2009; Washburn et al., 2011). Instead, teachers are often taught to teach reading through balanced literacy or whole language teaching methods (Allington, 2013; Ontario Human Rights Commission, 2022; Pennell, 2020). Balanced literacy and whole language teaching methods do not teach these foundational skills explicitly and systematically (Moats, 2020b; Pennell, 2020).

Curriculum/policy documents and instructional materials also influence teachers (Kauffman et al., 2002). The instructional materials provided to teachers often are rooted in balanced literacy and not SSR (Lenski et al., 2016; Moats, 2020b). Instruction informed by SSR benefits all students and can prevent reading failure (Gresham & Vellutino, 2010; Petscher et al., 2020). Classroom teachers and special education teachers (also referred to as resource teachers), should be equally supported in the use of SSR methods via the curriculum/policy documents and instructional materials provided to them in the jurisdictions in which they work collaboratively to plan and teach reading to all students in their classrooms (Whitley & Hollweck, 2020).

## **1.2 The Problem**

Phonological awareness and orthographic knowledge are foundational to reading and when students receive explicit instruction in these skills, most students can learn to read (Moats, 2020). Whole language and balanced literacy have had a long history of influencing curriculum/policy documents and instructional materials (Lenski et al., 2016; Moats 2020b; Pennell, 2020; Seidenberg et al., 2020). This has influenced teacher beliefs and practices, and the extent to which SSR research is currently guiding effective practice varies across jurisdictions (Ball & Cohen, 1996; Dingle et al., 2011).

When teachers use less effective teaching methods, such as whole language or balanced literacy teaching methods, more students are at risk of reading failure as SSR teaching methods benefit all students while whole language or balanced literacy methods do not (McNamara et al., 2011; Moats 2020a; Pennell, 2020; Wackerle-Hollman et al., 2015). Early intervention rooted in SSR, can help to remediate these less-developed skills in children who are at-risk of reading failure (Bratsch-Hines et al., 2020; Wackerle-Hollman et al., 2015). Classroom teachers and resource teachers draw from common curriculum/policy documents to guide their practice, but

classroom teachers and resource teachers are also influenced from other documents used in their jurisdictions, such as additional literacy documents, inclusive education, and intervention models (Ball & Cohen, 1996; Dingle et al., 2011; Kauffman et al., 2002; Whitley & Hollweck, 2020). To effectively help at-risk readers, teachers need to know how to implement SSR teaching methods to reduce the risk of reading failure in children (Johnston, 2019).

The curriculum/policy documents also influence the instructional materials provided to teachers (Kauffman et al., 2002; Moats 2020b; Pennell, 2020). When teachers are unaware of effective teaching methods rooted in SSR, they may be influenced by less effective instructional materials (Bishop et al., 2020; Pennell, 2020). Special Education teachers, such as resource teachers, are often more familiar with SSR teaching methods than classroom teachers and provide reading intervention in small group or individual instruction (Brown Waesche et al., 2011; Gilbert et al., 2013; Nicholson & McIntosh, 2020). While resource teachers follow the curriculum of their jurisdictions, they can also make adaptations and use additional instructional materials to meet the specific challenges of their students to promote inclusive education and tiered intervention models (Dingle et al., 2011; Whitley & Hollweck, 2020).

Effective classroom instruction can also reduce the number students who are at-risk of reading failure (Moats, 2020a; Petscher et al., 2020). Classroom teachers and resource teachers are encouraged to work together to create inclusive learning environments that help all students learn effectively (Whitley & Hollweck, 2020). SSR informed teaching practices help all students, not just students at risk of reading failure (Ehri & Roberts, 2005; Høien et al., 1995; Joshi et al., 2009; Moats 2020a). It is therefore important to understand if these various documents are providing current guidance informed by SSR and if the messaging is consistent for the different groups of teachers.

When all teachers are educated in SSR teaching methods and provided instructional materials that align with SSR, they will be equipped to intervene when students have less developed skills in phonological awareness and orthographic knowledge.

### **1.3 The Purpose of the Study**

The purpose of this study is to examine the extent to which the reading-related resources (curriculum/policy documents and instructional materials), provided to two different groups of teachers—classroom teachers and resource teachers in one Nova Scotia jurisdiction—reflect evidence from the scientific studies of reading since such differences may have implications for teachers' knowledge, collaboration, and instructional practice.

## **Chapter 2: Literature Review**

To contextualize the present study, this literature review discusses the research on effective early reading instruction. Specifically, it focuses on the hallmark of early reading achievement—fluent word reading—as the base upon which higher-level reading achievement, namely reading comprehension, is possible (Adams, 2001; Henry, 2010; Moats, 2005, 2020a). Fluent word reading has two key underpinnings—phonological awareness and orthographic knowledge (Ehri & Roberts, 2005). Ehri and Roberts (2005) stated that students “require letter knowledge and phonemic awareness” (p. 115) to read fluently. Moats (2020a) explained that fluent word readers quickly identify words when reading. When students have less-developed phonological awareness and orthographic knowledge they are not fluent word readers because they are still learning the alphabetic code, which effects their comprehension (Adams, 2001; Henry, 2010; Moats, 2020a).

In this literature review, the importance of phonological awareness and orthography to fluent word reading is explained. Next, the research about effective reading instruction supported by SSR is considered. Then, the literature on teacher knowledge of effective reading instruction is discussed. The final section of the literature review considers the influences that policy documents and teaching materials can have on teacher instruction.

### **2.1 Foundations of Fluent Word Reading**

Phonological awareness and orthography are both foundational for the development of fluent word reading (Ehri & Roberts, 2005; Lonigan, 2005; Moats, 2020b; Petscher et al., 2020; Torgesen, 2000; Wackerle-Hollman et al., 2015). Phonological awareness and orthography are distinct but closely related (Ehri & Roberts, 2005; Torgesen, 2000). First, phonological awareness and its development and influence on reading are considered; then, orthographic development and its influence on reading are discussed.

## 2.2 Phonological Awareness

Learning to read is a very complex process. To become independent and competent readers, most students need explicit instruction in ways that support the development of phonological awareness (Moats, 2020b; Pennell, 2020) to develop word reading fluency. The construct of phonological awareness, its development trajectory, and the importance of effective instruction in phonological awareness to support the development of reading in students is discussed in the following section.

### 2.2.1 Definitions of Phonological Awareness

*Phonological awareness* is an overarching term representing several categories of phonological sensitivity, including phonemic awareness, syllables, rhyme, and letter identification (Ehri & Roberts, 2005). Torgesen and Mathes (1998) defined phonological awareness “as one’s sensitivity to, or explicit awareness of, the phonological structure of words in one’s language” (p. 2), beginning with rhyme and progressing to segmenting phonemes.

*Phonemic awareness*, defined as the “explicit understanding that words are composed of segments of sound smaller than a syllable, as well as knowledge, or awareness, of the distinctive features of individual phonemes” (Phillips & Torgesen, 2005, p. 102), assists students in decoding. *Phonemes* can be defined as “the smallest sounds in speech” (Ehri & Roberts, 2005) or “the smallest unit of sound in our language that makes a difference in a word’s meaning” (Torgesen & Mathes, 1998, p. 2). Ehri and Roberts (2005) defined *decoding* as the process of “sounding out letters and blending them to form recognizable spoken words” (p. 115).

Phonological awareness gives students the ability to match sounds with letters and to manipulate phonemes (Elhassan et al., 2017; Lonigan, 2005). The National Reading Panel (2000) defined *phonics* as the practice of teaching students “how letters are linked to sounds (phonemes) to form

letter-sound correspondences and spelling patterns” (p. 8) so that they can use this knowledge to decode new words and/or spell. When students make connections “between letters and phonemes” (Torgesen & Mathes, 1998, p. 3), they have an easier time learning how to read than students who have less-developed phonological awareness.

Phonological awareness is one foundational underpinning of reading development. When preschool and kindergarten students have well-developed phonological awareness, they “are likely to be more proficient readers” (Wackerle-Hollman et al., 2015, p. 495) by the time they are in Grade 3. SSR has shown that students who struggle to read often have weaknesses in phonological awareness (Lonigan, 2005; Lyon et al., 2003). These challenges in phonological awareness affect how quickly students can learn how to read by decoding unfamiliar words as well their ability to recognize the orthographic patterns in the spelling of English words.

### **2.2.2 Phonological Awareness Development in Children**

SSR research has provided a well-documented trajectory of the development of phonological awareness. There is consensus in the research that as students mature, they distinguish “smaller and smaller units of sound” (Lonigan, 2005, p. 83) until they can recognize, segment, and manipulate phonemes. Ehri (2002), as cited in Johnston (2019), defined the progression of phonological awareness from identifying and manipulating rhyme to later working with syllables and phonemes. Torgesen and Mathes (1998) provided a four-phase development model, whereby students begin to rhyme words at the beginning of kindergarten and then begin to “isolate and pronounce” (p. 6) the initial sounds in words by the end of kindergarten. During first grade, students begin to distinguish phonemes in greater depth and to “isolate and pronounce all the sounds in two-and three phoneme words” (p. 6) and later blend and isolate the sounds of words with four or five phonemes by the end of Grade 1. Torgesen and

Mathes concluded that students with reading disabilities need “more intensive, detailed, and explicit instruction” (p. 10) in phonemic awareness to become successful readers.

The importance of students learning to identify and manipulate phonemes is supported by Høien et al. (1995), who assessed six-year-old preschool students and reassessed these students when they were aged seven, after beginning school, on rhyme, syllables and blending, and the identification and counting of phonemes in words. The authors found that the assessments related to phonemes were the most effective in predicting the future reading outcomes of these children and in identifying children at risk for reading challenges. Phonological awareness is foundational for students, and those with less-developed phonological awareness are more likely to struggle with reading (McNamara et al., 2011; Torgesen & Mathes, 1998).

### **2.2.3 Struggling Readers and Phonological Awareness Development**

Among students with dyslexia/or reading disabilities, the need for explicit instruction in phonological awareness is essential. Tunmer and Greaney (2010) defined *dyslexia* as “persistent literacy learning difficulties, especially difficulties in word recognition, spelling, and phonological recoding, where phonological recoding is the ability to translate letters and letter patterns into phonological forms” (p. 231). Students with reading disabilities often have “a phonological core deficit” (Moats, 2020a, p. 24) that inhibits their ability to read successfully. Students with dyslexia struggle with reading fluency, decoding, spelling, and word reading, and these challenges are linked to phonological-awareness skills that are less developed compared to those of their peers (Gresham & Vellutino, 2010; Krafnick et al., 2011; Lonigan, 2005; Lyon et al., 2003). Explicit instruction in phonological awareness is foundational for all students, but critical for those with reading difficulties.



## 2.2.4 Reading Research Supports the Need for Effective Phonological Awareness

### Instruction

SSR has demonstrated that instruction in phonological awareness is foundational to fluent word reading. The gap between strong readers and weaker readers continues to grow as students get older (Denton, 2012; Lonigan, 2005; McNamara et al., 2011; Parkhill et al., 2013).

McNamara et al. (2011) explored the effectiveness of screening tools that assessed phonological awareness in kindergarten students. The screening tool assessed students' ability to identify phonemes, rhyme, and blend phonemes. They examined if assessments could identify at-risk students. Gresham and Vellutino (2010) defined *at-risk students* as those who are "at risk for long-term reading difficulties" (p. 200). McNamara et al. (2011) continued to monitor the progress of these students for four years after their initial assessments to determine the effectiveness of the screening tools for predicting which students would continue to struggle in reading in Grade 3. They found that as the at-risk students aged, "their word-level reading skills (Word Attack and Word Identification) decreased exponentially compared to their peers with average or strong phonological awareness" (p. 428). Research shows that without early intervention the gap grows.

Foorman et al. (1998) studied how at-risk first-grade students responded to intervention with an emphasis on teaching phonics and blending. These students were divided into four groups for the study: the direct code condition, the embedded code condition, the implicit code condition, and a group that did not receive any extra phonological-awareness instruction. Embedded methods are based on whole-language or balanced literacy approaches (Henry, 2010; Joshi et al., 2009). Henry (2010) stated that "whole-language instruction assumes that through exposure to good literature and opportunities to read and write, children will pick up the

alphabetic code” (p. 10) rather than through explicit and systematic instruction of the written code. SSR has documented that balanced literacy teaching methods often “neglect systematic decoding instruction or use it incidentally” (Joshi et al., 2009, p. 399) in favour of whole-language approaches. Foorman et al. (1998) found that children in the direct-code-instruction group were the most successful at sight-word reading and phonetic decoding at the end of the study and concluded that direct instruction in phonological awareness is more effective and culturally responsive than less direct methods. Torgesen et al. (1999), as cited in Torgesen (2000), conducted a similar study and found that students who received direct instruction in phonological awareness that emphasized decoding skills outperformed their peers, and these students became “the strongest readers” (p. 60) among the students studied. These studies demonstrate the benefit of direct instruction in phonological awareness for all students.

Torgesen (2000) noted that, while intervention that supports phonological development in children can help many struggling readers, some students will continue to struggle. Torgesen and Mathes (1998) stressed that students with more severe reading disabilities require additional literacy instruction outside of the classroom to focus more extensively on improving phonological awareness to help them learn to read.

## **2.3 Orthography**

In this section of the literature review orthography in reading research is defined, the phases of word-reading development and its relationship to orthographic development are outlined, and the characteristics of effective orthographic instruction are discussed.

### **2.3.1 Definitions of Orthography**

Explicit instruction in orthography is also foundational to reading. Johnston (2019) defined *orthography* as “sensitivity to the structure of the writing system and the conventions of

written language” (p. 341), which includes “spelling patterns, orthographic rules, morphology, and etymology” (p. 341). Students need to be taught both phonology and orthography to make the connections between sounds and their corresponding letters (Henry, 2010; Johnston, 2019). Moats (2020a) stated that the ability of students to quickly recall words is related to their “proficiency with phoneme awareness, letter-sound association, and recognition of patterns in print” (p. 300). When students begin to write they need to be able to draw upon what they know about letter-sound relationships and apply that knowledge to reading.

### **2.3.2 Orthographic Development in Children**

SSR research has yielded various models that outline the development of orthographic awareness in children. Henry (2010) defined orthography as “the writing (spelling) system of a language” (p. 312). *Orthographic knowledge* is the “knowledge of specific spellings and patterns in the spelling system” (Moats, 2020a). Children progress from pre-writing or pre-reading to understanding and using more complex orthography. Frith (1985), as cited in Elhassan et al., (2017) created a “three-phase model...the logographic phase, the alphabetic phase, and the orthographic phase” (p. 2) to describe how orthography develops in children. These three phases begin with recognizing some environmental print like “logos” (Elhassan et al., 2017, p. 2) and develop into an awareness of the alphabet and the relationship of letters to sounds to the final phase of applying this knowledge “to phonologically decode words” (p. 2) to reading and writing.

Ehri and Roberts (2005) expanded upon Frith’s model and divided the orthographic development in children into four stages of development instead of three. In the *pre-alphabetic* phase, children are not yet reading or identifying letters but can gather meaning from some print like the “golden arches” (p. 116) and make associations to understand that this symbol refers to

McDonalds. In the *partial-alphabetic* phase, children begin to apply their knowledge of learned sounds to reading. Students may use connections of initial and final letters, but medial sounds are ignored because students are not yet segmenting full words (Ehri & Roberts, 2005). Ehri (1995) stated that in the *alphabetic* stage, students apply their knowledge of letters and phonemes to “read sight words” (p. 120) and reading becomes faster because students are learning the written code. Decoding unknown words is less needed because children are beginning to store these words in their memory. They are also able to break apart words into their individual phonemes in this stage. For example, students can separate the word “cat” into its three distinctive phonemes. Ehri and Roberts (2005) also stated that, in this stage of students’ development, they begin to decode and can use their understanding of letter-sound relationships to “invent spellings” (p. 116). When students use invented spelling, they can demonstrate their ability to distinguish the phonemes they can hear in the words that they are attempting to spell. In the final *consolidated-alphabetic* phase, Ehri and Roberts (2005) stated that students adhere to a richer understanding of orthography and consider spelling patterns, prefixes, suffixes and other signals and independently apply that understanding to their reading and writing. Students need explicit instruction in orthography to progress through these stages to become fluent word readers (Henry, 2010).

### **2.3.3 Phonological Awareness and Orthography Development Are Connected**

The development of phonological awareness and orthography are related but distinct (Pennell, 2020; Petscher et al., 2020). Lyon et al. (2003) wrote that, when reading, people must “connect the letter strings (the orthography) to the corresponding units of speech (phonological constituents)” (p. 7). Students must understand phonemes and their relationship to letters or groups of letters. The development of phonology and orthography seem “to parallel” (Anthony

et al., 2002, p. 68) as students' "sensitivity" (p. 68) to phonemes and word structure develops. Students with well-developed phonological awareness retain letter knowledge faster (Lonigan, 2005) and, as a result, students make fewer guesses in spelling and reading as they master the code and its patterns.

Phonological awareness and orthography development are closely related, and instruction in both areas are foundational (Ehri & Roberts, 2005; Pennell, 2020; Torgesen, 2000). Hohn and Ehri (1983), as cited in Ehri and Roberts (2005), found that adding phonemic instruction to orthography was beneficial. Kindergarten students who were taught to segment words into phonemes. They found that when students used "counters displaying letters" (Ehri & Roberts, 2005, p. 120), they performed better than those that used counters without letters) to distinguish phonemes. At the start of the study, students were familiar with letter identification but not phoneme identification. This study illustrated the close connection that phonological awareness and orthography have and how both can be developed in relation to one another.

Cunningham and Stanovich (1998) also explored this phenomenon and found that orthography is not "entirely parasitic on the operation of phonological processes" (p. 240), but its development is closely related to phonological awareness. They completed various assessments of phonology and orthography and its effects on word recognition with first-grade students. Their findings suggested that, although these two components are closely connected and development in both areas contributes to more effective reading, students may be able to recognize some words independently of phonological awareness. The authors agreed, however, that phonology helps students develop a richer understanding of the complexity of the English language's orthography.

As Moats (2020a) noted, the National Reading Panel (2000) referenced “more than 50... studies verifying that explicitly teaching phonemes was a critical component of effective reading and spelling instruction” (p. 26). Vowels in the English language have complex spelling patterns and Moats (2020a) argued that students need to be taught how to identify and blend these sounds to become efficient readers and writers. Ehri and Roberts (2005) stated the phonological-awareness skills of blending and segmenting “words into phonemes” (p. 118) are the most critical for reading and writing.

While some students become aware of these patterns on their own, at-risk readers or those with reading disabilities have more difficulty making connections between phonological awareness and orthography (Lyon et al., 2003; Seidenberg et al., 2020) because of weaknesses in phonemic awareness (Tunmer & Greaney, 2010). These challenges are magnified when students have had less exposure to foundational reading skills before starting school and in the early school years (Lyon et al., 2003; Tunmer & Greaney, 2010). When classroom teachers do not “teach the missing skills, reading failure typically occurs” (Lyon et al., 2003, p. 8). All students benefit from explicit instruction in orthography.

### **2.3.4 Orthographic Knowledge and Its Relations to Fluent Word Reading**

Students benefit from explicit instruction in orthography to truly grasp the complexity of the English language (Pennell, 2020). Johnston (2019) argued that students should be introduced to simple letter sounds and letter clusters before learning more complex spelling patterns. Students who can identify some letters in preschool acquire phonological awareness quicker than their peers who are not yet able to identify the names of letters. Moats (2005) suggested that spelling instruction can be as little as “15–20 minutes” (p. 22) a day, or “30 minutes three times per week” (Moats, 2005, p. 22) to provide students with the information they need to make the

connections between spelling patterns. When students are familiar with how the English language is structured, Moats (2005) stated that English spelling is “84 percent ... predictable” (p. 14).

Students must be taught irregular spelling patterns and letter combinations to assist them with reading and writing (Wyse & Goswami, 2008). As these connections become more and more automatic, reading, and writing fluency improve. Meyer and Felton (1999), as cited in Phillips and Torgesen (2005), stated that when readers read text “rapidly, smoothly, effortlessly, and automatically with little conscious attention to the mechanics of reading such as decoding” (p. 104–105), they are fluent readers.

Fluent readers shift from decoding to attending to the orthographic structure of words. A strong foundation in phonological awareness helps students make connections between letters and sounds in text (Chateau & Jared, 2000; Schwartz & Sparks, 2019; Torgesen, 2000). This system of making connections between letters and sounds and spelling patterns can be referred to as “orthographic mapping” (Schwartz & Sparks, 2019, p. 11). Tunmer and Greaney (2010) stated that in terms of reading and spelling development, students must be competent in “making use of letter-sound relationships to identify unfamiliar words” (p. 234) instead of guessing them. Ehri and Roberts (2005) emphasized the purpose of instructing students “to analyze phonemes” (p. 118) so that they can then apply this knowledge independently to decoding and spelling.

Inventive spelling can be foundational as students learn the relationship that sounds have to letters, and it encourages students to write (Adams, 2001; Adams & Bruck, 1993; Richgels, 2001; Ehri & Roberts, 2005). Inventive spelling is meant to be used alongside spelling instruction so that standard spelling will become the norm (Adams, 2001; Richgels, 2001). Moats (2020a) explained that it is appropriate for students in kindergarten and first grade to use

invented spelling, but students need “direct instruction in the alphabetic code” (p. 12) to learn conventional spelling and move beyond invented spelling. Explicit and systematic instruction of orthography and phonological awareness is critical and foundational to reading and spelling development (Adams, 2001; Adams & Bruck, 1993; Ehri & Roberts, 2005; Moats, 2020a).

### **2.3.5 Effective Instruction in Orthography Supports All Students**

Explicit instruction in orthography benefits all students, but it is essential for students with reading disabilities (Johnston, 2019). Adams and Bruck (1993) noted that as many as 7%–15% of students struggle with a reading disability that impacts their ability to read and write. Empirical research has suggested that this is due to challenges in “phonological aspects of word recognition” (p. 127) and that these challenges “[inhibit] the rapid flow of information back to the orthographic professor” (Adams & Bruck, 1993, p. 128), which negatively impacts their recognition of orthography. Students with reading disabilities require more explicit instruction in phonological awareness and orthography to help them make the connections and to solidify their learning.

Elbro and Jensen (2005) compared the reading behaviours of young children with older adolescent children with dyslexia to explore how phonological awareness, phonemic awareness, and oral language development of new words is developed in readers. The dyslexia students in this study attended “special schools for dyslexics” (p. 378) while the control group comprised second-grade students who were reading close to grade-level outcomes. A battery of tests was administered to each student twice. The results revealed that students with dyslexia had deficits in phonological awareness and had more difficulty learning “the alphabetic principle” (Elbro & Jensen, 2005, p. 379). This made it difficult for these students to learn new words, which Elbro and Jensen stated was consistent with other research findings. This study supports the argument



that students with reading disabilities often need to be explicitly taught phonological awareness and orthography to become better readers.

Research on early intervention points to the need for methods that incorporate instruction in phonological awareness and orthography. Lonigan et al. (2013) researched reading interventions for at-risk preschool children and found that a reading intervention that combined phonics and letter knowledge could be more effective than teaching children in either method exclusively. Students that participated in this intervention received additional daily small-group instruction for 10–20 minutes a day and performed better than those students who only received classroom instruction. Lonigan et al. stressed the need for additional research to evaluate the long-term effectiveness of this model of intervention. SSR has consistently shown the benefits of integrating instruction in phonological awareness and orthography with students learning to read.

## **2.4 Reading Failure**

Reading failure in students can be explained by several factors. Students need to be taught foundational reading skills to become fluent word readers (Ehri & Roberts, 2005; Moats, 2020b; Torgesen, 2000). Students who are at risk of developing a reading disability need adequate early intervention that is focused on developing less-developed foundational reading skills to help prevent long-term reading difficulties (Clark, 2016; Denton, 2012). In this section, the literature on reading failure is reviewed, first for the United States and then for Canada. Then, the literature on preventing reading failure in students is reviewed.

The literature has shown that many students in the United States struggle to read at grade level. The National Assessment of Educational Progress (2017), as cited in Hendricks and Fuchs (2020), found that 32% of students in Grade 4 were failing to read at a “Basic level” (p. 428). Among students with reading disabilities, the prevalence of reading failure was much higher.

The National Assessment of Educational Progress, as cited in Hendricks and Fuchs (2020) found that as many as 68% of students with reading disabilities were not reading at a basic level of reading by Grade 4.

The Department of Education and Early Childhood Development (DEECD) in Nova Scotia, reported in the 2021-2022 Grade 3 provincial assessment results, that 68% of students were reading at grade level, although the scores for writing were significantly lower (DEECD, n.d.-1). During the provincial assessments, students answer comprehension questions based on a variety of texts that they read that align with the provincial reading curriculum. Students who completed the Grade 6, Grade 8, and Grade 10 assessments performed slightly better in both reading and writing on recent assessments (DEECD, n.d.-2; DEECD, n.d.-3; DEECD, n.d.-4). These assessments do not clearly define what reading at grade level entails, so it is difficult to determine if 68% of Grade 3 students are highly successful readers or if they meet a minimum level of competency as determined by the Nova Scotia department of Education and Early Childhood Development. Metsala (2022), as cited in Rankin (2022), argued that, like those in other provinces in Canada, children in Nova Scotia have not been taught foundational skills for reading consistent with SSR. While the 2018 Programme for International Student Assessment ranks Nova Scotia English-language schools “similarly to the Canadian average” (Whitley & Hollweck, 2020, p. 300), they also noted that, on provincial assessments, students who self-identify as of Mi’kmaq or Indigenous ancestry or of African ancestry had lower scores than their “non-identified peers” (p. 300) in all assessment areas, demonstrating that reading instruction is not effectively reaching all students. The Ontario Human Rights Commission’s (2022) *Right to Read Inquiry Report* found that most teachers in Ontario are not teaching reading based on SSR research. This inquiry report about Ontario bears investigation in Nova Scotia.

Since the 1970s, researchers have investigated the causes of reading failure and have sought various ways to remediate these challenges. As cited in Lonigan et al. (2013), the National Assessment of Educational Progress (2010, 2011) reported that it was more common for students of colour, students from lower socio-economic backgrounds, and English-language learners to “[score] below the basic level in reading” (p. 112). Successful and inclusive reading in students depends on educators both understanding SSR research and incorporating that knowledge into their teaching practice. Students need explicit instruction in phonological awareness and orthography to make classroom instruction more effective (Petscher et al., 2020).

In this literature review on the foundations of fluent word reading, it is clear that explicit instruction in phonological awareness and orthography is beneficial to all students and that teachers should be teaching students these foundational skills. The literature demonstrates that teachers are not being adequately prepared to develop these skills in students and are instead providing less effective reading instruction. Since the 1970s, SSR has demonstrated the need for phonological awareness and orthography to be developed in students to help them become successful readers, yet these research-based methods are not consistently being used in the classroom to teach children how to read (Ehri & Roberts, 2005; Høien et al., 1995; Joshi et al., 2009; Nicholson & McIntosh, 2020). There is a disconnect between what the literature explains is necessary for the development of reading in students and what is being taught to students.

## **2.5 Teacher Knowledge of the Science of Teaching Reading**

Students need effective classroom instruction that is based on SSR (Petscher et al., 2020). This section on teacher knowledge describes what the SSR literature says about teachers’ knowledge about teaching reading. The literature explains that many teachers are not adequately equipped to teach reading, they have gaps in their own learning and understanding of

phonological awareness and orthography and there is a need for teachers to be better informed about the science of teaching reading (SOTR). SOTR supports the findings of SSR.

### **2.5.1 Many Teachers Are Not Prepared to Teach Reading Effectively**

The literature shows that many teachers are inadequately prepared to teach reading (Clark, 2016; Joshi et al., 2009; Washburn et al., 2011). SOTR practices for reading instruction such as explicit instruction in phonological awareness and orthography have been ignored or undermined in favour of balanced literacy or whole-language reading-instruction methods (Joshi et al., 2009). Teachers are often not taught SOTR practices in their pre-service education, and many educators who instruct new teachers lack sufficient knowledge in SSR (Joshi et al., 2009; Washburn et al., 2011). Joshi et al. (2009) investigated the methods of reading instruction taught by 40 pre-service instructors and found that 75% taught pre-service teachers balanced literacy methods and 25% whole-language methods. Teachers need to understand what SSR research says about reading development in children. Educators need to know how to apply SSR research to their practice. Often teachers have not been introduced to SOTR reading instruction in their training or professional development.

SSR has demonstrated that teachers have not been adequately prepared to teach reading. The National Reading Panel (2000) noted that there is a gap in the literature on reading with regard to the topic of teacher education. The limited studies that the National Reading Panel reviewed on teacher education were often short-sighted and failed to show how teacher education supported teacher practice over time. The conclusion was that more research was needed in teacher professional development and practice. More than 20 years after the National Reading Panel report was released, many teachers are still not taught evidence-based approaches for teaching reading. The Ontario Human Rights Commission (2022) released the *Right to Read*

*Inquiry Report* noting that many pre-service and in-service teachers are still not taught evidence-based approaches, neither in their initial teaching-certification courses nor in their additional reading-qualification courses, to teach students foundational reading skills.

There is a sharp disconnect between the evidence provided through SSR and current instructional practice (Seidenberg et al., 2020). Shaywitz (2005), as cited in Johnston (2019), claimed that researchers have known ways to help students with dyslexia using SSR, but pre-service teaching institutions have failed to share this research in their pre-service education programs. As a result, teachers are entering the profession lacking the skills or knowledge required to work with students with reading disabilities/dyslexia (Clark, 2016). Johnston (2019) cited several research studies that demonstrated that teachers, both those in the field and entering the field, inaccurately defined dyslexia as a disorder where students “see letters, words, and numbers backward” (p. 340) and not as a reading disability that is impacted by challenges with phonological awareness.

Teachers are misinformed about how to recognize and program for these students in their classrooms. Shaywitz et al. (2007) and Turkeltaub et al. (2003), as cited in Johnston (2019), demonstrated that when teachers incorporate multi-sensory approaches in their literacy instruction, they can more effectively teach literacy to their students, including those with dyslexia or reading disabilities. Multi-sensory instruction helps students with reading disabilities make the connections between phonology, orthography, syntax, and morphology (Johnston, 2019; Moats, 2020a). When students use fingers to tap sounds “or finger [spell] each sound heard” (Johnston, 2019, p. 341), it can help strengthen their ability to work with phonemes. Teachers can teach reading more effectively when they are aware of effective instructional strategies.

### **2.5.2 Teachers' Under-Developed Phonological Awareness and Orthographic Knowledge**

Teachers cannot effectively teach phonological awareness and orthography when they struggle in these areas themselves. Ramsey (1962) noted that teachers cannot effectively teach phonics if they themselves struggle with understanding the orthographic structure of words and argued that “teachers need to achieve a high level of mastery over such skills *before* they begin their teaching skills” (p. 241). Yet, as will be demonstrated in this literature review, scholars have criticized pre-service education programs for failing to teach new teachers how to teach reading. Ramsey (1962) conducted a study with pre-service teachers enrolled in five different pre-service teaching programs and found that, while these pre-service teachers confidently identified consonant sounds, they struggled with vowels, concluding that “professional courses in reading methods” (p. 244) would benefit aspiring teachers to learn these more complicated sounds and how to pronounce them so that they could in turn effectively teach students how to learn these sounds and apply them to reading.

Decades later, research still suggests that teachers are entering the profession lacking strong phonological skills, and students are struggling to break the code to learn to read. Moats (1995), as cited in Nicholson and McIntosh (2020), assessed language skills in teachers and noted that teachers had “gaps in phonological and morphological awareness and phonics knowledge” (p. 287). Carroll (2006), as cited in Nicholson and McIntosh (2020), compared the phonological knowledge of teachers and other education professionals. The average score among educational professionals was “72%” (p. 288) while a score of “95% correct” (p. 288) was the intended passing score. Carroll (2006), cited in Nicholson and McIntosh (2020), conducted a similar study among specialist educators like speech-language professionals a few years later and found that they scored significantly higher with scores “at 98%” (p. 288). The National Council

for Teacher Quality (2006), cited in Washburn et al., (2011), compared the syllabi of 72 university teaching programs in reading instruction and found that only “11 (15%) were found to contain content aligned with the findings of current scientific reading research” (p. 24). Clearly, more work is required to prepare teachers for reading instruction.

Teachers not only struggle to apply phonological skills, but some teachers are also unaware that they have gaps in their learning (Washburn et al., 2011). Washburn et al. (2011) investigated pre-service teachers and their perception of their ability to teach reading. Teachers were asked to rate how well they thought they could teach reading in the following four domains: teaching reading to typically developing readers, teaching reading to struggling readers, teaching phonemic awareness, and teaching phonics and teaching vocabulary. Teachers consistently “perceived their teaching ability to be greater than their actual ability” (Washburn et al., 2011, p. 35). These authors cited other research studies (Bos et al., 1999; McCutchen & Berninger, 1999; McCutchen et al., 2009) that demonstrated that when teachers were instructed in how to teach reading, they could improve and become better teachers of reading for all students, including those with reading disabilities.

Teachers are not always aware of their own limitations in their understanding of phonological skills (Nicholson & McIntosh, 2020). Carson and Bayetto (2018) as cited in Nicholson and McIntosh (2020), found that “80% of teachers” (p. 288) believed that their phonological-awareness skills were well developed and believed that they were effectively educating their students in developing their phonological skills. Nicholson and McIntosh (2020) researched international-student pre-service teachers training to be English-as-an-additional-language teachers and found that “only 45% of students could identify that ... ‘sun’ had three phonemes” (p. 293) and “35.3% did not score any items correctly” (p. 293) on the assessment.

Nicholson and McIntosh (2020) proposed that teachers need more training in how to teach students phonological awareness.

### **2.5.3 Teachers Are Using Less-Effective Teaching Methods**

Teachers are teaching what they have been taught, which is often a methodology rooted in the whole-language movement or in balanced literacy (Allington, 2013; Bingham & Hall-Kenyon, 2013; Joshi et al., 2009; Ontario Human Rights Commission, 2022; Pennell, 2020; Washburn et al., 2011). In whole-language or balanced-literacy instruction, students are not taught phonological awareness or orthography systematically or explicitly (Adams & Bruck, 1993; Clay, 2016; Fisher et al., 2023; Pennell, 2020). Students are encouraged to self-monitor and use “word-solving” (Clay, 2016, p. 155) to solve an unfamiliar word by searching for context cues to guess the word (McNaughton, 2014). Henry (2010) suggested that this process of guessing words based on context cues is the practice of “poor readers” (p. 10) not strong readers.

Proficient readers are readers who consider the “phonological, orthographic and morphological aspects of words” (Henry, 2010, p. 7) when reading and writing. Adams and Bruck (1993) suggested that when teachers only teach from whole-language perspectives, they may contribute to the increase in at-risk readers because “attention to the code” (p. 131) is overlooked. Effective teaching practices that are based on SSR can help to reduce the number of students who are identified with a reading disability and provide all students with foundational reading skills (Denton, 2012; Gresham & Vellutino, 2010; Moreau, 2014; Petscher et al., 2020).

### **2.5.4 Reading Intervention and Scientific Studies of Reading**

Early intervention can prevent reading failure (Gresham & Vellutino, 2010). Moreau (2014) and Wackerle-Hollman et al., (2015) stressed the importance of establishing a strong foundation in phonological skills in students. When teachers are working with at-risk readers,



they should take the time to develop these skills with students “prior to reading instruction” (Mercer et al., 2011, p. 265) because, if these skills are not developed, reading-intervention programs can be less effective. Slavin et al. (2011) also stressed the importance of classroom teachers continuing with high-quality instruction in phonological awareness after students have received reading intervention to help them maintain the gains that they have made.

*Response to intervention* (RTI) can be defined as “a prevention and remediation framework designed to provide universal screening, ongoing progress monitoring and/or curriculum-based measurements with research-based classroom-based instruction (Tier 1), and increasingly layering of more intensive interventions to meet students’ instructional or behavioural needs” (Vaughn & Fletcher, 2012, p. 244). RTI hinges on teachers identifying at-risk students and the collaboration of classroom teachers and resource teachers to provide evidence-based reading instruction (Denton, 2012). Both teachers need to be knowledgeable in SOTR to improve reading instruction for all students, including those that find reading challenging (Moats, 2020a). Kamps et al. (2008) noted that to provide this instruction teachers require adequate “professional development and sufficient resources” (p. 111). Teachers need both the professional knowledge of SSR methods and the instructional materials to teach reading effectively.

## **2.6 Instruction-Related Influences on Teacher Knowledge and Practice**

SSR research has demonstrated that most students can learn to read before the end of Grade 1 (Kamps et al., 2008; Moats, 2020a), but teachers are often provided with instructional materials that are not based on SSR (Lenski et al., 2016; Moats, 2020b; Seidenberg et al., 2020). Moats (2020b) argued that many teacher resources “omit systematic teaching about speech sounds, the spelling system, or how to read words by sounding them out” (p. 13). Pennell (2020)

argued that when teachers are familiar with the SOTR they can evaluate instructional materials and choose “high-quality instructional resources” (p. 22). Special Education teachers, including resource teachers, provide Tier 2 and Tier 3 support to struggling readers in small groups or individualized settings and are often more familiar with implementation interventions that are based on SSR (Brown Waesche et al., 2011; Gilbert et al., 2013; Nicholson & McIntosh, 2020; Vaughn & Fletcher, 2012). Teaching resources aligned with the SOTR can influence teachers to implement teaching methods that are supported by SSR. Teachers need to understand why SSR research is important and necessary to support students in reading.

### **2.6.1 Curriculum/Policy Documents**

Teachers are influenced by the curriculum/policy documents and instructional materials that they are given (Kauffman et al., 2002). Kauffman et al. (2002) stated that curriculum “influences” (p. 275) teachers in determining what is important to teach their students and influences how they teach, defining *curriculum* “as what and how teachers are expected to teach” (p. 274). These authors investigated the role of curriculum (availability of policy documents and teaching materials to guide new teachers) and how these resources influenced new teachers in Massachusetts. They found that many of the teachers in their study were given little direction on “what to teach or how to teach it” (p. 278). Instead, these teachers were often left to develop their own teaching materials to meet the curriculum objectives of their school district, causing additional stress for new teachers. Some teachers reported that they desired more structure and support in knowing how to teach. Teachers in the study were reported to work “in isolation” (p. 279) without the necessary materials to implement effective instruction. They also reported that the new teachers in their study who were provided with a more structured curriculum that supported policy directives appreciated having materials that informed them of what to teach and

how to implement the policy directives of their school districts. SSR has demonstrated that curriculum/policy documents and instructional materials based on SOTR will best inform reading instruction; therefore, teachers need both types of resources to be rooted in SSR.

### **2.6.2 Policy Documents Influence the Choice of Instructional Materials Given to Teachers**

Policy directives influence which instructional materials are purchased for teachers (Moats, 2020b). In Nova Scotia, curriculum documents have been based on balanced literacy. Teachers in the Halifax Regional Centre for Education (HRCE) have also been provided with policy documents from the province of Nova Scotia as well as regional centre-specific documents from the HRCE (DEECD, 2019a; DEECD, 2019b; DEECD, 2019c; DEECD, 2019d; DEECD, 2019e; DEECD 2020, DEECD, 2021). These documents are focused on inclusive education and balanced literacy. Recent literacy documents have had a greater emphasis on phonological awareness and orthography in reading instruction. These initiatives have influenced the instructional materials given to teachers to use to teach reading (Kauffman et al., 2002).

### **2.6.3 Instructional Materials Influence Teachers**

Teachers, especially new teachers, often use the instructional materials that they are given to help them teach (Moats, 2020b). These instructional materials may or may not be based on SSR and may not inform teachers of evidence-based reading instruction. When teachers lack sufficient resources, they try to fill in the gaps as best they can, but when teachers are unaware of SOTR they may choose less effective teaching materials to supplement their instruction (Bishop et al., 2010; Fisher et al., 2023; Kauffman et al., 2002). Teachers need to be provided with instructional resources that are rooted in SSR.

Bishop et al. (2010) studied new special education teachers and found that many of the teachers in their study “struggled to find materials” (p. 82) to teach reading. Most not feel

confident in teaching reading and found a more structured curriculum, combined with teaching resources and professional development, to be “invaluable support” (Bishop et al., 2010, p. 85) to help guide their practice. Dingle et al., (2011) stated that classroom teachers need time to learn new teaching methods through professional development.

The influence of instructional materials is only as effective as the instructional materials themselves. When instructional materials are not rooted in SSR, they are not effective in informing teachers of the SOTR practices (Moats, 2020b; Pennell, 2020). Teachers use what they are given. When teachers are unaware of SOTR, they are more likely to accept that balanced literacy teaching methods are effective (Ontario Human Rights Commission, 2022). Teachers need to be instructed in SOTR in pre-service education programs and ongoing professional development. Teachers need the knowledge of SOTR teaching methods to improve their reading-instruction practices, and they need to be provided with resources to implement SOTR (Ball & Cohen, 1996; Dingle et al., 2011; Moats, 2020b).

## **2.7 Conclusion**

As illustrated in this literature review, despite decades of reading research that has supported the need for phonological awareness and orthography development for children to become fluent word readers, teachers often do not know how to implement SOTR methods in their classroom instruction. Classroom teachers and specialist reading teachers, such as resource teachers, need to be trained in SOTR methods to improve their teaching ability to collaborate for effective practice so that all students become fluent readers (Moats, 2020b).

Teachers are influenced by the curriculum/policy documents of their jurisdictions and the teacher resources they have in their schools. Research has demonstrated that, when

curriculum/policy directives and instructional materials are influenced by SSR, teachers are more prepared to effectively teach reading.

Since curriculum/policy documents and instructional materials are two influences on teachers' practice, in this study the curriculum/policy documents and instructional materials provided to two different groups of teachers—classroom teachers and resource teachers—in one Nova Scotia jurisdiction are examined.

This study examined the following research question: Are there differences in the extent to which the reading-related resources (curriculum/policy documents and instructional materials), provided to two different groups of teachers—classroom teachers and resource teachers in one Nova Scotia jurisdiction—reflect evidence from the scientific studies of reading? In the next chapter, the methodology used in this study is discussed.

## Chapter 3: Methodology

### 3.1 Introduction

As was discussed in the previous chapter, curriculum/policy documents and instructional materials provided to teachers may influence their beliefs and practices (Ball & Cohen, 1996; Lenski et al., 2016; Moats, 2020b). The purpose of this study was to examine the extent to which the reading-related resources (curriculum/policy documents and instructional materials), provided to two different groups of teachers—classroom teachers and resource teachers in one Nova Scotia jurisdiction—reflect evidence from the scientific studies of reading.

In this study, the following research question is examined: Are there differences in the extent to which the reading-related resources (curriculum/policy documents and instructional materials), provided to two different groups of teachers—classroom teachers and resource teachers in one Nova Scotia jurisdiction—reflect evidence from the scientific studies of reading? In this chapter, the methodology used to examine the extent to which the reading-related resources (curriculum/policy documents and instructional materials), provided to two different groups of teachers—classroom teachers and resource teachers in one Nova Scotia jurisdiction—reflect evidence from the scientific studies of reading is discussed.

Research has supported the view that most students can learn to read before the end of Grade 1 (Kamps et al., 2008; Moats, 2020b). When teachers are not teaching scientifically researched reading practices, fewer students learn to read. Teachers have often been taught less-effective teaching methods in their pre-service education that support balanced literacy or whole-language reading practices (Allington, 2013; Joshi et al., 2009; Pennell, 2020; Washburn et al., 2011). These methods do not include systematic and explicit instruction in phonological awareness and orthography to develop fluent word reading (Pennell, 2020).

In addition to teacher knowledge, a challenge to effective reading instruction is the instructional materials that teachers use (Kamps et al., 2008, p. 101). Foorman et al. (2017) argued that the “importance of instructional materials” (p. 1) and their influence on teaching practice has not been well researched. Pennell (2020) argued that when teachers are familiar with effective reading instructional practices based on science, they can evaluate instructional materials and choose “high-quality instructional resources” (p. 22). When teachers lack the professional knowledge to teach reading, they can become “dependent” (p. 13) on the instructional materials in their schools, often provided by their school districts, to inform and guide their practice. These materials can influence teacher practice (Ball & Cohen, 1996). Teachers are expected to follow their district’s curriculum and to use the instructional materials that have been provided to them (Ball & Cohen, 1996; Dingle et al., 2011).

Special education teachers, including resource teachers, provide Tier 2 and Tier 3 support to struggling readers in small groups or in individualized settings and are often more familiar with implementing interventions that are based on SSR (Brown Waesche et al., 2011; Gilbert et al., 2013; Nicholson & McIntosh, 2020; Vaughn & Fletcher, 2012). Resource teachers are expected to follow the curriculum, but they are also expected to make adaptations to teach students skills that are less developed (Dingle et al., 2011).

In the HRCE, classroom teachers and resource teachers have been given a variety of materials that can influence teaching practice. The language arts curriculum documents were based on balanced literacy (DEECD, 2019a; DEECD, 2019b; DEECD, 2019c). While classroom teachers and resource teachers could refer to the same curriculum/policy documents, the two groups may have been more heavily influenced by different policy documents. For example, the language arts documents typically influence the instructional materials that are provided to

classroom teachers. While resource teachers referred to language arts curriculum documents to inform their instruction, the influence of policy documents related to inclusive education and intervention may have had a greater influence as they attempted to follow the tiered-intervention model. The revised role of resource teachers then encouraged them to share their expertise and to invest more in Tier 1 intervention in the classroom, supporting the classroom teacher in favour of more inclusive learning environments (DEECD, 2019d; DEECD, 2019e). In this chapter, the rationale for content analysis of the curriculum/policy documents, and instructional materials used by classroom teachers and resource teachers is discussed first. Next, the rationale for the methodology used is discussed. Then, a section discussing the reliability of the measures used in this study is followed by a brief conclusion.

### **3.2 The Rationale for Content Analysis**

In this study, content analysis was used to examine the extent to which the reading-related resources (curriculum/policy documents and instructional materials), provided to two different groups of teachers—classroom teachers and resource teachers in one Nova Scotia jurisdiction—reflect evidence from the scientific studies of reading. Two methods of content analysis were used. First, an established framework was used to investigate evidence of SSR in the curriculum/policy documents and instructional materials. Second, keyword analysis was used to examine the extent to which the materials, curriculum/policy documents, and instructional materials reflected the SOTR.

Foorman et al. (2017), citing Chingos and Whitehurst (2012), stated that the topic of evaluating “instructional materials” (p. 1) has been overlooked in educational research. In terms of evaluation, Simmons and Kame’enui (2006) argued that educators need to consider if the resources that they are using “reflect current and confirmed research in reading” (p. 3) and if the



instructional material encourages “explicit, systematic instruction” (p. 3) in phonological awareness, orthography, and word reading fluency. They proposed that while the evaluation of curriculum material has not been well researched scientifically, there is a “converging body of scientific evidence” (p. 3) that can inform educators on how to teach reading. SSR can help educators critically assess whether they are using instructional materials that align with it. They also argued that effective reading programs are critical and foundational in the early years and should be given “priority” (p. 2). In this study, the evaluation of reading materials was limited to Grades kindergarten through to Grade 2 as these early years are formative (Ehri & Roberts, 2005; Lonigan, 2005; Wackerle-Hollman et al., 2015).

### **3.3 Data Collection and Analysis**

The curriculum/policy documents of Nova Scotia’s Department of Education and Early Childhood Development and the HRCE were analyzed first, and then the instructional materials used by the teachers in the HRCE. These documents were examined using two methods and two data sources to provide rich data about the influence of code-based reading instruction, or the SOTR, in the HRCE and to examine the extent to which the reading-related resources (curriculum/policy documents and instructional materials), provided to two different groups of teachers—classroom teachers and resource teachers in one Nova Scotia jurisdiction—reflect evidence from the scientific studies of reading. All documents examined were those that were authorized for teacher use from the HRCE during the period in which this document analysis was conducted (September 2022-March 2023). The two methods of analysis were (a) content analysis via a science of teaching reading (SOTR)-informed framework and (b) content analysis via textual examination for key content words.

### 3.3.1 Content Analysis of Nova Scotia Curriculum/Policy Documents via Framework

#### Evaluation

The framework presented in Table 1 was adapted from existing frameworks (Foorman et al., 2017; The Reading League, 2020, and Simmons & Kame'enui, 2006) for analysis of the Nova Scotia curriculum/policy documents that were being implemented by classroom and resource teachers in the HRCE in 2022. The policy documents related to inclusive education and tiered intervention were omitted from this framework as these documents have a focus on inclusive education and not specifically reading instruction.

**Table 1**

*Content Analysis of Nova Scotia Curriculum/Policy Documents by Framework Analysis*

*Content Analysis of Nova Scotia Curriculum/Policy Documents by Framework Evaluation*

<b>Criterion</b>	<b>Outcome:</b> Teachers are instructed to teach students explicitly and systematically so that they can
Phonological awareness	Identify syllables, rhyme, onset-rime, and phonemes. Instruction supports SSR theories of PA development.
Syllables	Identify the number of syllables in words up to 5 syllables.
Rhyme	Identify rhyming words and generate their own rhyming words.
Phonemic awareness	Isolate, segment, blend and delete phonemes.
Orthography	Apply their understanding of the code. Instruction supports SSR theories of orthography development. Recognize letter-sound relationships (instruction progresses from simpler to more complex sounds including digraphs, consonant blends, vowel teams etc. Read decodable texts that reinforce phonic lessons. Use invented spelling to write unknown words using their understanding of sound and letter relationships. Blend letters to spell sounds. Spell complex sounds such as long vowels, prefixes, suffixes etc.
Word reading fluency	Recall words in texts when reading quickly or automatically. Decode words in a variety of contexts including continuous texts, decodable texts, word work activities and/or in isolation. Self-monitor their reading and make corrections when reading by applying their understanding of the code to decode unfamiliar words.

**Table 1 (continued)**

<b>Roles and Responsibilities for Reading Instruction for ALL Students and for Reading Intervention</b>	
Classroom teachers	Create inclusive and culturally responsive learning environments with Resource Teachers and other Support Teachers. Work with the TST and SPT. Will use evidence-based instruction and assessment for all students. Will use research-based instructional practices.
Resource teachers	With the classroom teacher, will co-plan, co-teach and co-assess students all students in the classroom setting to create inclusive and culturally responsive learning environments. Model effective teaching practice in the classroom and/or reading intervention. Will use research-based instructional practices. Support classroom teachers with ongoing student monitoring and share information with TST and SPT.

*Note.* The framework is developed on a five-point rating scale.

### **3.3.2 Content Analysis of Nova Scotia Curriculum/Policy Documents via Textual Examination**

In addition, to the planned framework analysis, the provincial curriculum/policy documents related to both literacy instruction and inclusive education were evaluated by textual analysis. Consistent with the approach used for the analysis of the instructional materials, described in greater detail below, frequencies of the key words in the curriculum/policy documents were tracked as one indicator of evidence of the presence of the pre-selected themes. The keywords investigated in these documents varied based on their discussion of reading instruction and/or inclusive-education teaching practices and were “inspired by the literature” (Jonsen & Jehn, 2009) on reading instruction and the practices of SOTR and balanced literacy. Table 2 presents the full template of the keywords investigated. For policy documents, for example, related to inclusive education and tiered intervention, only the themes of instruction

and intervention were investigated as these documents had a focus on inclusive education and struggling students and not specifically on reading instruction.

**Table 2**

*Content Analysis of Nova Scotia Curriculum/Policy Documents by Keyword Analysis*

*Content Analysis of Nova Scotia Curriculum/Policy Documents by Keyword Analysis*

<b>Theme</b>	<b>Keyword(s)</b>	<b>Occurrences</b>
Instruction	Explicit teaching/instruction Whole- school approach High-quality instruction Research-based Collaboration Professional-Learning Embedded All/Every Students Culturally & linguistically responsive Flexible Learning support teachers (resource)/ classroom teachers Resources	
Phonological awareness	Phonological awareness Syllable, syllable awareness Rhyme, rhyming, rhyme awareness, onset-rime Phonemic awareness, phonemes, sounds Manipulating sounds (onset/rime, syllables, phonemes) Segmenting and blending Deleting/isolating	
Orthography	Phonics, letter-sound, sound-symbol, word study Letter identification / recognition Temporary/invented spelling Spelling patterns / word families	
Word reading	Decoding, sound out Fluency High-Frequency words	
Evidence of balanced literacy	Read aloud Shared reading Guided reading, independent reading, “just right texts” Cueing systems / information sources Self-Corrections/self-monitoring/monitor Word work, word-solving	
Literacy	Literacy	
Intervention	Early/literacy intervention, supports, Inclusive education, multi-tiered system of supports	

### 3.3.3 Nova Scotia Curriculum/Policy Documents

The provincial curriculum/policy documents examined in this study are listed in Table 3 and briefly discussed below.

**Table 3**

Curriculum/Policy Documents Analyzed in This Study

*Curriculum/Policy Documents Analyzed in This Study*

<b>Curriculum/Policy Documents Related to Literacy</b>
DEECD, (2017). <i>Nova Scotia Provincial Literacy Strategy</i>
DEECD, (2019b). <i>English Language Arts Primary</i>
DEECD. (2019a). <i>English Language Arts 1</i>
DEECD. (2019c). <i>English Language Arts 2</i>
DEECD. (2020). <i>Phonological Awareness and Phonics Instruction in a Balanced Literacy Program</i>
DEECD. (2021). <i>Responsive Literacy in P-3 Classroom Supplemental Resource</i>
<b>Policy Documents Related to Inclusive Education</b>
DEECD. (2019e). <i>Multi-Tiered System of Supports (MTSS)</i>
DEECD. (2019d). <i>Inclusive Education Policy</i>
HRCE. (2021). <i>The Resource Service Delivery Framework</i>

The documents, *Phonological Awareness and Phonics in a Balanced Literacy Program* (DEECD, 2020) and *Responsive Literacy in the P–3 Classroom: Supplemental Resource* (DEECD, 2021) detailed the development of phonological awareness in children and are supplemental resources to the English-language-arts curriculum guides for teachers. The *Provincial Literacy Strategy* (DEECD, 2017) was a brief general guide about reading instruction in Nova Scotia.

The *Inclusive Education Policy* (DEECD, 2019d) and *Multi-Tiered System of Supports (MTSS)* (DEECD, 2019e) mandated co-teaching and co-planning for classroom teachers and specialist teachers, like resource teachers. Resource teachers were encouraged to share their knowledge with classroom teachers to support the literacy development of all students, not just those that were on resource-teacher caseloads (HRCE, 2021). All teachers, including classroom

teachers and resource teachers, were expected to become familiar with and to follow these policies related to inclusive education and tiered systems of supports (DEECD, 2019d; DEECD, 2019e).

### **3.4 Content Analysis of Instructional Materials**

For the purposes of this study, instructional materials were evaluated systematically using two methods of content analysis. Drisko and Maschi (2015) defined *content analysis* as “a family of research techniques for making systematic, credible, or valid and replicable inferences from texts and other forms of communication” (p. 7). In this study, instructional materials were evaluated using a framework adapted from an established framework in the research literature and, secondly, by textual examination for key words that revealed key patterns and themes in the documents.

Reading resource frameworks that had a focus on the development of fluent word reading were consulted and adapted for the purposes of this study. Neuendorf (2002), as cited in Drisko and Maschi (2015), described the process of basic content analysis allows researchers to investigate keywords that emerge in the texts that are studied and “the meanings these words convey” (p. 29). Drisko and Maschi (2015) noted that “the frequency of word” (p. 3) or phrase can be a method that speaks to the overall messaging of the text studied. The choice of keywords was influenced by the research question, and they categorized into themes that related to methods of reading instruction such as, phonological awareness, orthography, and fluent word reading. Keywords related to balanced literacy approaches were grouped together to determine if the documents showed evidence of that approach. Keywords related to struggling readers and inclusive education were also tracked and grouped together under the theme of reading intervention.

These two approaches to content analysis, analysis using a SOTR framework and content analysis by deductive coding, were used to investigate two data sources, the instructional materials and curriculum/policy documents. This analysis provided rich data to examine the influence of code-based reading instruction, or SOTR, in the HRCE and to examine the extent to which the reading-related resources (curriculum/policy documents and instructional materials), provided to two different groups of teachers—classroom teachers and resource teachers in one Nova Scotia jurisdiction—reflect evidence from the scientific studies of reading. The use of the framework allowed for comparison of keyword counts to determine the overall message of the instructional materials and policy documents investigated. The frequency of a word or phrase could have provided a false understanding of the overall message of a text and the extent to which the reading resources reflect evidence from the scientific studies of reading (Krippendorff, 2019; Scott & Morrison, 2006).

### **3.4.1 Established Frameworks to Evaluate Reading Instructional Materials**

As previously noted, fluent word reading is founded on the development of phonological awareness and orthography (Johnston, 2019; Lonigan, 2005; Wackerle-Hollman et al., 2015). In adapting a framework for this study, consideration was given to what research has stated about the development of word reading fluency in students in kindergarten to Grade 2. The framework used in this study is adapted from the frameworks of Foorman et al. (2017), The Reading League (2020), and Simmons and Kame'enui (2006).

The first framework, by Foorman et al. (2017), was developed to support educators and districts in evaluating “instructional materials” (p. 1) through a scientific reading lens for teachers to use in the classroom. The authors suggested that their framework could help educators evaluate if the instructional materials that they were using, or considering using, were

based on SSR. They argued that instructional materials in the early grades should provide a foundation that supports students in the upper grades in comprehending more “complex texts” (p. 1). These formative skills are “print concepts, phonological awareness, phonemic awareness, phonics and fluency” (p. 6). The second framework informing this study was developed by The Reading League (2020) as a “curriculum evaluation tool” (p. 1), based on Gough and Tunmer’s (1986)’s *Simple View of Reading* and Scarborough’s (2001) work, *Word Recognition and Language Comprehension*. This framework includes a two-point evaluation scale and uses the criteria of Red Flags and Green Flags for teachers to consider when evaluating their curriculum and instructional-material choices. The following categories in The Reading League framework were considered and adapted in the development of the framework used in this study:

“Phonological and Phoneme Awareness”, “Phonics”, “Fluency”, “Handwriting and Spelling”.

Simmons and Kame’enui (2006) created a framework for educators to use to evaluate reading instructional materials. Their resource provides educators with rubrics to evaluate language curriculum for students in kindergarten to Grade 3. These rubrics can help educators to consider the effectiveness of resources that they have purchased and those that they may be considering purchasing. For the purposes of this study, the rubrics for phonemic awareness, phonics and word analysis, and fluency were considered and adapted in creating the framework used in this study.

### **3.4.2 Rating Scale for Content Analysis of Instructional Materials via Framework Evaluation**

The framework was developed after reviewing the research on evaluation frameworks and other literature informing current research. For the purposes of this study, instructional materials were evaluated using a critical-analysis tool that could examine the effectiveness of



reading instructional materials used by classroom teachers and resource teachers in the HRCE at the time of this study. The creation of this this framework was informed by other SSR frameworks as explained above.

Foorman et al. (2017) used the following descriptors in their five-point rating scale:

- 1: indicates the criterion was not met.
- 2: indicates the criterion was partially met.
- 3: indicates the criterion was adequately met.
- 4: indicates the criterion was substantially met.
- 5: indicates the criterion was completely met. (p. 6)

### **3.4.3 Adapted Rating Scale for Content Analysis of Instructional Materials via Framework Evaluation**

In this study, a five-point rating scale was also used, but the language of the descriptors was adapted to evaluate the presence of SSR-supported practices both in the content and implementation suggestions to help teachers connect current research with their practice.

Foorman et al. (2017) encouraged educators to adapt their rubrics to coincide with the specific curriculum outcomes of different school boards and districts. Like Foorman et al., the following rating scale rates 0 as the lowest score and 4 as the highest score. The rating score was adapted to make it clearer to the examiner that 0 represents the absence of the criterion mentioned in the framework. The following descriptors were used in the development of the framework for this study:

- 0: No evidence of the criteria and/or implementation.
- 1: Minimal evidence of the criteria, and implementation suggestions were unclear.
- 2: Satisfactory evidence of the criteria, and implementation suggestions were vague.

- 3: Strong evidence of the criteria, and strong implementation suggestions for general classroom use, but suggestions for how to support at-risk learners were sometimes unclear or brief.
- 4: Strong evidence of the criteria and strong implementation suggestions, both for general classroom use and support for at-risk learners.

The framework used in this study, adapted from SSR-informed rubrics previously published, was used to evaluate 10 instructional materials used in Nova Scotia. Table 4 shows the adapted and condensed version of the framework used in this study.

**Table 4**

*Critical Analysis of Instructional Materials by Framework Evaluation*

*Content Analysis of Instructional Materials by Framework Evaluation*

Area of Focus	Description and Evaluation
Phonological awareness	<p>Phonological awareness is taught systematically and aligns with SSR on the development of phonological awareness in students. Students are instructed in syllables, rhyme, onset-rime, and lastly phonemes.</p> <p>In kindergarten, teachers introduce students to rhyming and syllables, initial sounds in words, and how to segment words into phonemes (Simmons &amp; Kame’enui, 2006). In Grade 1, teachers teach students how to segment words, so students can isolate, segment, and blend phonemes with up to five phonemes. In Grade 2, students continue to manipulate phonemes and to work with more complex spelling patterns. Students are taught how to “decode multisyllabic words” (Foorman et al., 2017, p. 7).</p>
Phonemic awareness	<p>Teachers explicitly teach students sounds in isolation before they are taught letter-sound correspondence (Foorman et al., 2017; Simmons &amp; Kame’enui, 2006).</p>
Evaluation of phonological skills (K–2)	<p>Teachers monitor students’ progress in phonological awareness and make instructional decisions based on students’ progress. Teachers are instructed in how to implement developmentally appropriate instruction for each specific criterion of phonological awareness.</p>
Orthography	<p>Students need explicit instruction to develop their understanding of the code. Instruction supports SSR theories of orthography development.</p> <p>Phonics instruction teaches letter-sound relationships explicitly and systematically “from simple to complex” (The Reading League, 2020, p. 2). This sequential system introduces students to different syllable patterns, diagraphs, and “vowel teams” (Foorman et al., 2017, p. 9). Teachers give students time to practice blending sounds together to decode words in isolation, decodable texts, and other reading materials (Foorman et al., 2017). Teachers have students read decodable texts that correspond with a developmental progression that reinforces learned phonics (Simmons &amp; Kame’enui, 2006). In Grade 2, instruction in more complex sounds such as long vowels, prefixes, and suffixes is explicitly stated and developed (Simmons &amp; Kame’enui, 2006).</p>

**Table 4 (continued)**

Area of Focus	Description and Evaluation
Orthography (continued)	In kindergarten and Grade 1, teachers encourage students to use invented spelling in their writing activities (The Reading League, 2020, Simmons & Kame’enui, 2006). Teachers explicitly teach students “how to blend letters and to write/spell words” (Foorman et al., 2017, p. 8). Teachers are instructed to teach “word families and word patterns” (Simmons & Kame’enui, 2006, p. 26). In Grade 2, teachers are instructed to explicitly teach orthography (spelling patterns) and given an appropriate sequence to follow for instruction, “from simple to more complex-sound spelling patterns” (Foorman et al., 2017, p. 9).
Evaluation of orthography development (K–2)	Teachers monitor students’ progress in orthography and make instructional decisions based on students’ progress. Teachers are given suggestions on how to implement each component of orthography.
Word reading fluency	Teachers give students time to “practice decoding words” (Foorman et al., 2017, p. 9) when reading decodable texts, and/or words in isolation (Foorman et al., 2017; The Reading League, 2020; Simmons & Kame’enui, 2006). Teachers are encouraged “to model fluent reading” (Foorman et al., 2017, p. 9) and are instructed in how give students feedback to improve fluency (Foorman et al., 2017; The Reading League, 2020). Students are taught to self-monitor their reading and make corrections when reading by applying their understanding of the code to decode unfamiliar words. (Foorman et al., 2017; The Reading League, 2020).
Evaluation of fluent word reading (K–2)	Teachers monitor the reading behaviours of their students and use that information to guide future instruction using SSR instructional methods. Teachers are given suggestions in how to implement each component of word reading fluency.
Reading intervention	Specialist teachers share in the programming for at-risk readers and use SSR instruction.

### 3.4.4 Content Analysis: Textual Examination of Keywords of Instructional Materials

In addition to the established framework, the content of the instructional materials was analyzed for key words and themes (Gale et al., 2013). The text in the instructional materials was fully and carefully studied to examine keywords and their prevalence through deductive analysis to investigate patterns or themes (Azungah, 2018; Gale et al., 2013). In deductive analysis, a matrix or frame is created with pre-selected codes influenced by “concepts already well known in the extant literature” (Bradley et al. 2007, p. 1763). Gale et al. (2013) defined a *code* as “a descriptive or conceptual label that is assigned to excerpts of raw data” (p. 2). The coding frame is then “be systematically applied to” (O’Connor & Joffe, 2020, p. 9) all the resources. Miles and

Huberman (1994), as cited in Bradley et al. (2007), defined this structure a *start list* (p. 1763) that allows researchers to have an initial framework to work with, but they also reminded researchers to be mindful that they are not “forcing data into” (p. 1763) the pre-selected categories. Kyngäs and Kaakinen (2020) also noted that the matrix can be adapted to allow for new findings.

Table 5 lists the keywords that served as the codes for the analysis. Several instructional materials used “phonics”, “word study,” and “letter-to-sound relationships,” and other terms interchangeably (Pinnell & Fountas, 2003a, 2003b, 2003c, 2011; Trehearne et al., 2000, 2004; Wilson 2020a, 2020b, 2020c) so these words have been grouped together for clarity and simplicity in the coding frame and to help improve reliability in terms of interpretation and reanalysis (Azungah, 2018; Campbell et al., 2013; O’Connor & Joffe, 2020). For the purposes of this study, the terms “read aloud” and “shared reading” are interpreted to refer to their use in balanced literacy teaching methods where instruction in phonological awareness is embedded in the instruction and not systematic (Pinnell & Fountas, 2003a, 2003b, 2003c, 2011; Trehearne et al., 2000, 2004). Campbell et al. used the term *code families* (p. 301) to define these groups of similar words. Below are some of the pre-selected themes explored in the resources and that served as a coding frame to help guide the investigation of keywords and themes.

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**Table 5**

Content Analysis of Instructional Materials by Keyword Analysis

*Content Analysis of Instructional Materials by Keyword Analysis*

<b>Theme</b>	<b>Keyword(s)</b>	<b>Occurrences</b>
Instruction	Explicit/structured teaching/instruction/direct Modelling Explore, experiences, meaningful/indirect Research-based Balanced literacy	
Phonological awareness	Phonological awareness Syllable, syllable awareness Rhyme, rhyming, rhyme awareness, onset-rime Phonemic awareness, phonemes, sounds Manipulating sounds (onset/rime, syllables, phonemes) Segmenting and blending Deleting/isolating/substitute	
Orthography	Orthography, alphabetic system/principle Phonics, letter-sound, sound-symbol, word study Letter identification, letter recognition Temporary/invented Spelling/letter patterns	
Word reading	Decoding, sound out Fluency/phrasing Decodable texts High-Frequency words	
Evidence of balanced literacy	Read aloud Shared reading Guided reading / independent reading, “just right” texts Cueing systems / information sources Self-corrections / self-monitoring/monitor Word work, word-solving Minilessons	
Intervention	Early/ literacy intervention, at-risk	

**3.4.5 Instructional Materials Examined in This Study**

This content analysis of instructional content consisted of the systematic evaluation of 10 instructional materials that were being used by classroom teachers and resource teachers at the time of the study in the HRCE. The instructional materials listed in Table 6 were common in the classrooms of classroom teachers and resource teachers to support reading instruction.

**Table 6**

Instructional Materials Analyzed in This Study – Classroom Teachers and Resource Teachers

*Instructional Materials Analyzed in This Study – Classroom Teachers and Resource Teachers*

<b>Classroom Instructional Materials*</b>
Trehearne et al. (2000). <i>Kindergarten Teacher’s Resource Book</i>
Trehearne et al. (2004). <i>Grades 1–2: Teacher Resource Book</i>
Pinnell & Fountas. (2011). <i>The Continuum of Literacy Learning: Grades PreK–2</i>
Pinnell & Fountas. (2003a). <i>Phonics Lessons: Letters, Words and How They Work. Grade K</i>
Pinnell & Fountas. (2003b). <i>Phonics Lessons: Letters, Words and How They Work: Grade 1</i>
Pinnell & Fountas. (2003c). <i>Phonics Lessons: Letters, Words and How They Work: Grade 2</i>
<b>Resource Instructional Materials*</b>
Bell. (2007). <i>Seeing Stars</i>
Wilson. (2020a). <i>Foundations Teacher’s Manual: Level K</i>
Wilson. (2020b). <i>Foundations Teacher’s Manual: Level 1</i>
Wilson. (2020c). <i>Foundations Teacher’s Manual: Level 2</i>

*Note.* \*In addition to the previous resources, resource teachers have access to two other instructional resources to support reading instruction.

*The Kindergarten Teacher’s Resource Book* (Trehearne et al., 2000) was created to support teachers in implementing balanced literacy. This instructional material defines itself as teacher friendly and “promotes phonological awareness, print awareness, and oral language” (p. 10) development. The chapters cover a range of topics including “Print Awareness,” “Phonological Awareness,” “Oral Language,” “The Kindergarten Day,” “Early Intervention for Students at Risk,” “Linking Home and School,” and “Volunteers, Buddies, and Paraprofessionals.” The instructional material also includes blackline masters at the end of each chapter that contain assessments and sample activities.

The *Grades 1– 2: Teacher’s Resource Book* (Trehearne et al., 2004) is the companion teaching guide for teachers of students in Grades 1 and 2. The text has chapters on various topics of reading instruction, including “Oral Language: Speaking, Listening, and Phonological Awareness,” “Word Work and Spelling,” “Writing: The Reading-Writing Connection,” “Reading Comprehension: Strategies that Work,” “In the Classroom: Making It Work,”

“Technology: A Tool for Literacy Learning,” “Early Intervention for Students at Risk,” and “Connecting Home and School.” Most chapters include blackline masters specific to the lessons or activities and assessments discussed in the chapter.

The materials, *Phonics Lessons: Letters, Words and How They Work: Grade K* (Pinnell & Fountas, 2003a); *Phonics Lessons: Letters, Words and How They Work: Grade 1* (Pinnell & Fountas, 2003b) and *Phonics Lessons: Letters, Words and How They Work: Grade 2* (Pinnell & Fountas, 2003c) are intended to complement other reading instruction in the classroom. Pinnell and Fountas (2003a) argued that “phonics is not a complete reading program, nor is it even the most important component of a reading program” (p. 1). Teachers are encouraged to incorporate “ten or fifteen minutes of explicit teaching” (p.1) in phonics, while the other learning in phonics occurs as students have exposure to reading texts in other contexts. There is a teacher’s guide and a separate binder that contains the blacklines and assessments that correspond to the items mentioned in the teacher’s guide.

*The Continuum of Literacy Learning: Grades PreK–2* (Pinnell & Fountas, 2011) has eight sections: “Introduction,” “Pre-Kindergarten,” “Kindergarten,” “Grade 1,” “Grade 2,” “Guided Reading,” “Glossary and “References.” The grade-specific chapters have the similar subtopics: “Interactive Read-Aloud and Literature Discussion,” “Shared and Performance Reading,” “Writing About Reading,” “Writing, Oral, Visual, and Technological Communication,” and “Phonics, Spelling, and Word Study.”

All three *Foundations* instructional materials are based on SSR (Wilson, 2020a; Wilson, 2020b; Wilson, 2020c.). The program is designed to be used daily for “30–35 minutes” (Wilson, 2020c, p. 1). When used as an intervention resource, students receive “additional” (p. 1.) lessons. *Foundations* teaches phonemic awareness and word study “systematically and comprehensively”

(p. 2). The *Foundations* series from kindergarten to Grade 2 breaks down phonological awareness into word awareness, syllable awareness, and phoneme awareness, and lessons are taught “[explicitly] and sequentially, beginning with word awareness” (Wilson, 2020c, p. 2). *Foundations* also supports writing development with specific instruction in handwriting and orthography. All the *Foundations* teaching manuals have 13 chapters. The *Foundations* series can also be used with classroom teachers for Tier 1 intervention but at the time of this study the *Foundations* series was only used in Tier 2 settings as classroom teachers were instructed to implement balanced literacy in their classrooms (DDECD, 2019b, DDECD, 2019a, DDECD, 2019c, DEECD, 2020).

The last instructional material that was examined was *Seeing Stars* (Bell, 2007). This resource informs educators about teaching the code to students using visual strategies. Bell argued in her preface that students can learn to read; “it is all a matter of integrating imagery with language, dual coding” (p. ix). This teaching resource has 23 chapters and an appendix.

### **3.5 Reliability Procedures**

#### **3.5.1 Introduction**

This section discusses the reliability considerations and procedures used in the present study. Reliability is needed in qualitative research to ensure that the data collected and evaluated is trustworthy (O’Connor & Joffe, 2020). These authors stated that there is also a lot of “flexibility” (p. 2) in qualitative research about reliability methods and that researchers need to explain their reliability methods and how they developed themes from the data analyzed. Creswell and Guetterman (2019) explained that “reliability means that individual scores from an instrument should be nearly the same or stable on repeated administrations ... and that they should be free from sources of measurement error and consistent” (p. 627). One approach to



enhancing reliability is a determination of *intercoder reliability*, the process of two more researchers recoding a percentage of the data to assess “agreement” (O’Connor & Joffe, 2020, p. 2). The resources required for determining reliability often influence the reliability approach chosen (Campbell et al., 2013; Neuendorf, 2017). O’Connor and Joffe (2020) noted that new researchers, including thesis students, often have limited resources, and this study is such a case. Therefore, in this study *intracoder reliability* was used and was assessed manually. This process involved both the reanalysis of the content of two instructional materials using the established framework and a second analysis of all the curriculum/policy documents using the established framework. The same sample was used for the reanalysis via keywords. These analyses provided data regarding the reliability of the initial analysis that was used to determine the trustworthiness of the data. This approach has been recommended in the research literature (Kynge & Kaakinen, 2020; Kynge, Käiriäinen, & Elo, 2020).

### **3.5.2 Content Analysis: Framework and Keywords Subsample**

The literature has provided inconsistent guidance on reliability. Neuendorf (2017) suggested that the “subsample should be at least 10% of the full sample” (p. 187). O’Connor and Joffe (2020) argued that “10–25% ... would be typical” (p. 5); therefore, in this study, a sample of 15% of the instructional materials was reassessed for keywords and themes while the curriculum/policy documents were fully reassessed.

Campbell et al. (2013) stated that a sample is “acceptable to assess intercoder reliability” (p. 300). In this study, a stratified sample was used for the reanalysis (O’Connor & Joffe, 2020). As mentioned above, a sample size between 10 and 25% is sufficient (O’Connor & Joffe, 2020). For determining intracoder reliability, *English Language Arts: Primary* (DEECD, 2019b), representative of 20% of the total number of pages of the curriculum and policy guides (174

pages), was reassessed using the modified framework and was used in the initial framework analysis. *Multi-Tiered system of supports (MTSS)*. DEECD, 2019e) and *Inclusive Education Policy* (DEECD, 2019d) were not used in the initial framework evaluation as these documents discussed inclusive education and intervention rather than fluent word reading.

To determine the intracoder reliability for the instructional materials, two teaching resources were reassessed using the established “Framework in Phonological Awareness” (Trehearne et al., 2000, pp. 115–179) and “Orthography” (Wilson, 2020b, pp.1–65). The sample was limited to the re-evaluation of phonological awareness in “Chapter 2: Phonological Awareness” in Trehearne et al. (2000). Wilson (2020a, 2020b, 2020c) was re-evaluated because the messaging around orthography is consistent and thorough throughout the texts, but the number of pages is less than that of other instructional materials, making the sample size more accessible. The instructional material by Bell (2007) and Pinnell and Fountas (2011) were not chosen for the sample because the topics of phonological awareness and orthography extend throughout the whole text rather than in a specific section suitable for reanalysis. Pinnell and Fountas (2003a, 2003b, 2003c) were not chosen because these materials are less developed in phonological awareness and orthography. This stratified sample (O’Connor & Joffe, 2020) was chosen rather than a random sample because it provided a clearer snapshot of the messaging of the curriculum/policy documents and instructional materials around reading instruction and ensured the accuracy of the earlier analyses (Campbell et al., 2013; O’Connor & Joffe, 2020).

The research is inconsistent regarding an “accepted” percentage for agreement (Campbell et al., 2013; O’Connor & Joffe, 2020). Miles and Huberman (1994), cited in O’Connor and Joffe (2020), suggested that “80% agreement on 95% of the codes” (p. 9) is satisfactory. Fahy (2001), cited in Campbell et al., (2013), noted that a “range of 70 to 94 percent” (p. 310) is “acceptable”

(p. 310). For the purposes of this study, a percentage agreement of 90% was chosen to meet the more stringent guidelines, which, in turn, supports the trustworthiness of the data. (If the reanalysis had been less than 90%, the data would have been reassessed for a third time using some suggestions from Neuendorf (2017). This author suggested that a researcher can “reconfigure the variable with fewer and better-defined categories” (p. 19) to improve clarity. She also suggested that researchers could remove a “variable from all analyses” (p. 19) to improve the reliability of the data. The percentage of agreement is reported in Chapter 3.

### **3.5.3 Second Approach to Ensuring Reliability-Triangulation**

Creswell and Guetterman (2019) defined *triangulation* as “the process of corroborating evidence from different ... types of data, or methods of data collection” (p. 630). Triangulation “[provides] a more holistic and rich account” (Scott & Morrison, p. 252) of the materials that are evaluated. In this study, two methods of triangulation of two different types of documents were used. Schreier (2012), cited in Drisko and Maschi (2015), stated that the use of at least two different methods of data analysis helps to provide triangulation to ensure that the conclusions made from the analysis of one data source are consistent with those for the other types of sources. In this study, the use of triangulation provided a more accurate understanding of the messaging given to classroom teachers and resource teachers about reading instruction present in the curriculum/policy documents and instructional materials analyzed. Krippendorff (2019) argued that the purpose of content research is to search for “phenomena” (p. 6) and that word counts alone cannot verify phenomena. The use of triangulation helps to further support or deny the suggested messaging of the texts studied. Krippendorff (2019) noted that when large texts are used for content-analysis the results can be “unreliable” (p. 393). To ensure reliability, the analysis of instructional materials was limited to the portions of text that informed instruction

and did not include the word counts from specific lessons or assessment tools included in each chapter.

As in the case of Trehearne et al. (2000) and Trehearne et al. (2004), the chapters related specifically to fluent word reading instruction were examined and not those chapters that addressed other topics in reading instruction like comprehension or oral communication. The total numbers of words for each sample were compared to find its percentage agreement, as is supported by research (O'Connor & Joffe, 2020). If agreement was below 90%, the data sources were rerecorded, and a new sample taken to reassess the percentage agreement. The reanalysis of the sample via the framework was to ensure that the results of the initial framework analysis were consistent (Jonsen & Jehn, 2009).

These frameworks, informed by other SSR frameworks, were systematically reviewed and cross-compared with the results of the keyword analysis with an aim of enhancing the validity of the findings (Jonsen & Jehn, 2009). The results of both methods would validate the interpretation of the results and the extent to which the reading-related resources (curriculum/policy documents and instructional materials), provided to two different groups of teachers—classroom teachers and resource teachers in one Nova Scotia jurisdiction—reflect evidence from the scientific studies of reading. The results would also reveal any different messaging in the resources that could be found. These approaches would be used to assess the reliability of the data and provide a gauge for assessing the validity of the data in this study, which used a single coder.

### **3.6 Conclusion**

This chapter has outlined the methodology used in this study to examine the extent to which the reading-related resources (curriculum/policy documents and instructional materials),

provided to two different groups of teachers—classroom teachers and resource teachers in one Nova Scotia jurisdiction—reflect evidence from the scientific studies of reading. This study used content analysis to examine the extent to which reading-related (curriculum/policy documents and instructional materials) provided to two different groups of teachers—classroom teachers and resource teachers in one Nova Scotia jurisdiction—reflect evidence from the scientific studies of reading. The content analysis consisted of two methods: (a) an established framework to investigate evidence of SSR in the curriculum/policy documents and instructional materials and (b) keyword analysis to examine the extent to which the materials, curriculum/policy documents and instructional materials, reflected the SOTR. In the next chapter the results of the data analysis, as described in this chapter, are presented.

## Chapter 4: Results

### 4.1 Introduction

This chapter presents the findings from the analysis of the curriculum/policy documents and instructional materials. These results are organized into six sections. In the first two sections, the reliability findings are presented. Next the results of the content analysis by framework evaluation of the curriculum/ policy documents are revealed, followed by those for the content analysis of the curriculum/policy documents by keyword analysis. Tn the last two sections, the results of the evaluation of the instructional materials by framework evaluation are presented, followed by those for the content analysis of the instructional materials by keyword analysis. Lastly, the findings are summarized.

### 4.2 Reliability of Intracoding Analysis

The following section displays the results of the calculations of intracoder agreement for the documents analyzed in this study. First, the results for the content analysis by framework evaluation of the curriculum/policy documents are presented. In the next section, the results for keyword analysis of the curriculum/policy documents are presented. Then, the results of the content analysis by framework evaluation of the instructional materials are presented. Finally, the results for keyword analysis of the instructional materials are presented.

#### 4.2.1 Reliability – Framework Evaluation of Curriculum/Policy Documents

To assess the reliability of the results of content analysis via framework evaluation, *English Language Arts: Primary* (DEECD, 2019b) was systematically analyzed a second time using the modified framework. (This document was representative of 21% of the total number of pages of the curriculum/policy guides.) *Multi-Tiered system of supports (MTSS)*. (DEECD, 2019e) and *Inclusive Education Policy* (DEECD, 2019d) were not analyzed a second time as

these documents were not used in the initial framework analysis because they discuss inclusive education and intervention rather than fluent word reading. The findings of the second analysis of this stratified sample (Campbell et al., 2013; O'Connor & Joffe, 2020) were consistent with the initial analysis.

#### 4.2.2 Percentage of Agreement – Keyword Analysis of Curriculum/Policy Documents

Table 7 displays the percentages of agreement of each curriculum/policy document by evaluated via keyword analysis. All rates of intracoder agreement exceeded 90%. Therefore, there is confidence in the results presented.

**Table 7**

*Reliability – Keyword Analysis of Curriculum/Policy Documents*

*Reliability – Keyword Analysis of Curriculum/Policy Documents*

<b>Curriculum/Policy Document</b>	<b>ELA</b>	<b>PLS</b>	<b>M</b>	<b>I</b>	<b>PA</b>	<b>RL</b>	<b>R</b>
Percentage of agreement	95.2%	96.1%	93.4%	94.7%	91.2%	91.8%	100%

*Note.* ELA = DEECD. (2019b). *English Language Arts*. M = DEECD. (2019e). *Multi-Tiered System of Supports: A Quick Guide*; I = DEECD. (2019d). *Inclusive Education Policy*. PA = DEECD. (2020). *Phonological Awareness and Phonics Instruction in a Balanced Literacy Program*; PLS = DEECD. (2017). *Nova Scotia Provincial Literacy Strategy*; R = HRCE. (2021). *Resource Service Delivery Framework*. RL = DEECD. (2021). *Responsive Literacy in the P-3 Classroom: Supplemental Resource*.

#### 4.2.3 Reliability – Evaluation of Instructional Materials

The reliability of the second analysis of content of the stratified sample of instructional materials via framework evaluation was consistent with that of the previous analysis. Trehearne et al. (2000) incorporated many teaching suggestions about phonological awareness that are rooted in SSR. This instructional material is very explicit about the development of phonological awareness in children, and several scientific studies and resources are cited in the section on phonological awareness, providing evidence of SSR-informed teaching practices.

#### 4.2.4 Reliability – Keyword Analysis of Instructional Materials

In the following section, Tables 8 and 9 present the percentage of agreement for the content analysis of the instructional materials by keyword analysis. The sample reviewed at least

15% of the total instructional materials based on subsections of 15 pages. All rates of intracoder agreement exceeded 90%; therefore, there is confidence in the results presented.

**Table 8**

Reliability – Keyword Analysis of Classroom-Teacher Instructional Materials

*Reliability – Keyword Analysis of Classroom-Teacher Instructional Materials*

<b>Instructional Material</b>	<b>B</b>	<b>W1</b>	<b>W2</b>	<b>W3</b>
Percentage of agreement	96.7%	97.2%	95.5%	90.6%

*Note.* B = Bell (2007); W1 = Wilson Language Training Corporation. (2020a). *Foundations Teacher’s Manual: Level K*; W2 = Wilson Language Training Corporation. (2020b). *Foundations Teacher’s Manual: Level 1*; W3 = Wilson Language Training Corporation. (2020c). *Foundations Teacher’s Manual: Level 2*.

**Table 9**

Reliability – Keyword Analysis of Resource-Teacher Instructional Materials

*Reliability – Keyword Analysis of Resource-Teacher Instructional Materials*

<b>Instructional Material</b>	<b>PF1</b>	<b>PF2</b>	<b>PF3</b>	<b>PF4</b>	<b>T1</b>	<b>T2</b>
Percentage of agreement	90.7%	90.6%	90.2%	93%	92.9%	97.6.%

*Note.* PF1 = Pinnell & Fountas (2011); PF2 = Pinnell & Fountas (2003a); PF3 = Pinnell & Fountas (2003b); PF4 = Pinnell and Fountas (2003c); T1 = Trehearne et al. (2000). *Kindergarten Teacher’s Resource Book*; T2 = Trehearne et al. (2004). *Grades 1–2 Teacher’s Resource Book*

**4.2.5 Second Approach for Ensuring Reliability – Triangulation**

In this study, two methods of triangulation for two different types of documents were used. Triangulation via cross comparisons of multiple data sources helped to clarify the findings. The intracoder method provided a gauge of the reliability of the coding and helped to increase confidence in the reliability of the findings. In this study, triangulation led to a more accurate understanding of the messaging given to classroom teachers and resource teachers about reading instruction that was present in the curriculum/policy documents and instructional materials evaluated. When the findings of the key word analysis and framework analysis for both curriculum/policy documents and instructional materials were systematically compared, the findings converged as will be discussed in the next chapter.



### **4.3 Results—Content Analysis of Curriculum/Policy Documents via Framework Evaluation**

The results of the content analysis of the curriculum/policy documents using the evaluation framework are presented in Table 10.

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**Table 10**

Results – Content Analysis of Curriculum/Policy Documents by Framework Evaluation

*Results – Content Analysis of Curriculum/Policy Documents by Framework Evaluation*

Criterion	Outcome: Teachers are instructed to teach students explicitly and systematically so that they can	Curriculum/Policy documents			
		ELA	PLS	PA	RL
Phonological awareness	Identify syllables, rhyme, onset-rime, and phonemes. Instruction supports SSR theories of PA development.				
	Syllables	1	0	4	4
	Rhyme	4	1	4	4
	Phonemic awareness				
	Isolate, segment, blend and delete phonemes.	4	1	4	4
	Read decodable texts that reinforce phonic lessons.	2	0	0	2
Orthography	Apply their understanding of the code. Instruction supports SSR theories of orthography development.				
	Recognize letter-sound relationships (instruction progresses from simpler to more complex sounds including diagraphs, consonant blends, vowel teams etc.)	0	0	4	4
	Use invented spelling to write unknown words using their understanding of sound and letter relationships.	4	0	4	4
	Blend letters to spell sounds.	4	0	4	4
	Spell complex sounds such as long vowels, prefixes, suffixes etc.	2	1	4	4
Word reading fluency	Recall words in texts when reading quickly or automatically.				
	Decode words in a variety of contexts including continuous texts, decodable texts, word work activities and/or in isolation.	1	0	2	3
	Self-monitor their reading and make corrections when reading by applying their understanding of the code to decode unfamiliar words.	1	0	3	3

*Note.* ELA = DEECD. (2019a; 2019b; 2019c). *English Language Arts.*; PLS = DEECD. (2017). *Nova Scotia Provincial Literacy Strategy*; PA = DEECD. (2020). *Phonological Awareness and Phonics Instruction in a Balanced Literacy Programs*; RL= DEECD. (2021). *Responsive Literacy in the P-3 Classroom: Supplemental Resource*; 0 = no evidence of the criterion and/or implementation; 1= minimal evidence of the criterion, and implementation suggestions/ or unclear; 2 = satisfactory evidence of the criterion, and implementation suggestions were vague; 3 = strong evidence of the criterion, and strong implementation suggestions for general classroom use, but suggestions for how to support at-risk learners were sometimes unclear or brief; 4 = strong evidence of the criterion and strong implementation suggestions both for general classroom use and support for at-risk learners.

**Table 10 (continued)**

<b>Roles and Responsibilities for Reading Instruction for ALL Students and for Reading Intervention</b>					
<b>Criterion</b>	<b>Outcome:</b> Teachers are instructed to teach students explicitly and systematically so that they can	<b>Curriculum/Policy documents</b>			
		<b>ELA</b>	<b>PLS</b>	<b>PA</b>	<b>RL</b>
Classroom teachers	Create inclusive and culturally responsive learning environments with resource teachers and other support teachers.	2	4	2	4
	Work with the TST and SPT.	0	2	2	4
	Will use evidence-based instruction and assessment for all students.	0	2	0	0
	Will use research-based instructional practices (explicit).	0	1	2	0
Resource teachers	With the classroom teacher, will co-plan, co-teach, and co-assess all students in the classroom setting to create inclusive and culturally responsive learning environments.	0	0	2	4
	Model effective teaching practice in the classroom and/or reading intervention.	0	3	0	0
	Will use research-based instructional practices (explicit).	0	0	2	0
	Support classroom teachers with ongoing student monitoring and share information with TST and SPT.	0	2	2	4

*Note.* TST = teaching support team; SPT = student planning team; ELA = DEECD. (2019a; 2019b; 2019c). *English Language Arts.*; PLS = DEECD. (2017). *Nova Scotia Provincial Literacy Strategy*; PA = DEECD. (2020). *Phonological Awareness and Phonics Instruction in a Balanced Literacy Programs*; RL= DEECD. (2021). *Responsive Literacy in the P-3 Classroom: Supplemental Resource*; 0 = no evidence of the criterion and/or implementation; 1= minimal evidence of the criterion, and implementation suggestions/ or unclear; 2 = satisfactory evidence of the criterion, and implementation suggestions were vague; 3 = strong evidence of the criterion, and strong implementation suggestions for general classroom use, but suggestions for how to support at-risk learners were sometimes unclear or brief; 4 = strong evidence of the criterion and strong implementation suggestions both for general classroom use and support for at-risk learners.

The data from the content analysis of the curriculum/policy documents by framework evaluation indicates that the *ELA* (DEECD, 2019a; 2019b; 2019c) and *PLS* (DEECD, 2017) curriculum/policy documents are founded on balanced literacy. The *PA* (DEECD, 2020) and the *RL* (DEECD, 2021) emphasize more explicit and systematic instruction of phonological awareness and phonics and align with SSR. This indicates that evidence of different messaging for classroom teachers in how to teach reading.

#### **4.3.1 Results—Content Analysis of Curriculum/Policy Documents via Keywords Analysis**

In Table 11, the results of the content analysis of the curriculum/policy documents for classroom teachers by keyword analysis are presented.

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**Table 11**

Results – Keyword Analysis of Curriculum/Policy Documents for Classroom Teachers

*Results – Keyword Analysis of Curriculum/Policy Documents for Classroom Teachers*

Theme	Keyword(s)	Occurrences					
		P	1	2	PLS	PA	RL
Instruction	Explicit teaching/instruction	9	3	0	1	4	5
	Research-based				1		
	Whole-school approach				1		
	High-quality Teaching				2		
	Professional-Learning				4		
	Embedded		1				
Phonological awareness	Phonological awareness	0	0	0	3	17	6
	Syllable, syllable awareness	1	3	0	0	17	9
	Rhyme, rhyming, rhyme awareness, onset-rime	6	7	0	1	20	5
	Phonemic awareness, phonemes, sounds	0	0	0	0	24	13
	Manipulating sounds (onset/rime, syllables, phonemes)						
	Segmenting and blending	12	14	1	1	12	20
Deleting/isolating	7	4	0	1	16		
Orthography	Phonics, letter-sound, sound-symbol, word study	17	3	3	1	9	22
	Letter identification/recognition					2	7
	Temporary/invented spelling	4	3	1	0	0	1
	Spelling patterns/word families	4	0	7	0	14	8
Word reading	Decoding, sound out			1			
	Fluency	2			1		
	High-frequency words	10	13	4	0	4	21
Evidence of balanced literacy	Read aloud	8	12	3			
	Shared reading	6	9	0			
	Guided reading, independent reading, “just right texts”	7	20	9			
	Cueing systems/information sources	6	7	13			4
	Self-corrections/Self-monitoring/monitor	10	8	13			7
	Word work, word-solving	3	1	1			
Literacy	Literacy				31		
Intervention	Early/literacy intervention, supports				3		2
	Inclusive education, multi-tiered system of supports					4	

Note. P = DEECD. (2019b). *English Language Arts. Primary*; 1 = DEECD. (2019a). *English Language Arts. Grade 1*; 2 = DEECD. (2019c). *English Language Arts. Grade 2*. PLS = DEECD. (2017). *Nova Scotia Provincial Literacy Strategy*; PA = DEECD. (2020). *Phonological Awareness and Phonics Instruction in a Balanced Literacy Program*; RL = DEECD. (2021). *Responsive Literacy in the P–3 Classroom*.

The data from the content analysis of curriculum/policy documents by keyword analysis indicates that the *ELA* (DEECD, 2019a; 2019b; 2019c) and *PLS* (DEECD, 2017) curriculum/policy documents are founded on balanced literacy. The *PA* (DEECD, 2020) and the

RL (DEECD, 2021) emphasize more explicit and systematic instruction of phonological awareness and phonics and align with SSR. This indicates that there is evidence of different messaging for classroom teachers in how to teach reading.

In Table 12, the results of the content analysis of the curriculum/policy documents for resource teachers by keyword analysis are presented.

**Table 12**

*Results – Keyword Analysis of Curriculum/Policy Documents for Resource Teachers*

*Results – Keyword Analysis of Curriculum/Policy Documents for Resource Teachers*

Theme	Keyword(s)	Occurrences		
		M	I	R
Instruction	Research-Based	2		1
	Collaboration	5	4	15
	Professional learning	2	3	1
	All students	6	11	
	Culturally & linguistically responsive	3	7	3
	Flexible	3	1	
	High-Quality instruction	2	2	
	Learning support teachers (resource)/classroom		6	10
	Teachers			
Intervention	Resources		3	
	Early/literacy intervention, evidence	10	10	8
	Inclusive education, multi-tiered system of supports	28	45	9

*Note.* M = DEECD. (2019e). *Multi-Tiered System of Supports: A Quick Guide*; I = DEECD. (2019d). *Inclusive Education Policy*; R = HRCE. (2021). *Resource Service Delivery Framework*.

The data from the content analysis of curriculum/policy documents by keyword analysis for resource teachers indicates that resource teachers and classroom teachers are to work collaboratively to support inclusive education for all students through a variety of tiered interventions that are supportive by the SSR.

#### **4.4 Results—Content Analysis of Instructional Materials via Framework Evaluation**

In the following section, the results of the content analysis of the instructional materials by framework evaluation are presented (see Tables 13, 14, and 15).

**Table 13**

Results – Content Analysis of Kindergarten Instructional Materials by Framework Evaluation, Using Specific Criteria Related to Phonological Awareness, Orthography, Word Reading Fluency, and Reading Intervention

*Results – Content Analysis of Kindergarten Instructional Materials by Framework Evaluation, Using Specific Criteria Related to Phonological Awareness, Orthography, Word Reading Fluency, and Reading Intervention*

Criterion	Kindergarten	Instructional materials				
		T	PF1	PF2	B	W
Phonological awareness*	Phonological awareness is broken down into specific categories that pertain to expected outcomes for each grade level based on SSR phonological awareness development theories.					
	Phonological awareness is taught systematically and aligns with SSR on the development of phonological awareness in students. Students are instructed in syllables, rhyme, onset-rime, and lastly phonemes.					
Syllables	Teachers are instructed to introduce syllables so that by the end of kindergarten, students can count the number of syllables in words up to 3 syllables	4	3	2	0	3
<i>Implementation strategies</i>	Teachers are instructed in how to implement instruction in syllables through various teaching methods and given sample activities, blackline masters, lists of appropriate books or other texts to support developmentally appropriate instruction in syllables	4	4	2	1	4
Rhyme	Teachers are instructed to teach students to listen for rhyme in reading activities.	4	2	1	0	4
	Teachers are instructed to teach students to identify rhyming words	4	2	1	0	4
<i>Implementation strategies:</i>	Teachers are instructed to observe if students are beginning to generate their own rhyming words and given sample activities, blackline masters, lists of appropriate books or other texts to support developmentally appropriate instruction in rhyme	4	2	0	0	4
Phonemic awareness	Teachers explicitly teach sounds in isolation before they are taught the sounds that correspond with which letters.	2	0	0	0	4
	Teachers teach students how to identify initial sounds in words.	4	2	1	4	4
	Teachers teach students to segment words into phonemes.	4	2	1	2	4

Note. T = Trehearne et al. (2000). *Kindergarten Teacher's Resource Book*; PF1 = Pinnell & Fountas (2003a). *Phonics Lessons: Letters, Words, and How They Work: Grade K*; PF2 = Pinnell & Fountas (2011). *The Continuum of Literacy Learning*; B = Bell (2007). *Seeing Stars*; W = Wilson Language Training Corporation. (2020a). *Foundations Teacher's Manual: Level K*; 0 = no evidence of the criterion and/or implementation; 1 = minimal evidence of the criterion, and implementation suggestions were unclear; 2 = satisfactory evidence of the criterion, and implementation suggestions were vague; 3 = strong evidence of the criterion, and strong implementation suggestions for general classroom use, but suggestions for how to support at-risk learners were sometimes unclear or brief; 4 = strong evidence of the criterion and strong implementation suggestions both for general classroom use and support for at-risk learners.

**Table 13 (continued)**

Criterion	Kindergarten	Instructional materials				
		T	PF1	PF2	B	W
Phonemic awareness (continued)	Teachers are instructed to teach students how to identify ending sounds so that by the end of kindergarten students can identify ending sounds and some medial sounds.	4	2	1	4	4
Implementation strategies	Teachers give students time to practice blending sounds together to decode words in isolation, decodable texts, and other reading materials.	4	2	1	1	4
	Teachers are given sample activities, blackline masters, lists of appropriate books or other texts to support developmentally appropriate instruction in phonemic awareness	4	1	1	1	4
Implementation strategies	Teachers are given sample activities, blackline masters, lists of appropriate books or other texts to support developmentally appropriate instruction in phonics.	4	1	0	1	4
Evaluation of phonological skills in kindergarten	Teachers monitor students' progress in phonological awareness and make instructional decisions based on students' progress.	4	1	0	1	4
Orthography	Students need explicit instruction in orthography to develop their understanding of the code. Instruction supports SSR theories of orthography development.					
	Phonics instruction teaches letter-sound relationships explicitly and systematically from simpler to more complex sounds.	4	1	0	0	4
	This sequential system includes introducing students to consonants, short vowels, and some diagraphs.	2	0	0	0	4
	Teachers create print rich environments (logs, words etc.) in their classrooms.	4	3	0	0	4
	Teachers encourage students to apply their growing knowledge of spelling patterns in their writing activities.	4	2	0	4	4
Implementation strategies	Teachers are given sample activities, blackline masters, lists of appropriate books or other texts to support developmentally appropriate instruction in orthography.	4	1	1	3	4

Note. T = Trehearne et al. (2000). *Kindergarten Teacher's Resource Book*; PF1 = Pinnell & Fountas (2003a). *Phonics Lessons: Letters, Words, and How They Work: Grade K*; PF2 = Pinnell & Fountas (2011). *The Continuum of Literacy Learning*; B = Bell (2007). *Seeing Stars*; W = Wilson Language Training Corporation. (2020a). *Foundations Teacher's Manual: Level K*; 0 = no evidence of the criterion and/or implementation; 1 = minimal evidence of the criterion, and implementation suggestions were unclear; 2 = satisfactory evidence of the criterion, and implementation suggestions were vague; 3 = strong evidence of the criterion, and strong implementation suggestions for general classroom use, but suggestions for how to support at-risk learners were sometimes unclear or brief; 4 = strong evidence of the criterion and strong implementation suggestions both for general classroom use and support for at-risk learners.



**Table 13 (continued)**

Criterion	Kindergarten	Instructional materials				
		T	PF1	PF2	B	W
<i>Evaluation of orthography development in kindergarten:</i>	Teachers monitor students' progress in orthography and its relationship to phonological awareness and make instructional decisions based on students' progress.	4	0	0	4	4
Word reading fluency	Students recall words in texts when reading quickly or automatically.					
	Teachers are instructed to give students time to read decodable texts in a variety of contexts including continuous texts, decodable texts, word work activities and/or in isolation.	2	0	0	2	4
	Teachers are instructed in how to develop fluent word reading in students.	0	0	0	2	4
	Teachers are instructed to provide feedback to their students to improve fluency.	0	0	0	2	4
	Teachers help students learn to self-monitor their reading and make corrections when reading by applying their understanding of the code to decode unfamiliar words.	0	0	0	2	4
<i>Implementation strategies</i>	Teachers are instructed in how to support word reading fluency based on SSR research.	0	0	0	2	4
<i>Evaluation of fluent word reading in kindergarten</i>	Teachers monitor their students to guide future instruction based on SSR.	3	0	0	2	4
Reading intervention	The instructional materials offer suggestions for intervention for at-risk students.					
	Specialist teachers share in the programming using SSR research-based instruction.	3	0	0	2	2
	Teachers are provided SSR research-based suggestions for effective reading intervention.	3	0	0	0	0

*Note.* T = Trehearne et al. (2000). *Kindergarten Teacher's Resource Book*; PF1 = Pinnell & Fountas (2003a). *Phonics Lessons: Letters, Words, and How They Work: Grade K*; PF2 = Pinnell & Fountas (2011). *The Continuum of Literacy Learning*; B = Bell (2007). *Seeing Stars*; W = Wilson Language Training Corporation. (2020a). *Foundations Teacher's Manual: Level K*; 0 = no evidence of the criterion and/or implementation; 1 = minimal evidence of the criterion, and implementation suggestions were unclear; 2 = satisfactory evidence of the criterion, and implementation suggestions were vague; 3 = strong evidence of the criterion, and strong implementation suggestions for general classroom use, but suggestions for how to support at-risk learners were sometimes unclear or brief; 4 = strong evidence of the criterion and strong implementation suggestions both for general classroom use and support for at-risk learners.

**Table 14**

Results – Content Analysis of Grade 1 Instructional Materials by Framework Evaluation, Using Specific Criteria Related to Phonological Awareness, Orthography, Word Reading Fluency, and Reading Intervention

*Results – Content Analysis of Grade 1 Instructional Materials by Framework Evaluation, Using Specific Criteria Related to Phonological Awareness, Orthography, Word Reading Fluency and Reading Intervention*

Criterion	Grade 1	Instructional materials				
		T	PF1	PF2	B	W
Phonological awareness*	Phonological awareness is broken down into specific categories that pertain to expected outcomes for each grade level based on SSR phonological awareness development theories.  Phonological awareness is taught systematically and aligns with SSR on the development of phonological awareness in students. Students are instructed in syllables, rhyme, onset-rime, and lastly phonemes.					
Syllables	Teachers are instructed to introduce syllables so that by the end of Grade 1, students can count the number of syllables in words up to 5 syllables	3	0	3	1	4
<i>Implementation strategies:</i>	Teachers are instructed in how to implement instruction in syllables through various teaching methods and given sample activities, blackline masters, lists of appropriate books or other texts to support developmentally appropriate instruction in syllables	3	0	1	1	4
Rhyme	Teachers are instructed to teach students to identify rhyming words.	3	2	1	0	0
	Teachers teach students how to generate their own rhyming words.	3	2	1	0	0
<i>Implementation strategies</i>	Teachers are instructed to observe if students can generate their own rhyming words and given sample activities, blackline masters, lists of appropriate books or other texts to support developmentally appropriate instruction in rhyme.	3	2	0	0	0
Phonemic awareness	Teachers instruct students how to segment words into phonemes	4	2	1	0	4
	Teachers instruct students how to isolate, segment, blend and delete, up to five phonemes, so that they can learn to manipulate sounds on their own by the end of Grade 1. Students learn to manipulate initial and ending sounds before medial sounds.	4	2	1	0	4
<i>Implementation strategies</i>	Teachers give students time to practice blending sounds together to decode words in isolation, decodable texts, and other reading materials.	3	2	1	0	4

Note. T = Trehearne et al. (2004). *Grades 1–2: Teacher’s Resource Book*; PF1 = Pinnell & Fountas (2003b). *Phonics Lessons: Letters, Words, and How They Work: Grade 1*; PF2 = Pinnell & Fountas (2011). *The Continuum of Literacy Learning*; B = Bell (2007). *Seeing Stars*; W = Wilson Language Training Corporation. (2020a). *Foundations Teacher’s Manual: Level 1*; 0 = no evidence of the criterion and/or implementation; 1 = minimal evidence of the criterion, and implementation suggestions were unclear; 2 = satisfactory evidence of the criterion, and implementation suggestions were vague; 3 = strong evidence of the criterion, and strong implementation suggestions for general classroom use, but suggestions for how to support at-risk learners were sometimes unclear or brief; 4 = strong evidence of the criterion and strong implementation suggestions both for general classroom use and support for at-risk learners..

**Table 14 (continued)**

Criterion	Grade 1	Instructional materials				
		T	PF1	PF2	B	W
Phonemic awareness <i>Implementation strategies</i> (continued)	Teachers are instructed in how to implement instruction in phonemic awareness through various teaching methods and given sample activities, blackline masters, lists of appropriate books or other texts to support developmentally appropriate instruction in phonemic awareness.	4	2	1	0	4
<i>Implementation strategies</i>	Teachers are given sample activities, blackline masters, lists of appropriate books or other texts to support developmentally appropriate instruction in phonics.	4	2	1	0	4
<i>Evaluation of phonological skills in Grade 1</i>	Teachers monitor students’ progress in phonological awareness and make instructional decisions based on students’ progress.	4	2	1	0	4
Orthography	Students need explicit instruction in orthography to develop their understanding of the code. Instruction supports SSR theories of orthography development.					
	Phonics instruction teaches letter-sound relationships explicitly and systematically from simpler to more complex sounds.	4	1	1	0	4
	This sequential system includes introducing students to different syllable patterns, diagraphs, and vowel teams.	4	2	1	4	4
	Teachers teach students how to identify and manipulate some consonant blends and diagraphs. A shift towards orthography (spelling patterns) begins to develop.	4	2	1	4	4
	Students read decodable texts that correspond in a progression, reinforcing phonics lessons.	2	1	0	0	4
	Teachers are instructed to have students use invented spelling to write unknown words using their understanding of sound and letter relationships.	4	2	1	0	4
	Teachers explicitly teach students how to blend letters and spell sounds.	4	1	1	0	4
	Teachers are instructed to teach word families and word patterns after students are familiar with all the individual sounds in that word family or pattern.	4	1	0	4	4

*Note.* T = Trehearne et al. (2004). *Grades 1–2 Teacher’s Resource Book*; PF1 = Pinnell & Fountas (2003b). *Phonics Lessons: Letters, Words, and How They Work: Grade 1*; PF2 = Pinnell & Fountas (2011). *The Continuum of Literacy Learning*; B = Bell (2007). *Seeing Stars*; W = Wilson Language Training Corporation. (2020a). *Foundations Teacher’s Manual: Level 1*; 0 = no evidence of the criterion and/or implementation; 1 = minimal evidence of the criterion, and implementation suggestions were unclear; 2 = satisfactory evidence of the criterion, and implementation suggestions were vague; 3 = strong evidence of the criterion, and strong implementation suggestions for general classroom use, but suggestions for how to support at-risk learners were sometimes unclear or brief; 4 = strong evidence of the criterion and strong implementation suggestions both for general classroom use and support for at-risk learners.

**Table 14 (continued)**

Criterion	Grade 1	Instructional materials				
		T	PF1	PF2	B	W
Orthography (continued) <i>Implementation strategies</i>	Teachers are given sample activities, blackline masters, lists of appropriate books or other texts to support developmentally appropriate instruction in orthography.	4	1	3	2	4
<i>Evaluation of orthography development in Grade 1</i>	Teachers monitor students' progress in orthography and its relationship to phonological awareness and make instructional decisions based on students' progress.	4	1	2	2	4
Word reading fluency	Students recall words in texts when reading quickly or automatically.					
	Teachers are instructed to give students time to read decodable texts in a variety of contexts including continuous texts, decodable texts, word work activities and/or in isolation.	4	1	0	2	4
	Teachers are instructed in how to develop fluent word reading in students.	4	1	0	2	4
	Teachers are instructed to provide feedback to their students to improve fluent word reading.	4	1	0	0	4
	Teachers help students learn to self-monitor their reading and make corrections when reading by applying their understanding of the code to decode unfamiliar words.	2	1	1	2	4
<i>Implementation strategies</i>	Teachers are instructed in how to support word reading fluency based on SSR research.	2	1	0	0	4
<i>Evaluation of fluent word reading in Grade 1</i>	Teachers monitor their students to guide future instruction based on SSR.	4	1	0	1	4
Reading intervention	The instructional materials offer suggestions for intervention for at-risk students.					
	Specialist teachers share in the programming using SSR research-based instruction.	2	0	0	1	4
	Teachers are provided SSR research-based suggestions for effective reading intervention.	3	0	0	0	4

Note. T = Trehearne et al. (2004). *Grades 1–2 Teacher’s Resource Book*; PF1 = Pinnell & Fountas (2003b). *Phonics Lessons: Letters, Words, and How They Work: Grade 1*; PF2 = Pinnell & Fountas (2011). *The Continuum of Literacy Learning*; B = Bell (2007). *Seeing Stars*; W = Wilson Language Training Corporation. (2020a). *Foundations Teacher’s Manual: Level 1*; 0 = no evidence of the criterion and/or implementation; 1 = minimal evidence of the criterion, and implementation suggestions were unclear; 2 = satisfactory evidence of the criterion, and implementation suggestions were vague; 3 = strong evidence of the criterion, and strong implementation suggestions for general classroom use, but suggestions for how to support at-risk learners were sometimes unclear or brief; 4 = strong evidence of the criterion and strong implementation suggestions both for general classroom use and support for at-risk learners.

**Table 15**

Results – Content Analysis of Grade 2 Instructional Materials by Framework Evaluation, Using Specific Criteria Related to Phonological Awareness, Orthography, Word Reading Fluency, and Reading Intervention

*Results – Content Analysis of Grade 2 Instructional Materials by Framework Evaluation, Using Specific Criteria Related to Phonological Awareness, Orthography, Word Reading Fluency and Reading Intervention*

Criterion	Grade 2	Instructional materials				
		T	PF1	PF2	B	W
Phonological awareness*	Phonological awareness is broken down into specific categories that pertain to expected outcomes for each grade level based on SSR phonological awareness development theories.  Phonological awareness is taught systematically and aligns with SSR on the development of phonological awareness in students. Students are instructed in syllables, rhyme, onset-rime, and lastly phonemes.					
Syllables	Instruction in syllables is an earlier skill but may be reinforced in Grade 2 with students who have not fully grasped the concept.	4	2	2	1	4
<i>Implementation strategies:</i>	Teachers are directed in how to implement instruction in syllables through various teaching methods and given sample activities, blackline masters, and lists of appropriate books or other texts.	3	2	1	2	4
Rhyme	Instruction in rhyme is an earlier skill but may be re-enforced in Grade 2 with students that have not fully grasped the concept.	3	0*	0*	0*	0*
<i>Implementation strategies</i>	Teachers are directed in how to implement instruction in rhyme through various teaching methods and given sample activities, blackline masters, lists of appropriate books or other texts.	3	0*	0*	0*	0*
Phonemic awareness	Teachers observe if students can segment words into phonemes, providing additional instruction if needed.	4	1	0	0	4
	Teachers give students opportunities to manipulate phonemes and to work with more complex spelling patterns.	4	1	0	0	4
<i>Implementation strategies</i>	Teachers are instructed to give students time to practice blending sounds together to decode words in isolation, decodable texts, and other reading materials.	3	1	0	0	4

Note. T = Trehearne et al. (2004). *Grades 1–2: Teacher’s Resource Book*; PF1 = Pinnell & Fountas (2003c). *Phonics Lessons: Letters, Words, and How They Work: Grade 2*; PF2 = Pinnell & Fountas (2011). *The Continuum of Literacy Learning*; B = Bell (2007). *Seeing Stars*; W = Wilson Language Training Corporation. (2020a). *Foundations Teacher’s Manual: Level 2*; 0 = no evidence of the criterion and/or implementation; 1= minimal evidence of the criterion, and implementation suggestions were unclear; 2 = satisfactory evidence of the criterion, and implementation suggestions were vague; 3 = strong evidence of the criterion, and strong implementation suggestions for general classroom use, but suggestions for how to support at-risk learners were sometimes unclear or brief; 4 = strong evidence of the criterion and strong implementation suggestions both for general classroom use and support for at-risk learners. \* not significant based on code-based approaches to reading instruction

**Table 15 (continued)**

Criterion	Grade 2	Instructional materials				
		T	PF1	PF2	B	W
Phonemic awareness <i>Implementation strategies (continued)</i>	Teachers are instructed in how to implement instruction in phonemic awareness through various teaching methods and given sample activities, blackline masters, lists of appropriate books or other texts.	3	1	0	0	4
<i>Implementation strategies</i>	Teachers are given sample activities, blackline masters, lists of appropriate books or other texts to support developmentally appropriate instruction in phonics.	4	1	0	2	4
<i>Evaluation of phonological skills in Grade 2</i>	Teachers monitor students' progress in phonological awareness and make instructional decisions based on students' progress.	4	2	1	2	4
Orthography	Students need explicit instruction in orthography to develop their understanding of the code. Instruction supports SSR theories of orthography development.			0		
	Phonics instruction teaches letter-sound relationships explicitly and systematically from simpler to more complex sounds.	3	1	0	0	4
	This sequential system includes different syllable patterns, digraphs, and vowel teams.	3	2	1	4	4
	Students are taught to decode multisyllabic words.	4	1	1	4	4
	Teachers have students read texts that reinforce learned phonics skills.	3	1	0	0	4
	Teachers are instructed to have students use invented spelling to write unknown words using their understanding of sound and letter relationships.	4	2	1	0	4
	Teachers explicitly teach students how to blend letters to spell words in their writing.	4	2	0	0	4
	Teachers are instructed to explicitly teach orthography (spelling patterns) and given an appropriate sequence to follow for instruction.	4	2	1	4	4
	Teachers are instructed to teach word families and word patterns after students are familiar with all the individual sounds in that word family or pattern.	3	2	0	4	4
Instruction in more complex sounds such as long vowels, prefixes, suffixes etc. is explicitly stated and developed.	3	2	1	4	4	

Note. T = Trehearne et al. (2004). *Grades 1–2: Teacher’s Resource Book*; PF1 = Pinnell & Fountas (2003c). *Phonics Lessons: Letters, Words, and How They Work: Grade 2*; PF2 = Pinnell & Fountas (2011). *The Continuum of Literacy Learning*; B = Bell (2007). *Seeing Stars*; W = Wilson Language Training Corporation. (2020a). *Foundations Teacher’s Manual: Level 2*; 0 = no evidence of the criterion and/or implementation; 1 = minimal evidence of the criterion, and implementation suggestions were unclear; 2 = satisfactory evidence of the criterion, and implementation suggestions were vague; 3 = strong evidence of the criterion, and strong implementation suggestions for general classroom use, but suggestions for how to support at-risk learners were sometimes unclear or brief; 4 = strong evidence of the criterion and strong implementation suggestions both for general classroom use and support for at-risk learners..

**Table 15 (continued)**

Criterion	Grade 2	Instructional materials				
		T	PF1	PF2	B	W
Orthography (continued) <i>Implementation strategies</i>	Teachers are given sample activities, blackline masters, lists of appropriate books or other texts to support developmentally appropriate instruction in orthography.	3	2	1	4	4
<i>Evaluation of orthography development in Grade 1</i>	Teachers monitor students' progress in orthography and its relationship to phonological awareness and make instructional decisions based on students' progress.	3	2	0	3	4
Word reading fluency	Students recall words in texts when reading quickly or automatically.					
	Teachers are instructed to give students time to decode words in a variety of contexts including continuous texts, decodable texts, word work activities and/or in isolation.	2	1	0	2	4
	Teachers are encouraged to develop fluent word reading in students.	3	1	0	2	4
	Teachers are instructed to provide feedback to their students to improve fluent word reading.	4	1	0	0	4
	Teachers help students learn to self-monitor their reading and make corrections when reading by applying their understanding of the code to decode unfamiliar words.	2	1	1	2	4
<i>Implementation strategies</i>	Teachers are instructed in how to support word reading fluency based on SSR research.	2	1	0	2	4
<i>Evaluation of fluent word reading in Grade 2</i>	Teachers monitor their students to guide future instruction based on SSR.	3	1	0	1	4
Reading intervention	The instructional materials offer suggestions for intervention for at-risk students.					
	Specialist teachers share in the programming using SSR research-based instruction.	2	0	0	1	4
	Teachers are provided SSR research-based suggestions for effective reading intervention.	3	0	0	0	4

Note. T = Trehearne et al. (2004). *Grades 1–2: Teacher’s Resource Book*; PF1 = Pinnell & Fountas (2003c). *Phonics Lessons: Letters, Words, and How They Work: Grade 2*; PF2 = Pinnell & Fountas (2011). *The Continuum of Literacy Learning*; B = Bell (2007). *Seeing Stars*; W = Wilson Language Training Corporation. (2020a). *Foundations Teacher’s Manual: Level 2*. 0 = no evidence of the criterion and/or implementation; 1 = minimal evidence of the criterion, and implementation suggestions were unclear; 2 = satisfactory evidence of the criterion, and implementation suggestions were vague; 3 = strong evidence of the criterion, and strong implementation suggestions for general classroom use, but suggestions for how to support at-risk learners were sometimes unclear or brief; 4 = strong evidence of the criterion and strong implementation suggestions both for general classroom use and support for at-risk learners.

The data from the content analysis of instructional materials by framework evaluation in Tables 13, 14, and 15 indicate that the instructional materials provided to classroom teachers are founded on balanced literacy while the instructional materials provided to resource teachers are founded on SSR. This indicates that there is evidence of different messaging in the teaching methods encouraged to two different groups of teachers—classroom teachers and resource teachers working within the same jurisdiction.

#### **4.4.1 Results—Content Analysis of Instructional Materials via Keyword Analysis**

The results of the keyword analysis of the instructional materials are presented in Tables 16 and Table 17.

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**Table 16**

Results – Keyword Analysis of Instructional Materials for Classroom Teachers

*Results – Keyword Analysis of Instructional Materials for Classroom Teachers*

Theme	Keyword(s)	Occurrences					
		PF1	PF2	PF3	PF4	T1	T2
Instruction	Explicit/structured teaching/instruction, systematic	3	15	19	19	4	12
	Flexible, explore, embedded	8	11	15	11	20	9
	Research-based	1	1	1	1	21	15
	Developmentally appropriate					6	15
Phonological awareness	Phonological awareness	3	9	8	5	92	37
	Syllable	3	10	6	15	36	16
	Rhyme, rhyming, onset-rime	22	15	16	9	34	29
	Phonemic awareness, phonemes, sounds	2	18	10	6	41	44
	Manipulating sounds (onset/rime, syllables, phonemes)						
	Segmenting and blending	6	3	5		50	43
Manipulate phonemes	6	4	4		17	25	
Orthography	Orthography, alphabetic principle/system	1	2	1	0	2	2
	Phonics, letter-sound, sound-symbol, word study	38	13	31	60	39	57
	Letter identification/recognition	8	4	8	2	22	9
	Attempt to spell/phonetic spellings, conventional	4		2		3	9
	Spelling patterns (word families, digraphs, blends, suffixes etc.)	23	19	27	62	6	52
Word reading	Decoding, sound out	0	2	2	2	3	9
	Fluency/phrasing	12	1	4	4	5	26
	High-frequency words	12	16	15	22	11	27
Evidence of balanced literacy	Read aloud	20	9	3	3	7	3
	Shared reading	18	15	6	4	12	5
	Guided reading/independent reading	17	7	8	4	11	16
	Cueing systems/information sources	31		3	4	3	11
	Self-corrections/Self-monitoring/monitor	62	1	3	2	1	8
	Word work, word-solving	12	6	8	7	1	26
	Minilessons	1	14	26	22	9	33
Intervention	Early/literacy intervention, at-risk	0	0	0	0	22	11

Note. PF1 = Pinnell & Fountas (2011); PF2 = Pinnell & Fountas (2003a); PF3 = Pinnell & Fountas (2003b); PF4 = Pinnell and Fountas (2003c); T1 = Trehearne et al. (2000). *Kindergarten Teacher's Resource Book*; T2 = Trehearne et al. (2004). *Grades 1–2 Teacher's Resource Book*

**Table 17**

Results – Keyword Analysis of Instructional Materials for Resource Teachers

*Results– Keyword Analysis of Instructional Materials for Resource Teachers*

Theme	Keyword(s)	Instructional materials			
		B	W1	W2	W3
Instruction	Explicit/structured teaching/instruction/direct		33	27	16
	Explore/experiences/meaningful/embedded				
	Research-based		4	2	1
	Developmentally appropriate				
	Multi-sensory (e.g. tap sound/sky write etc.)	41	13	18	36
Phonological Awareness	Phonological awareness	12	2	3	2
	syllable, syllable awareness	10	4	16	35
	Rhyme, rhyming, rhyme awareness, onset-rime	63	2	2	0
	Phonemic awareness, phonemes, sounds	48	34	34	13
	Manipulating sounds (onset/rime, syllables, phonemes)				
	Segmenting and blending		287	50	29
	Deleting/isolating/substitute			15	
Orthography	Orthography, alphabetic system	17	11	12	6
	Phonics, letter-sound, sound-symbol, word study		27	29	29
	Letter identification/recognition/knowledge	9	11	9	4
	Temporary/invented spelling, spelling		32	49	134
	Spelling/letter patterns/prefix/suffix/affix	89	4	19	7
	Symbol imagery	10			
	Handwriting	54	11	39	35
Word reading	Decoding, sound out	59	7	5	10
	Fluency/phrasing		20	31	22
	Decodable texts			7	2
	High-frequency words, sight words, trick words	11	20	37	21
Evidence of balanced literacy	Read aloud				
	Shared reading				
	Guided reading/independent reading				
	Cueing systems/information sources				
	Self-monitor/self-correct				
	Word work				
	Mini lessons				
Intervention	Early/literacy intervention, at-risk	1	9	7	16

Note. B = Bell (2007); W1= Wilson Language Training Corporation. (2020a). *Foundations Teacher's Manual: Level K*; W2 = Wilson Language Training Corporation. (2020b). *Foundations Teacher's Manual: Level 1*; W= Wilson Language Training Corporation. (2020c). *Foundations Teacher's Manual: Level 2*.

The data from the content analysis of instructional materials by keyword analysis in Tables 16 and 17 indicate that the instructional materials provided to classroom teachers are founded on balanced literacy while the instructional materials provided to resource teachers are

founded on SSR. This indicates that there is evidence of different messaging in the teaching methods encouraged to two different groups of teachers—classroom teachers and resource teachers.

#### **4.5 Summary of Findings and Conclusion**

The purpose of this study was to investigate if there were differences in the extent to which reading-related resources (curriculum/policy documents and instructional materials), provided to two different groups of teachers—classroom teachers and resource teachers in one Nova Scotia jurisdiction—reflect evidence from the scientific studies of reading. As noted in the summary statements on the findings presented in Tables 10 through 17, overall, the findings indicate that the instructional materials given to classroom teachers are largely rooted in balanced literacy while the instructional materials given to resource teachers are informed by SSR research; thus, the findings do reveal that the instructional materials offer conflicting messages for classroom teachers and resource teachers. Overall, the curriculum and policy guides for classroom teachers promote balanced-literacy instruction although the recent supplemental literacy documents (DEECD, 2020; DEECD, 2021), which are used by both groups of teachers, place a greater emphasis on phonological awareness and orthography instruction than the earlier language arts curriculum guides (DEECD, 2019a; DEECD, 2019b; DEECD, 2019c) and present a developmental progression that is consistent with SSR. In contrast, the policy documents aimed at resource teachers have consistently emphasized evidence-based instruction to create inclusive learning environments. These findings, and their implications for practice are considered in Chapter 5.

## **Chapter 5: Discussion**

### **5.1 Introduction**

This study examined the following research question: Are there differences in the extent to which reading-related resources (curriculum/policy documents and instructional materials), provided to two different groups of teachers—classroom teachers and resource teachers in one Nova Scotia jurisdiction—reflect evidence from the scientific studies of reading? Research has indicated that effective reading instruction is informed by SSR (Ehri & Roberts, 2005; Moats 2020b; Pennell, 2020). The current study allowed the researcher to examine the extent to which reading-related resources (curriculum/policy documents and instructional materials), provided to two different teachers—classroom teachers and resource teachers—reflect evidence from the scientific studies of reading.

In this chapter the implications of the findings will be discussed. First, an introduction discusses what SSR has said about effective reading instruction, followed by a summary of the content analysis carried out in this study. Then, the findings about the curriculum/policy documents used by both groups of teachers are followed by a discussion of the findings about the instructional materials given to classroom teachers and resource teachers. Next is a discussion about the implications of these findings for teaching practice. A section on the implications of early intervention and professional development for teachers follows. After that is a section that discusses suggestions for further study, which is followed by the conclusion.

### **5.2 Reading Instruction Based on Scientific Studies of Reading Is Effective**

The body of research known as SSR has demonstrated that all children benefit from teaching that is based on SSR (Ehri & Roberts, 2005; Høien et al., 1995; Joshi et al., 2009; Nicholson & McIntosh, 2020; Pennell, 2020). According to SSR, fluent word reading is founded

on phonological awareness and orthography (Pennell, 2020). When teachers teach reading based on SSR, fewer students struggle with reading (Gresham & Vellutino, 2010; Moats, 2020a). SOTR, which is rooted in SSR, can also decrease the number of students that struggle with reading or be labelled with a reading disability.

The recent *Inclusive Education Policy* (Nova Scotia, 2019d; Whitley & Hollweck, 2020) directed classroom teachers to work collaboratively with resource teachers to improve the learning of all students. Resource teachers had been taught to use the *Foundations* series (Wilson, 2020a; 2020b; 2020c). When resource teachers bring this knowledge into classroom practice to co-teach and co-plan with classroom teachers, reading instruction is based on SOTR. In the *Foundations* series, for example, students learn to spell phonetically. The *Foundations* series can help to inform both resource teachers and classroom teachers about orthography development and its relationship to the development of phonological awareness to support fluent word reading.

Teachers are influenced by the policy documents of their jurisdictions and the instructional materials they have in their schools (Bishop et al., 2010; Dingle et al. 2011; Kauffman et al., 2002). When both groups of teachers have curriculum/policy documents and instructional materials that are influenced by SSR, the research cited in this study clearly suggests, they will be more effective teachers of reading for all students. Different messaging can create a barrier to good instruction. SOTR helps all students and should not be limited to students at risk for reading failure (Ehri & Roberts, 2005; Hoiem et al., 1995; Joshi et al., 2009; Moats, 2020a; Nicholson & McIntosh, 2020). When classroom teachers provide SOTR instruction, they help all students, and the instructional practices of classroom teachers and resource teachers are more consistent. Different messaging can cause confusion, and this study demonstrates that there is evidence of different messaging for classroom teachers and resource teachers.

### **5.3 Curriculum Analysis**

The topic of curriculum analysis has not been well researched, but SSR can inform teachers in evaluating curriculum (Simmons and Kame'enui, 2006). This study limited the evaluation of instructional materials to Grades kindergarten through to Grade 2 as these early years are formative (Ehri & Roberts, 2005; Lonigan, 2005; Wackerle-Hollman et al., 2015). The content analysis was conducted using two methods: (a) using an established framework to investigate evidence of SSR in curriculum/policy documents and instructional materials and (b) using keyword analysis to examine the extent to which these materials reflect the science of reading (SOTR). The keyword analysis considered keywords and themes related to code-based instruction such as “research-based,” “explicit,” and “systematic.” (Moats, 2020b; Petscher et al., 2020) Keywords such as “cueing systems,” “self-monitor,” and “guided reading” demonstrated evidence of balanced-literacy approaches, which are not supported by SSR (Ontario Human Rights Commission, 2022; Petscher et al., 2020). These keywords were present both in the curriculum/policy documents used by classroom teachers and resource teachers and the instructional materials for these two groups of teachers.

### **5.4 Findings of the Analysis of Curriculum/Policy Documents**

This section discusses the findings of the curriculum/policy documents. Teachers in Nova Scotia have been instructed to use balanced-literacy teaching methods to teach reading. In balanced literacy, instruction in phonological awareness and orthography are embedded in the daily literacy activities of guided reading, shared reading, and word study, and it is not systematic or explicit (Clay, 2016; Pinnell & Fountas, 2011) The *English Language Arts* curriculum documents (DEECD, 2019a; DEECD, 2019b; DEECD, 2019c) were founded in balanced-literacy approaches to reading instruction and offered little guidance in the instruction

of phonological awareness or orthography. While the curriculum documents did not explicitly reference authors like Pinnell and Fountas who champion balanced literacy approaches, the teaching methods and philosophy mentioned were consistent with those of Pinnell and Fountas (2011). Teachers teach students to read levelled texts, and instruction in phonological awareness is embedded in literacy activities. This method of instruction is not supported by SSR (Ontario Human Rights Commission, 2022; Pennell, 2020)

The policy documents offered conflicting messages to both classroom teachers and resource teachers. The curriculum/policy documents were intended to support balanced literacy instruction although recent supplemental literacy documents (DEECD, 2020; DEECD, 2021) have placed a greater emphasis on phonological awareness and orthography instruction than the earlier language arts curriculum guides (DEECD, 2019a, DEECD, 2019b, DEECD, 2019c) and presented a developmental progression that is consistent with SSR. The policy documents that support inclusive education (DEECD, 2019d) and tiered intervention (DEECD, 2019e) emphasized that instructional practices should be based on research and supportive of inclusive learning environments.

The code-heavier approach in the recent policy documents can cause confusion for educators. *Phonological Awareness and Phonics Instruction in a Balanced Literacy Program* (DEECD, 2020) presented outcomes in a table to help guide teachers more explicitly on expected outcomes at the end of each grade level. *Responsive Literacy in the P-3 Classroom: Supplemental Resource* (DEECD, 2021) expanded upon *Phonological Awareness and Phonics Instruction in a Balanced Literacy Programs* (DEECD, 2020), breaking down development skills into three developmental periods or “benchmarks” (p. 3) for December, March, and June.

This document also provided teachers with reflection questions for each criterion of learning for them to reflect upon to guide their instruction.

Classroom teachers and resource teachers are mandated to work together to create inclusive learning environments that help to prevent reading failure for all students (HRCE, 2021). Resource teachers are encouraged to share their expertise and to invest more in Tier 1 intervention in the classroom supporting the classroom teacher in favour of more inclusive learning environments than in pull-out or withdrawal settings for fewer students (DEECD, 2019d, DEECD, 2019e). This co-teaching approach is consistent with RTI, whereby there is a focus on improving classroom instruction to reduce the number of students who require Tier 2 and Tier 3 intervention (Gresham & Vellutino, 2010; Moats 2020a). When teachers use methods that are informed by SRR, all students benefit (Ehri & Roberts, 2005; Hoiem et al., 1995; Joshi et al., 2009; Nicholson & McIntosh, 2020; Pennell 2020).

*Responsive Literacy in the P–3 Classroom: Supplemental Resource* (DEECD, 2021) also encouraged teachers to teach cueing methods in reading instruction. This demonstrates that teachers have not been instructed to fully abandon balanced literacy in favour of SSR. This approach of guessing unknown words is not supported by SSR (Moats, 2020a). The key findings upon analysis of the curriculum/policy guides are that code-based approaches or SOTR are becoming more common. This increase in SOTR creates conflicting messages for classroom teachers and resource teachers with regard to which method of reading instruction they should follow and how to continue with balanced-literacy instruction and implement more code-based approaches.



## **5.5 Findings of the Analysis of Instructional Materials**

This section discusses the implications of the findings about instructional materials. First, there is a discussion of the instructional materials given to classroom teachers. Then, there is a discussion of the instructional materials given to resource teachers.

### **5.5.1 Instructional Materials for Classroom Teacher**

The findings of this study are that the instructional materials provided to classroom teachers are still largely rooted in whole-language or balanced literacy. This section discusses the philosophy behind the classroom resources and the implications for teaching practice. Some of the classroom teacher instructional materials provide some good instructional suggestions informed by SSR. As was detailed in Chapter 4, Trehearne et al. (2000) and Trehearne et al. (2004) effectively guided teachers in how to provide reading intervention to improve the development of students' phonological awareness and orthography development. They provided teachers with clear suggestions to support at-risk students with clear, systematic, and explicit lesson ideas and activities, but they also instructed teachers to teach students to use context cues to solve unknown words. This method of instruction is not consistent with SSR and offers conflicting messages to teachers.

As was detailed in Chapter 4, balanced literacy instruction was common in the resources by Pinnell and Fountas (2003a, 2003b, 2003c). These resources use the keywords “research” or “research-based” and could mislead the reader to believe that these resources are founded on SSR. Petscher et al., (2020) argued that teachers often believe that the resources they use “are grounded in quality research” (p. 272), but they have “not been subjected to direct scientific evaluation” (p. 272). This illusion that the resources by Pinnell and Fountas (2003a; 2003b; 2003c) are based on SSR can give teachers a false confidence in their effectiveness. Teachers are

often unaware that the strategies encouraged by Pinnell and Fountas (2003a; 2003b; 2003c) are against what “40 years of SSR say about effective reading instruction” (Petscher et al., 2020, p. 272).

### **5.5.2 Instructional Materials for Resource Teachers**

This section discusses the instructional materials given to resource teachers. The instructional materials for resource teachers are rooted in SSR. Resource teachers are encouraged to provide explicit and systematic instruction with the resources by Bell (2007) and Wilson (2020a; 2020b; 2020c) and given guidance in supporting at-risk learners.

Bell (2007) is intended to be used with other teaching materials to teach reading, so some resource teachers may find it confusing to use or to pair with other materials. The *Foundations* (Wilson 2020a, 2020b, 2020c) is more comprehensive and structured.

This series develops students’ reading skills in both phonological awareness and orthography systematically and explicitly. The *Foundations* system also incorporates multi-sensory approaches to teach reading and writing (Wilson 2020a, 2020b, 2020c). This multi-sensory approach is supported by SSR. Johnston (2019) wrote that tapping “or finger spelling each sound heard” (p. 341) can help students manipulate phonemes. The teaching manuals are easy to follow, and teachers are given a clear road map for teaching reading.

### **5.6 Implications of Findings**

This section discusses the implications of the findings. In this study, it was found that different messaging was common in the curriculum/policy documents and instructional materials. This section first discusses the findings about different messaging in the curriculum and policy documents, and next the implications of different messaging in the instructional materials that teachers are given. Then, the implications that different messaging can have for

teaching practice, early intervention, and the need for teachers to have professional development in SOTR are considered.

### **5.6.1 Implications of Different Messaging in Curriculum/Policy Documents**

The curriculum/policy documents have varying messages. The curriculum documents encourage balanced literacy instruction, but other literacy documents and the *Inclusive Education Policy* (DEECD, 2019d) and the *Multi-Tiered System of Supports (MTSS)* (DEECD, 2019e) argued for inclusive teaching models that are evidence-based. Recent literacy documents have argued for explicit instruction of phonological awareness (DEECD, 2020; DEECD, 2021).

This different messaging has sent conflicting messages to teachers about effective reading instruction. In Nova Scotia, there is evidence of balanced literacy instruction for classroom teachers and SOTR teaching methods for resource teachers. Classroom teachers have been encouraged to use levelled or “just right” texts (DEECD, 2019a; DEECD, 2019b, DEECD, 2019c). Levelled books are consistent with balanced literacy or whole-language methods (2011; Ontario Human Rights Commission, 2022; Pinnell & Fountas). SSR has encouraged the use of decodable texts for early readers instead of levelled texts because decodable texts follow a development progression that is consistent with SSR (Pennell, 2020; Petscher et al., 2020). The implication is that classroom teachers and resource teachers could be approaching reading instruction very differently. Classrooms have levelled texts not decodable texts. While resource teachers are encouraged by Wilson (2020a; 2020b; 2020c) to use decodable texts, these texts are often not in schools.

Pennell (2020) noted that fluency is often referred “to as the bridge between decoding and reading comprehension” (p. 43). Fluency combines “automaticity, accuracy, and prosody (expression)” (p. 43). Pennell (2020) stated that guided reading does “not emphasize phonics in a

systematic or robust manner” (p. 40), arguing that research does not demonstrate that these methods increase “phonics ability” (p. 40) in students. She suggested that levelled texts can teach students to become too dependent on context cues from pictures or structure patterns, so that they do not learn to decode. Instead, Pennell (2020) encouraged teachers to use decodable texts with early readers to reinforce the skills they are learning in phonics; when they have strong decoding skills, they can read then a variety of texts. Context can help students to comprehend texts, but “when viewed as an aid to word recognition, context is an unreliable mechanism for orthographic mapping” (Pennell, 2020).

### **5.6.2 Implications of Findings About Instructional Materials for Resource Teachers**

Resource teachers in the HRCE have been given instructional materials that are rooted in SSR. Bell (2007) described the dangers of balanced literacy and whole-language reading instruction. She defined miscue analysis as a “guessing game” (p. 26) that is ineffective for readers with less-developed decoding skills. Bell (2007) argued that students need instruction in both phonological awareness and orthography to be strong readers and spellers. The need for explicit instruction in orthography is clear throughout the text. The *Foundations* series by Wilson (2020a; 2020b; 2020c) is also founded on SSR. As was detailed in Chapter 4, while the teaching resources are grade-specific, educators have been encouraged to have students move through one level before moving onto the next level, (Wilson, 2020b). The use of invented or temporary spelling is not discussed in the *Foundations* series, but extensive instruction of phonetic and conventional spelling occurs throughout the series, so the implication is that students should be able to apply their knowledge to their spelling (Wilson 2020a, 2020b, 2020c). This method of instruction aligns with what SSR has said about encouraging students to begin with invented spelling in their writing and then as they learn complex spelling patterns and irregular spelling

patterns, they will then apply that knowledge and use conventional spelling (Adams, 2001; Adams & Bruck, 1993; Richgels, 2001).

Students with strong phonological awareness have an easier time learning to read (Lonigan, 2005; Wackerle-Hollman et al., 2015) while students with dyslexia struggle to read because of less-developed phonological-awareness skills (Gresham & Vellutino, 2010; Krafnick et al., 2011; Lonigan, 2005; Lyon et al., 2003). Explicit orthography instruction helps students make the connections between letters and sounds because phonological awareness and orthography development, while distinct, are closely related (Adams & Bruck, 1993; Chateau & Jared, 2000; Johnston, 2019; Schwartz & Sparks, 2019; Torgesen, 2000). For at-risk readers or students with reading disabilities, these connections between phonological awareness and orthography are challenging, and these students often need explicit instruction to address these challenges (Lyon et al., 2003; Seidenberg et al., 2020).

### **5.6.3 Implications of Findings About Instructional Materials for Classroom Teachers**

The teaching philosophy embedded in the classroom-teacher instructional materials was very different from that of the resource-teacher instructional materials. This difference in messaging could have serious implications for the quality of reading instruction that students receive in classroom settings. Resource teachers and classroom teachers have been instructed to co-plan and co-teach (HRCE, 2021). Resource teachers help classroom teachers to create inclusive learning environments and to provide Tier 1 intervention within in the classroom (DEECD, 2019d; DEECD, 2019e; HRCE, 2021; Whitley & Hollweck, 2020). When classroom teachers and resource teachers have been instructed in different teaching methods, what does reading instruction look like in the classroom?

SOTR is supported by SSR (Ehri & Roberts, 2005; Høien et al., 1995; Joshi et al., 2009; Moats, 2020a; Nicholson & McIntosh, 2020) and should be used in classrooms. Different messaging can impact classroom practice. Balanced literacy teaching methods are less effective and may even contribute to reading failure for some students (Adams, 2001; Adams & Bruck, 1993). Teachers need to explicitly teach phonological awareness and orthography to reduce the number of students who are at risk (Lyon et al., 2003). Professional development can help inform teachers about SOTR and how to implement it.

All teachers need to be instructed in SOTR to use it effectively (Ontario Human Rights Commission, 2022; Seidenberg et al., 2020). The different messaging in the policy documents and teaching resources provided to two different groups of teachers—classroom teachers and resource teachers—can cause confusion when they are co-planning and co-teaching. This conflicting messaging could also diminish effective instruction and diminish collegiality among colleagues or the willingness of classroom teachers to learn from resource teachers and invite them to share their expertise of SOTR.

Teachers need to teach SOTR from the beginning because phonological awareness and orthography development are foundational skills for reading (Adams & Bruck, 1993; Anthony et al., 2002; Krafnick et al., 2011; Lyon et al., 2003). Teachers need to use instructional materials that encourage teaching methods that are supported by SSR (Simmons & Kame'enui, 2006). These authors argued that, as teachers are instructed in SOTR, they are better equipped to reflect on their teaching practice and choose more effective instructional materials.

#### **5.6.4 Implications for Early Intervention**

Early intervention is critical for reducing the risk of continued reading failure in students (Kamps et al., 2008; Longian, 2005; McNamara et al., 2011; Parkhill et al., 2013). When students

receive reading intervention based on SSR early, they can often become successful readers or, if they continue to struggle and are diagnosed with a learning disability, it will often be less severe because of effective early intervention (Gresham & Vellutino, 2010). When students struggle to read after second grade, they are more likely to continue to find reading challenging as they age and the gaps between proficient and struggling readers continue to widen (Longian, 2005; McNamara et al., 2011; Parkhill et al., 2013). Students with reading disabilities often need continued instruction in phonological awareness to address these less-developed skills (Torgesen, 2000; Torgesen & Mathes, 1998). Torgesen (2000) suggested that “2% to 6% of” (p. 55) of students struggle to read even after effective reading instruction, but that number would be much higher when less-effective reading methods are used. Students need explicit instruction in both phonological awareness and orthography to become proficient readers because development in phonological awareness can affect orthography development (Adams & Bruck, 1993; Anthony et al., 2002; Krafnick et al., 2011; Lyon et al., 2003). Mercer et al. (2011) also noted that reading intervention is more beneficial when students have well-developed phonological awareness skills, which makes effective classroom instruction so important. SSR has demonstrated that SOTR is good teaching for all students, not just students at risk of reading failure and that teachers can teach SOTR when they are “given appropriate professional development and sufficient resources” (Kamps et al., 2008, p. 111).

## **5.7 Implications for Teachers’ Professional Development**

Teachers need know how to teach reading based on SSR (Moats, 2020b; Ontario Human Rights Commission, 2022). Many classroom teachers are dedicated and well-intentioned but are insufficiently prepared because pre-service institutions had failed to adequately prepare them to teach reading (Johnston, 2019; Moreau, 2014; Ontario Human Rights Commission, 2022). Even

if teachers are provided effective professional development, Moreau (2014) argued, teachers need time to practice the new information that they learn during professional development to encourage buy-in. Teachers also need to learn how to use the resources they are given (Ball & Cohen, 1996), and the resources they are given need to be rooted in SSR (Moats, 2020b; Ontario Human Rights Commission, 2022). Professional development founded on SSR for both classroom teachers and resource teachers are essential to ensure consistency and understanding (Moats, 2020b).

Resource teachers within the HRCE have benefited from professional development in the science of reading and been given explicit instruction in how to implement the *Foundations* program (Wilson, 2020a, 2020b, 2020c) as well as in the new role of resource teachers. Classroom teachers have had less professional development and rely on accruing this information second-hand from resource teachers or literacy coaches or through independent study. Classroom teachers need professional development and resources to implement SOTR. Within the HRCE, some schools are using resource teachers and other specialists like speech and language pathologists more in the classroom to help teach these methods in favour of Tier 1 intervention. When there is consistent messaging in schools around reading instruction, it is easier for students, teachers, and administrators to track progress and outcomes. SSR clearly states that all teachers need to be informed about SOTR. If teachers were instructed in SOTR in pre-service education programs and in-service professional development, and all curriculum and policy documents embraced SOTR, there would be less differences in the messaging about effective teaching practices and more pedagogical consistencies (Ontario Human Rights Commission, 2022).



## 5.8 Limitations of Study and Suggestions for Future Research

This study was limited by a number of factors. First, this study was limited to an examination of the official documents and authorized resources in the jurisdiction. Secondly curriculum/policy documents are continually undergoing renewal and this study represents the conditions of the documentation guidance during the period in which the documents were reviewed for the study (September 2022 – March 2023). There may be other influences on teacher practice and other influences about what teachers do that are outside of this study.

If there were no time constraints, a longitudinal study investigating the effects of different messaging in the curriculum/policy documents and instructional materials used by classroom teachers and resource teachers could be another lens to evaluate teacher knowledge and practice and its impact on reading instruction. Based on the study's findings and noted limitations, there are clear directions for future research. Since collaboration is a key feature of instructional design in Nova Scotia, a longitudinal study investigating the influence of the *Inclusive Education Policy* (DEECD, 2019d) on student learning could examine if SOTR practices are becoming more common in classrooms as resource teachers and classroom teachers co-plan and co-teach and if the collaborative teaching model is improving reading instruction in Nova Scotia. Despite the limitations of this study, its findings are important because they demonstrate that there is different messaging in the curriculum/policy documents and instructional materials given to classroom teachers and resource teachers. These findings point to the need for future research into the influence of curriculum/policy documents and instructional resources and the effects that different messaging can have on teacher knowledge and practice.

## 5.9 Conclusion

This study considered whether there were differences in the extent to which reading-related resources (curriculum/policy documents and instructional material), provided to two different groups of teachers—classroom teachers and resource teachers in one Nova Scotia jurisdiction—reflect evidence from the scientific studies of reading. Content analysis revealed different messaging in the curriculum/policy documents and instructional materials provided to classroom teachers compare to resource teachers.

Different messaging can make implementing the *Inclusive Education Policy* (DEECD, 2019d) model difficult because teachers may be working at odds with each other. Balanced literacy or whole-language methods are less effective in providing students with a solid foundation for reading (Henry, 2010; Schwartz & Sparks, 2019). When all teachers use SOTR, foundational instruction as well as intervention methods will be more effective (Gresham & Vellutino, 2010; Moreau, 2014). The purpose of Nova Scotia's *Inclusive Education Policy* (DEECD, 2019d) is to create more inclusive learning environments where whole-class or Tier 1 instruction is more effective in improving the learning for all students and increasing teacher collaboration between resource teachers and classroom teachers (DEECD, 2019d; Whitley & Hollweck, 2020). When teachers use methods supported by SSR in the classroom, classrooms are more inclusive (Ontario Human Rights Commission, 2022).

Effective classroom instruction that is supported by SSR can reduce the number of students that need additional support or reduce the severity of a reading disability (Gresham & Vellutino, 2010). When classroom teachers and resource teachers co-plan and co-teach, classrooms are more collaborative. This collaborative model also supports resource teachers in implementing Tier 2 and Tier 3 interventions if they are needed because teachers are using

shared language and teaching strategies to support their most struggling students in reading. The intention of the *Inclusive Education Policy* is to improve the learning of all students and to teach using evidence-based methods (DEECD, 2019d). When all teachers implement teaching methods that are based on evidence-informed methods, research suggests, more students learn to read and the number of students struggling in reading, and other subject areas, can be reduced (Ontario Human Rights Commission, 2022; Whitley & Hollweck, 2020). Professional development helps all teachers deepen their understanding of how to provide good first instruction and how to further respond to at-risk students with appropriate intervention methods to address the gaps using tiered-intervention models. When all teachers hold a shared understanding of the science of reading, collaboration in instruction helps to support fluent word reading development for all students.

## References

- Adams, M. (2001). Alphabetic anxiety and explicit, systematic phonics instruction: a cognitive science perspective. In S. B. Neuman & D. K. Dickinson, D. (Eds.). *Handbook of early literacy research* (pp. 66–80). Guilford Press.
- Adams, M. J., & Bruck, M. (1993). Word recognition: The interface of educational policies and scientific research. *Reading & Writing, 5*(2), 113–139.  
<https://doi.org/10.1007/BF01027480>
- Allington, R. L. (2013). What really matters when working with struggling readers. *The Reading Teacher, 66*(7), 520–530. <https://doi.org/10.1002/TRTR.1154>
- Anthony, J. L., Lonigan, C. J., Burgess, S. R., Driscoll, K., Phillips, B. M., & Cantor, B. G. (2002). Structure of preschool phonological sensitivity: overlapping sensitivity to rhyme, words, syllables, and phonemes. *Journal of Experimental Child Psychology, 82*(1), 65–92. <https://doi.org/10.1006/jecp.2002.2677>
- Azungah, T. (2018). Qualitative research: Deductive and inductive approaches to data analysis. *Qualitative Research Journal, 18*(4), 383–400. <https://doi.org/10.1108/QRJ-D-18-00035>
- Ball, D. L., & Cohen, D. K. (1996). Reform by the book: What is—or might be—the role of curriculum materials in teacher learning and instructional reform? *Educational Researcher, 25*(9), 6–14. <https://doi.org/10.3102/0013189X025009006>
- Bell, N. (2007). *Seeing Stars*. Gander Publishing.
- Bingham, G. E., & Hall-Kenyon, K. M. (2013). Examining teachers' beliefs about and implementation of a balanced literacy framework. *Journal of Research in Reading, 36*(1), 14–28. <https://doi.org/10.1111/j.1467-9817.2010.01483.x>

- Bishop, A. G., Brownell, M. T., Klingner, J. K., Leko, M. M., & Galman, S. A. (2010). Differences in beginning special education teachers: The influence of personal attributes, preparation, and school environment on classroom reading practices. *Learning Disability Quarterly, 33*(2), 75–92. <https://doi.org/10.1177/073194871003300202>
- Bradley, E. H., Curry, L. A., & Devers, K. J. (2007). Qualitative data analysis for health services research: Developing taxonomy, themes, and theory. *Health Services Research, 42*(4), 1758–1772. <https://doi.org/10.1111/j.1475-6773.2006.00684.x>
- Bratsch-Hines, M., Vernon-Feagans, L., Pedonti, S., & Varghese, C. (2020). Differential effects of the targeted reading intervention for students with low phonological awareness and/or vocabulary. *Learning Disability Quarterly, 43*(4), 214–226. <https://doi.org/10.1177/0731948719858683>
- Brown Waesche, J. S., Schatschneider, C., Maner, J. K., Ahmed, Y., & Wagner, R. K. (2011). Agreement examining aand longitudinal stability among traditional and RTI-based definitions of reading disability using the affected-status agreement statistic. *Journal of Learning Disabilities, 44*(3), 296–307. <https://doi.org/10.1177/0022219410392048>
- Campbell, J. L., Quincy, C., Osserman, J., & Pedersen, O. K. (2013). Coding in-depth semistructured interviews: problems of unitization and intercoder reliability and agreement. *Sociological Methods & Research, 42*(3), 294–320. <https://doi.org/10.1177/0049124113500475>
- Chateau, D., & Jared, D. (2000). Exposure to print and word recognition processes. *Memory & Cognition, 28*(1), 143–153. <https://doi.org/10.3758/BF03211582>

- Clark, S. (2016). An exploratory study examining the influence of the number of reading methods courses on pre-service and in-service teacher perceptions of ability to teach reading. *Asia-Pacific Journal of Teacher Education*, 44(2), 125–141.  
<https://doi.org/10.1080/1359866X.2015.1066492>
- Clay, M. (2016). *Literacy lessons designed for individuals* (2nd ed.). The Marie Clay Literacy Trust.
- Creswell, J. W., & Guetterman, T. C. (2019). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research* (6th ed.). Pearson.
- Cunningham, A., & Stanovich, K. (1998). The impact of print exposure on word recognition. In J. Metsala & L. Ehri (Eds). *Word recognition in beginning literacy*. (235–262). Taylor and Francis Group.
- Denton, C. A. (2012). Response to Intervention for reading difficulties in the primary grades: Some answers and lingering questions. *Journal of Learning Disabilities*, 45(3), 232–243.  
<https://doi.org/10.1177/0022219412442155>
- Department of Education and Early Childhood Development. (2017, January). *Nova Scotia provincial literacy strategy*. Government of Nova Scotia.  
<https://www.ednet.ns.ca/docs/nsprovincialliteracystrategy.pdf>
- Department of Education and Early Childhood Development. (2019a). *English language arts 1*. Government of Nova Scotia. <https://curriculum.novascotia.ca/english-programs/course/english-language-arts-1>
- Department of Education and Early Childhood Development. (2019b). *English language arts Primary*. Government of Nova Scotia. <https://curriculum.novascotia.ca/english-programs/course/english-language-arts-primary>

Department of Education and Early Childhood Development. (2019c). *English language arts 2*.

Government of Nova Scotia. <https://curriculum.novascotia.ca/english-programs/course/english-language-arts-2>

Department of Education and Early Childhood Development. (2019d, August). *Inclusive education policy*. Government of Nova Scotia.

<https://www.ednet.ns.ca/docs/inclusiveeducationpolicyen.pdf>

Department of Education and Early Childhood Development. (2019e). *Multi-Tiered system of supports (MTSS)*. Government of Nova Scotia. [https://www.ednet.ns.ca/psp/equity-](https://www.ednet.ns.ca/psp/equity-inclusive-education/multi-tiered-system-supports#:~:text=The%20guiding%20principles%20of%20Nova%20Scotia%E2%80%99s%20Inclusive%20Education,students%20with%20a%20focus%20on%20well-being%20and%20achievement.)

[inclusive-education/multi-tiered-system-](https://www.ednet.ns.ca/psp/equity-inclusive-education/multi-tiered-system-supports#:~:text=The%20guiding%20principles%20of%20Nova%20Scotia%E2%80%99s%20Inclusive%20Education,students%20with%20a%20focus%20on%20well-being%20and%20achievement.)

[supports#:~:text=The%20guiding%20principles%20of%20Nova%20Scotia%E2%80%99](https://www.ednet.ns.ca/psp/equity-inclusive-education/multi-tiered-system-supports#:~:text=The%20guiding%20principles%20of%20Nova%20Scotia%E2%80%99s%20Inclusive%20Education,students%20with%20a%20focus%20on%20well-being%20and%20achievement.)

[s%20Inclusive%20Education,students%20with%20a%20focus%20on%20well-](https://www.ednet.ns.ca/psp/equity-inclusive-education/multi-tiered-system-supports#:~:text=The%20guiding%20principles%20of%20Nova%20Scotia%E2%80%99s%20Inclusive%20Education,students%20with%20a%20focus%20on%20well-being%20and%20achievement.)

[being%20and%20achievement.](https://www.ednet.ns.ca/psp/equity-inclusive-education/multi-tiered-system-supports#:~:text=The%20guiding%20principles%20of%20Nova%20Scotia%E2%80%99s%20Inclusive%20Education,students%20with%20a%20focus%20on%20well-being%20and%20achievement.)

Department of Education and Early Childhood Development. (2020, December 4). *Phonological awareness and phonics instruction in a balanced literacy program*. Government of Nova

Scotia. [https://curriculum.novascotia.ca/sites/default/files/documents/resource-](https://curriculum.novascotia.ca/sites/default/files/documents/resource-files/Phonological%20Awareness%20and%20Phonics%20Instruction%20in%20a%20Balanced%20Literacy%20Program.pdf)

[files/Phonological%20Awareness%20and%20Phonics%20Instruction%20in%20a%20Ba](https://curriculum.novascotia.ca/sites/default/files/documents/resource-files/Phonological%20Awareness%20and%20Phonics%20Instruction%20in%20a%20Balanced%20Literacy%20Program.pdf)

[lanced%20Literacy%20Program.pdf](https://curriculum.novascotia.ca/sites/default/files/documents/resource-files/Phonological%20Awareness%20and%20Phonics%20Instruction%20in%20a%20Balanced%20Literacy%20Program.pdf)

[lanced%20Literacy%20Program.pdf](https://curriculum.novascotia.ca/sites/default/files/documents/resource-files/Phonological%20Awareness%20and%20Phonics%20Instruction%20in%20a%20Balanced%20Literacy%20Program.pdf)

Department of Education and Early Childhood Development. (2021). *Responsive literacy in the*

*P-3 classroom: Supplemental resource*. Government of Nova Scotia.

[https://curriculum.novascotia.ca/sites/default/files/documents/resource-files/P-](https://curriculum.novascotia.ca/sites/default/files/documents/resource-files/P-3%20Literacy%20Learning.pdf)

[3%20Literacy%20Learning.pdf](https://curriculum.novascotia.ca/sites/default/files/documents/resource-files/P-3%20Literacy%20Learning.pdf)

Department of Education and Early Childhood Development. (n.d.-1). 2021–2022 *Nova Scotia assessment literacy and mathematics in grade 3*. Government of Nova Scotia.

<https://plans.ednet.ns.ca/sites/default/files/documents/2021-22-LM3.pdf>

Department of Education and Early Childhood Development. (n.d.-2). 2021–2022 *Nova Scotia assessment reading, writing, and mathematics in grade 6*. Government of Nova Scotia.

<https://plans.ednet.ns.ca/sites/default/files/documents/2021-22-RWM6%20for%20web.pdf>

Department of Education and Early Childhood Development. (n.d.-3). 2021–2022 *Nova Scotia assessment reading, writing, and mathematics in grade 8*. Government of Nova Scotia.

<https://plans.ednet.ns.ca/sites/default/files/documents/2021-22-RWM8.pdf>

Department of Education and Early Childhood Development. (n.d.-4). 2021–2022 *Nova Scotia examination English 10*. Government of Nova Scotia.

<https://plans.ednet.ns.ca/sites/default/files/documents/2021-22-E10.pdf>

Dingle, M. P., Brownell, M. T., Leko, M. M., Boardman, A. G., & Haager, D. (2011).

Developing effective special education reading teachers: The influence of professional development, context, and individual qualities. *Learning Disability Quarterly*, 34(1), 87–103. <https://doi.org/10.1177/073194871103400106>

Drisko, J. W., & Maschi, T. (2015). *Content analysis*. Oxford University Press.

<https://doi.org/10.1093/acprof:oso/9780190215491.001.0001>

Ehri, L. (1995). Phases of development in learning to read words by sight. *Journal of Research in Reading*, 18(2), 116–125. <https://doi.org/10.1111/j.1467-9817.1995.tb00077.x>



- Ehri, L., & Roberts, T. (2005). The roots of learning to read and write: Acquisition of letters and phonemic awareness. In D. Dickinson & S. Neuman (Eds.), *Handbook of early literacy research* (Vol. 2; pp. 113–131). Guilford Publications
- Elbro, C., & Jensen, M. N. (2005). Quality of phonological representations, verbal learning, and phoneme awareness in dyslexic and normal readers. *Scandinavian Journal of Psychology*, *46*(4), 375–384. <https://doi.org/10.1111/j.1467-9450.2005.00468.x>
- Elhassan, Z, Crewther, S. G., & Bavin, E. L. (2017). The contribution of phonological awareness to reading fluency and its individual sub-skills in readers aged 9- to 12- years. *Frontiers in Psychology*, *8*, Article 533. <https://doi.org/10.3389/fpsyg.2017.00533>
- Fisher, D, Frey, N., & Lapp, D. (2023). Veteran teachers’ understanding of “balanced literacy.” *Journal of Education (Boston, Mass.)*, *203*(1), 188–195. <https://doi.org/10.1177/00220574211025980>
- Foorman, B., Smith, K., & Kosanovich, M. (2017). Rubric for evaluating reading/ language arts instructional materials for kindergarten to grade 5. U.S. Department of Education. [https://ies.ed.gov/ncee/edlabs/regions/southeast/pdf/REL\\_2017219.pdf](https://ies.ed.gov/ncee/edlabs/regions/southeast/pdf/REL_2017219.pdf)
- Foorman, B. R., Francis, D. J., Fletcher, J. M., Schatschneider, C., & Mehta, P. (1998). The role of instruction in learning to read: Preventing reading failure in at-risk children. *Journal of Educational Psychology*, *90*(1), 37–55. <https://doi.org/10.1037/0022-0663.90.1.37>
- Gale, N. K., Heath, G., Cameron, E., Rashid, S., & Redwood, S. (2013). Using the framework method for the analysis of qualitative data in multi-disciplinary health research. *BMC Medical Research Methodology*, *13*(1), Article 117. <https://doi.org/10.1186/1471-2288-13-117>

- Gilbert, J. K., Compton, D. L., Fuchs, D., Fuchs, L. S., Bouton, B., Barquero, L. A., & Cho, E. (2013). Efficacy of a first-grade responsiveness-to-intervention prevention model for struggling readers. *Reading Research Quarterly*, *48*(2), 135–154.  
<https://doi.org/10.1002/rrq.45>
- Gresham, F. M., & Vellutino, F. R. (2010). What is the role of intelligence in the identification of specific learning disabilities? Issues and clarifications. *Learning Disabilities Research and Practice*, *25*(4), 194–206. <https://doi.org/10.1111/j.1540-5826.2010.00317.x>
- Halifax Regional Centre for Education. (2021). *The resource service delivery framework*.
- Hendricks, E. L., & Fuchs, D. (2020). Are individual differences in response to intervention influenced by the methods and measures used to define response? Implications for identifying children with learning disabilities. *Journal of Learning Disabilities*, *53*(6), 428–443. <https://doi.org/10.1177/0022219420920379>
- Henry, M. K. (2010). *Unlocking literacy: Effective decoding & spelling instruction* (2nd ed.). Paul H. Brookes Publishing.
- Høien, T., Lundberg, I., Stanovich, K. E., & Bjaalid, I.-K. (1995). Components of phonological awareness. *Reading and Writing: An Interdisciplinary Journal*, *7*, 171–188.  
<https://doi.org/10.1007/BF01027184>
- Johnston, V. (2019). Dyslexia: What reading teachers need to know. *The Reading Teacher*, *73*(3), 339–346. <https://doi.org/10.1002/trtr.1830>
- Jonsen, K., & Jehn, K. A. (2009). Using triangulation to validate themes in qualitative studies. *Qualitative Research in Organizations and Management*, *4*(2), 123–150.  
<https://doi.org/10.1108/17465640910978391>

- Joshi, M., Binks, E., Hougen, M., Dahlgren, M. E., Ocker-Dean, E., & Smith, D. L. (2009). Why elementary teachers might be inadequately prepared to teach reading. *Journal of Learning Disabilities, 42*(5), 392–402. <https://doi.org/10.1177/0022219409338736>
- Kamps, D., Abbott, M., Greenwood, C., Wills, H., Veerkamp, M., & Kaufman, J. (2008). Effects of small-group reading instruction and curriculum differences for students most at risk in kindergarten: Two-Year results for secondary- and tertiary-level interventions. *Journal of Learning Disabilities, 41*(2), 101–114. <https://doi.org/10.1177/0022219407313412>
- Kauffman, D., Johnson, S. M., Kardos, S. M., Liu, E., & Peske, H. G. (2002). “Lost at sea”: New teachers’ experiences with curriculum and assessment. *Teachers College Record (1970), 104*(2), 273–300. <https://doi.org/10.1111/1467-9620.00163>
- Krafnick, A. J., Flowers, D. L., Napoliello, E. M., & Eden, G. F. (2011). Gray matter volume changes following reading intervention in dyslexic children. *NeuroImage (Orlando, Fla.), 57*(3), 733–741. <https://doi.org/10.1016/j.neuroimage.2010.10.062>
- Krippendorff, K. (2019). *Content analysis: An introduction to its methodology*. Sage Publications.
- Kyngäs, H., & Kaakinen, P. (2020). Deductive content analysis. In H. Kyngäs, K. Mikkonen, & M. Kääriäinen (Eds.). *The application of content analysis in nursing science research*. Springer International Publishing. [https://doi.org/10.1007/978-3-030-30199-6\\_3](https://doi.org/10.1007/978-3-030-30199-6_3)
- Kyngäs, H., Kääriäinen, M., & Elo, S. (2020). The trustworthiness of content analysis. In H. Kyngäs, K. Mikkonen, & M. Kääriäinen (Eds.), *The application of content analysis in nursing science research*. Springer International Publishing. [https://doi.org/10.1007/978-3-030-30199-6\\_5](https://doi.org/10.1007/978-3-030-30199-6_5)

- Lenski, S., Larson, M., McElhone, D., Davis, D. S., Lauritzen, C., Villagómez, A., Yeigh, M., Landon-Hays, M., LeJeune, M., & Scales, W. D. (2016). What teachers want: A statewide survey of reading and English Language Arts teachers' instructional materials, preferences, and practices. *Literacy Research and Instruction*, 55(3), 237–261.  
<https://doi.org/10.1080/19388071.2016.1156202>
- Lonigan, C. (2005). Conceptualizing phonological processing skills in prereaders. In D. Dickinson & S. Neuman (Eds.) *Handbook of early literacy research* (Vol. 2; pp. 77–89). Guilford Publications.
- Lonigan, C. J., Purpura, D. J., Wilson, S. B., Walker, P. M., & Clancy-Menchetti, J. (2013). Evaluating the components of an emergent literacy intervention for preschool children at risk for reading difficulties. *Journal of Experimental Child Psychology*, 114(1), 111–130.  
<https://doi.org/10.1016/j.jecp.2012.08.010>
- Lyon, G. R., Shaywitz, S. E., & Shaywitz, B. A. (2003). A definition of dyslexia. *Annals of Dyslexia*, 53(1), 1–14. <https://doi.org/10.1007/s11881-003-0001-9>
- McNamara, J. K., Scissons, M., & Gutknecht, N. (2011). A longitudinal study of kindergarten children at risk for reading disabilities: The poor really are getting poorer. *Journal of Learning Disabilities*, 44(5), 421–430. <https://doi.org/10.1177/0022219411410040>
- McNaughton, S. (2014). Classroom instruction: The influences of Marie Clay. *The Reading Teacher*, 68(2), 88–92. <https://doi.org/10.1002/trtr.1286>
- Mercer, C. D., Mercer, A. R., & Pullen, P. C. (2011). *Teaching students with learning problems* (8th ed.). Pearson.
- Moats, L. C. (2005, Winter). How spelling supports reading. *American Educator*, 12–43.  
<https://education.ufl.edu/patterson/files/2019/04/Moats-Spelling.pdf>

- Moats, L. C. (2020a). *Speech to print: Language essentials for teachers* (3rd ed.). Paul H. Brookes Publishing.
- Moats, L. C. (2020b). Teaching reading is rocket science: What expert teachers of reading should know and be able to do. *American Federation of Teachers*, 1–32.  
<https://www.readingrockets.org/sites/default/files/teaching-reading-is-rocket-science-2020.pdf>
- Moreau, L. K. (2014). Who’s really struggling?: Middle school teachers’ perceptions of struggling readers. *RMLE Online: Research in Middle Level Education*, 37(10), 1–17.  
<https://doi.org/10.1080/19404476.2014.11462113>
- National Reading Panel. (2000). *Report of the National Reading Panel: Teaching children to read: Findings and determinations of the National Reading Panel by topic areas*. U.S. Department of Health and Human Services.  
<https://www.nichd.nih.gov/publications/pubs/nrp/findings>
- Neuendorf, K. A. (2017). *The content analysis guidebook* (2nd ed.;). SAGE Publications.
- Nicholson, T., & McIntosh, S. (2020). An exploration of the relationship between phonological and phonics knowledge, and self-efficacy for teaching. *Dyslexia (Chichester, England)*, 26(3), 286–304. <https://doi.org/10.1002/dys.1636>
- O’Connor, C., & Joffe, H. (2020). Intercoder reliability in qualitative research: Debates and practical guidelines. *International Journal of Qualitative Methods*, 19.  
<https://doi.org/10.1177/1609406919899220>
- Ontario Human Rights Commission. (2022). *Right to Read Inquiry Report*. Government of Ontario. <https://www.ohrc.on.ca/en/right-to-right-inquiry-report>

Parkhill, F. F., Fletcher, J. F., Greenwood, J., Grimley, M., & Bridges, S. (2013). Who says you need to teach reading to 11-13-year-olds? *Education 3-13*, 41(2), 160–177.

<https://doi.org/10.1080/03004279.2011.565780>

Pennell, C. (2020). *Evaluating the K-12 literacy curriculum: A step by step guide for auditing programs, materials, and instructional approaches*. Routledge.

Petscher, Y., Cabell, S. Q., Catts, H. W., Compton, D. L., Foorman, B. R., Hart, S. A., Lonigan, C. J., Phillips, B. M., Schatschneider, C., Steacy, L. M., Terry, N. P., & Wagner, R. K. (2020). How the science of reading informs 21st-century education. *Reading Research Quarterly*, 55(1), S267–S282. <https://doi.org/10.1002/rrq.352>

Phillips, B., & Torgesen, J. (2005). Phonemic awareness and reading: Beyond the growth of initial reading accuracy. In D. Dickinson & S. Neuman (Eds.), *Handbook of early literacy research* (Vol. 2.; pp. 101–112). Guilford Publications.

Pinnell, G. S., & Fountas, I. C. (2011). *The continuum of literacy learning: Grades PreK-2*. (2nd ed.). Heinemann.

Pinnell, G. S., & Fountas, I. C. (2003a). *Phonics lessons: Letters, words, and how they work: Grade K*. FirstHand.

Pinnell, G. S., & Fountas, I. C. (2003b). *Phonics lessons: Letters, words, and how they work: Grade 1*. FirstHand.

Pinnell, G. S., & Fountas, I. C. (2003c). *Phonics lessons: Letters, words, and how they work: Grade 2*. FirstHand.

Ramsey, Z. W. (1962). Will tomorrow's teachers know and teach phonics? *The Reading Teacher*, 15(4), 241–245. <http://www.jstor.org/stable/20197507>

- Rankin, A. (2022, November 23). Struggling to read: SPECIAL REPORT: N.S. curriculum failing too many children, say parents, experts. *Chronicle-Herald*.  
<https://www.proquest.com/newspapers/struggling-read/docview/2739438601/se-2>
- Reading League, The. (2020). *Curriculum evaluation tool*. The Reading League.  
<https://www.thereadingleague.org/wp-content/uploads/2020/08/Curriculum-Evaluation-Tool-August-2020.pdf>
- Richgels, D. (2001). Invented spelling, phonemic awareness, and reading and writing instruction. In S. B. Neuman & D. K. Dickinson. (2001). *Handbook of early literacy research*. (142–155). Guilford Press.
- Schwartz, S., & Sparks, S. (2019, October 2). How do kids learn to read? What the science says. Education Week. <https://www.edweek.org/teaching-learning/how-do-kids-learn-to-read-what-the-science-says/2019/10>
- Scott, D., & Morrison, M. (2006). *Key ideas in educational research*. Continuum.
- Seidenberg, M. S., Cooper Borkenhagen, M., & Kearns, D. M. (2020). Lost in translation? Challenges in connecting reading science and educational practice. *Reading Research Quarterly*, 55(S1), S119–S130. <https://doi.org/10.1002/rrq.341>
- Simmons, D., & Kame'enui, E. (2006). A consumer's guide to analysing a core reading program Grades K-3: A critical elements analysis. University of Oregon.  
[http://reading.uoregon.edu/cia/curricula/con\\_guide.php](http://reading.uoregon.edu/cia/curricula/con_guide.php)
- Slavin, R. E., Lake, C., Davis, S., & Madden, N. A. (2011). Effective programs for struggling readers: A best-evidence synthesis. *Educational Research Review*, 6(1), 1–26.  
<https://doi.org/10.1016/j.edurev.2010.07.002>

- Torgesen, J. (2000). Individual differences in response to early interventions in reading: The lingering problem of treatment resisters. *Learning Disabilities Research and Practice*, 15(1), 55–64. [https://doi.org/10.1207/SLDRP1501\\_6](https://doi.org/10.1207/SLDRP1501_6)
- Torgesen, J., & Mathes, P. (1998). *What every teacher should know about phonological awareness*. Florida State University.  
<https://www.fldoe.org/core/fileparse.php/7690/urlt/0070133-phon9872.pdf>
- Trehearne, M., Healy, L., Cantalini-Williams, M., & Moore, J. (2000). *Kindergarten teacher's resource book*. Nelson.
- Trehearne, M., Healy, L., McBain, G., MacGregor, M., & Pynoo, S. (2004). *Grades 1–2: Teacher's resource book*. Nelson.
- Tunmer, W., & Greaney, K. (2010). Defining dyslexia. *Journal of Learning Disabilities*, 43(3), 229–243. <https://doi.org/10.1177/0022219409345009>
- Vaughn, S., & Fletcher, J. (2012). Response to intervention with secondary school students with reading disabilities, *Journal of Learning Disabilities*, 45(3), 244–256.  
<https://doi.org/10.1177/0022219412442157>
- Wackerle-Hollman, A. K., Schmitt, B. A., Bradfield, T. A., Rodriguez, M. C., & McConnell, S. R. (2015). Redefining individual growth and development indicators: phonological awareness. *Journal of Learning Disabilities*, 48(5), 495–510.  
<https://doi.org/10.1177/0022219413510181>
- Washburn, E. K., Joshi, R. M., & Binks Cantrell, E. (2011). Are preservice teachers prepared to teach struggling readers? *Annals of Dyslexia*, 61(1), 21–43.  
<https://doi.org/10.1007/s11881-010-0040-y>



Whitley, J., & Hollweck, T. (2020). Inclusion and equity in education: Current policy reform in Nova Scotia, Canada. *Prospects (Paris)*, 49(3-4), 297–312.

<https://doi.org/10.1007/s11125-020-09503-z>

Wilson Language Training Corporation. (2020a). *Foundations teacher's manual: Level K*.

Wilson Language Training Corporation. (2020b). *Foundations teacher's manual: Level 1*.

Wilson Language Training Corporation. (2020c). *Foundations teacher's manual: Level 2*.

Wyse, D., & Goswami, U. (2008). Synthetic phonics and the teaching of reading. *British Educational Research Journal*, 34(6), 691–710.

<https://doi.org/10.1080/01411920802268912>