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Systematic Phonics Instruction Within Word Study at the Primary Grades

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Abstract

The purpose of this mixed-methods study was to compare nonsense word reading, phoneme segmentation fluency and overall reading achievement of four low performing first and second graders before and after replacing teacher constructed word activities with systematic synthetic phonics instruction (SSPI). In addition to quantitative data, qualitative interview data were collected from four district interventionists who provided insight into instructional experiences. Nonsense word reading fluency of this sample produced mixed responses to instruction. All four students made gains in phoneme segmentation fluency after SSPI. The researcher suggests continuing the current implementation of Guided Reading Plus by highly trained teachers.

Literature Review

A widely accepted premise among educators and researchers alike is that success in learning to read during the first two years of schooling is a critical step on the continuum of literacy skills acquisition (Snow, Burns, & Griffin, 1998; Stone, Silliman, Ehren, & Apel, 2004). It is also agreed upon that low performing readers need effective early interventions to help them catch up to their 'on grade level' peers (Stanovich, 1986). A disagreement still exists: how are such theories best converted into practice? John G. Ramsey's quote from 1997 begs revisiting: "Reading instruction is far more art than science at this point". At the time he spoke, Mr. Ramsey had little faith in teachers and reading professionals to closing reading gaps efficiently. A plethora of research supports how the unnatural act of reading must be supported with explicit instruction in: identifying individual words quickly and accurately (Adams, 1990; Ehri, 1998; and Snow et al., 1998); letter-sound relationships in order to decipher words (Adams, 1990; Byrne, 1996; and Cunningham & Stanovich, 1993); hearing and recording sounds (Cunningham & Stanovich, 1993); letter knowledge (Adams, 1990; Torgesen & Wagner, 1998); and phonemic awareness (Adams, 1990; Langenberg, 2000; and Dickinson & Snow, 1987). These studies represent but a small sample, yet differing views on the teaching of phonics persist. Bearing similar weightiness in reading instruction research are the theoretical concepts of: conventions of print (Clay, 1979 and Ehri & Sweet, 1991); background knowledge (Marr & Gromley, 1982); knowledge of word meanings and vocabulary (Adams, 1990; Stanovich, 1986; and Langenberg, 2000); and syntax knowledge (Chaney, 1992). Any lesser combination of these elements are often implemented, though exclusion of any one element from instruction is discouraged (Langenburg, 2000). Extensive research defines "reading [as] an active, complex, and

multidimensional process undertaken for many different purposes" (National Assessment of Educational Progress (NAEP), 2009, p. 6).

The National Reading Panel recommended that initial teaching and interventions for struggling readers address phonemic awareness through assessment and instruction (Langenberg, 2000). In their meta-analysis of data from 96 comparisons of treatment and control groups, overall findings showed:

- teaching children to manipulate phonemes in words was highly effective under a variety of teaching conditions with a variety of learners across a range of grade and age levels
- teaching phonemic awareness to children significantly improves their reading more than instruction that lacks any attention to phonemic awareness.

The following year, the National Institute for Literacy (NIFL) published a synthesis of the findings of the National Reading Panel report. The authors communicated best practices for phonemic awareness instruction, phonics instruction, fluency instruction,vocabulary instruction, and text comprehension instruction. It is known as the *Put Reading First* initiative (NIFL, 2001). Their suggestions were based on prior research indicating the positive correlation between instruction in phonemic awareness and children's ability to read words. They also identified improved reading comprehension as being positively correlated with phonemic awareness instruction (NIFL, 2001 p. 15). Marie Clay, researcher and developer of Reading Recovery ®, proposed a similar credo. Ms. Clay wrote, "These two analytic aspects of the reading process, the

language learning and the analysis of visual stimuli, have to be related to each other. There has to develop a facility for associating speech sounds with printed shapes" (Clay, 1991 p. 95).

It is necessary to examine research on phonological awareness as a predictor of reading disability, phonics instruction, and teacher decision making. The findings of this study help determine a template for effective instruction with which current practice can be maintained or modified at teachers' discretion.

This literature review will first define synthetic and incidental phonics instruction. Next, phonological skills as a predictor of reading difficulties will be evidenced. How grapheme-phoneme knowledge affects comprehension will be presented and assessments currently used in the Mount Blue Regional School district (MBRSD) will be explained. These assessments determine phonological skills of students enrolled in kindergarten through third grade. Since teachers ultimately deliver instruction to students, literature exploring the impacts of teacher decision making will be reviewed. Studies on synthetic phonics instruction will be included. Finally, this literature review will examine the format of one particular reading intervention format: Guided Reading Plus (GRP) (Dorn & Soffos, 2012). S.P.I.R.E. will also be described as a possible addition to this format.

Please note specific definitions can be found in Appendix A. This synthesis of a vocabulary list developed by the National Institute for Literacy (NIFL, 2001) will aid in understanding terminology.

Synthetic and Incidental Phonics

According to Phonics International Ltd (2011) teaching the components of phonics involves systematic and comprehensive introduction of the sound-letter correspondences of English orthography. This is known as synthetic phonics. The focus is at the single sound level and progresses to blending sounds to form words. Conversely, incidental, or embedded, phonics instruction occurs as dictated by student need and may focus more on whole words, word parts, and word analogies before drawing students' attention to single letters. Teachers plan word study activities using data from students' reading and writing, capitalizing on teaching skills that will extend the readers' ability to process more difficult texts (Dorn & Soffos, 2012, p. 89).

Phonological Awareness as a Predictor of Reading Achievement

In order to choose or format a teaching design that could directly aid struggling readers, a logical first step is to examine research connected to the prediction of reading difficulties. Illustrating the longevity of interest in this topic, is an analysis from 1983. Bradley and Bryant hypothesized that preschool experiences with rhyme might impact reading and writing success later. In their four year longitudinal study of 368 students, Bradley and Bryant (1983) found high correlations between initial sound categorization scores and students' reading and spelling scores over three years. Published fourteen years later, a longitudinal study by Wagner et al. (1997) probed potential changes in the directions and magnitudes of influences between phonological processing abilities and word-level reading. This being a follow up to a previous inquiry in 1994

by Wagner, Torgeson, and Rashotte, Wagner et al. (1997) worked to assimilate accrued data, with particular interest in examining data on children moving from beginning to skilled reading; all while seeking evidence to further support their previous conclusion of relations between individual differences in phonological processing and reading. A ‘give and take’ model of sorts, this bidirectional view states that:

> individual differences in sensitivity to the sound structure of oral language, as demonstrated by one's appreciation of rhyme and alliteration, influence the development of subsequent individual differences in reading skills. Individual differences in reading skills influence the development of subsequent individual differences in more full-blown awareness, as demonstrated by the ability to segment syllables into their constituent phonemes (Wagner et al., 1997, p. 469).

The findings of the latter study were almost completely in line with Wagner et al.’s initial theory (Wagner et al., 1994). Though individual differences in phonological awareness, naming, and vocabulary did influence the subsequent development of individual differences in word-level reading, the individual differences specifically in letter-name knowledge, not word-level reading, influenced the subsequent development of individual differences in phonological awareness and naming. Even so, the authors offered two hypotheses for this particular outcome: Most letter names inherently correspond to their sounds, “providing a useful concrete referent” (Wagner et al., 1997, p. 477). Secondly, the authors contended that the demonstrated influence of letter-name knowledge may be a side effect of development. In their conclusion, Wagner et al. noted a possible limitation to the application of their results: English orthography. Later studies have well supported phonological awareness as a stable predictor of reading difficulties even in deep orthographies such as English (Schabmann et al.,2009; Ziegler et al., 2010; and Share, 1999).

Grapheme-Phoneme Knowledge and Comprehension

On sight word reading, Ehri (1985, as cited by Ehri, 2005) offered four phases characterized by level of alphabetic knowledge : pre-alphabetic, partial alphabetic, full alphabetic, and consolidated alphabetic. In support of the importance of movement through these phases to acquire the ability to quickly recognize words, Ehri (2005) cited her own and Wilce's 1985 study: In five trials of pre-alphabetic and partial alphabetic Kindergarteners (students who knew no or very few letters) words were represented visually and phonetically. The pre-alphabetic group learned visual spellings more easily while the partial alphabetic group used phonetic spellings to read more words correctly. Replicated by several other studies (Snow et al., 1998; Stanovich,1986; and Bradley & Bryant, 1983) this continued accumulation of grapheme-phoneme knowledge has been tied to effective sight word reading, which later leaves the reader available to process texts more easily. Wagner et al.(1997) offered a similar theory that letter knowledge influenced word-level reading. In a modified alternating treatments single subject design that contradicted such findings (Noltmeyer, Joseph & Kunesh, 2013), phonics instruction was effective at improving words recalled only immediately following the instruction. Many gains were lost by the six kindergarten students at the one-week recall assessment. The small scale design of the study created limitations but should be considered as this type of small group work typifies normal educational experiences.

Teachers may be wary of using phonics instruction if the effects do not appear to last long enough for a child to gain fluency. Most of these studies have isolated phonics instruction to test its effects and presented reading instruction as linear in fashion. An alternative scenario would

provide continual and genuine opportunities for practice on readable texts which would keep the learning cognitively available (Bos & Vaughn, 2002; Chu & Chen, 2014).

> Effective programs allow students to use their knowledge of sound-letter correspondences to practice decoding words both in isolation and in context. The use of decodable text provides teachers with the opportunity to model how to blend and segment sounds, sound out unknown words, and use onset rimes or word chunks to decode words. Students should practice these skills early on, as well as recognize less predictable words by sight as whole words and practice reading words and phrases independently. Students should then learn about letter sounds and simple spelling patterns, and to fluently and independently read words, sentences, and connected text (Bos & Vaughn, 2002, p. 34).

Connections between letters, sounds, and words modify, strengthen, and form new learning.

Local Assessments for Phonological Skills

Dynamic Indicators of Basic Early Literacy Skills (DIBELS) Next

As previously mentioned, a large number of studies over decades have linked phonological awareness to reading achievement. With this preponderance of evidence, Mount Blue Regional School District instituted the use of the DIBELS Next (Dynamic Measurement Group, 2010) assessment two years ago. DIBELS Next are a set of procedures and measures for assessing the acquisition of early literacy skills from kindergarten through sixth grade. DIBELS Next is used within the research district for kindergarten through third grade students as a benchmark assessment and progress monitoring tool for students who receive any Tier 2 literacy intervention. For each of the measures of nonsense word reading fluency and phoneme segmentation, the examiner models the tasks and gives the student an opportunity to practice. Once understanding of the expectation is demonstrated the student's one minute performance is assessed.

The benchmark goals are "empirically derived, criterion-referenced target scores that represent adequate reading progress. A benchmark goal indicates a level of skill where the student is likely to achieve the next DIBELS benchmark goal or reading outcome" (Dynamic Measurement Group, Inc. 2010, p.1). Students scoring below the cut points for risk likely need intensive support to catch up. By using DIBELS benchmark goals and cut points for risk, teachers can make decisions about matching intervention strategies to student need.

Teacher Decision Making and Student Learning

Wright, Horn, and Sanders (1997) determined the single most important factor affecting student learning across multiple subject areas was the teacher. To dig deeper, the next factors to be investigated here are time and method of literacy instruction (McyIntyre, Rightmyer, Powell, Powers & Petrosko (2006). Misunderstandings about phonics and opinions about the weight of its importance to learning to read vary from teacher to teacher (Cunningham, Zibulsky, Stanovich & Stanovich, 2009). The level of incorporation of any phonics instruction into the broad art of a teacher's reading program may range from not at all to exclusive. Using observations, teacher interviews and student achievement data, McyIntyre et al. determined children in classrooms they characterized as *reads little* gained significantly more on the phonics measure than the children in the *reads much* classrooms. It was observed that more time was devoted to phonics instruction in the reads little classrooms. Later, Cunningham et al. recruited 121 first grade teachers who self reported on instructional activities during their literacy block. Though the teachers' district had recently instituted a plan to devote a considerable portion of the 150 minute block to explicit, systematic phonics instruction, the results showed sets of teachers

who allocated their time differently. Teachers who preferred whole group literature activities did so at the expense of time for direct phonics instruction. The authors concluded that the results of the study indicated that many teachers preferred to allocate their language arts time to instructional practices that were not aligned with the latest research (Langenberg, 2000; NIFL, 2001) or district policy. Ultimately, teacher decision making in literacy instruction was supported in the study by McyIntyre et al. (2006). The authors found no significant difference in reading achievement among the first graders in their study after one year, though amount and method of reading instruction were independent variables. In the profession, teachers have continued to enjoy a sense of autonomy (Donaldson, 2008). This type of evidence provided little backing for widespread implementation of instruction characterized as systematic or scripted.

A study in 2009 (Piasta, Connor, Fishman, & Morrison) examined the correlation between teacher knowledge, explicit decoding instruction, and word reading gains. No evidence tied teacher knowledge to student gains in word reading, but Piasta et al. did find that explicit phonics instruction from a teacher with low knowledge actually diminished student learning. Results from an alternating treatment study (Beverly, Giles, & Buck, 2009) can also be interpreted to support a teacher's decision to go heavy or light in phonics instruction. This study essentially controlled for teacher knowledge by providing the same systematic approach to phonics to two groups. One group of first grade participants practiced reading decodable texts after phonics instruction (Texts group); another heard authentic literature read aloud (Literature group), and the third (Phonics group) participated in phonics combined with authentic literature read aloud. There was also an untreated classroom. All treatment groups showed measurable reading gains. For the purposes of this literature review, noting the responses of the below

average readers and those treated in the Texts group and Phonics group is more important. Understanding how various combinations of elements of literacy instruction affect low performing readers allows for the design, testing and implementation of effective interventions. Below average readers in the Phonics group demonstrated greater comprehension increases than average readers (Beverly et al., 2009). Exposure to explicit phonics instruction promoted faster word reading (Snow et al., 1998; Stanovich,1986; and Bradley & Bryant, 1983). The teachers also paused to pose prediction questions. This type of question answering was linked to increased comprehension in seventeen studies reviewed by the National Institute of Child Health and Human Development (Langenberg, 2000). The Texts group showed the highest overall increases in rate, accuracy, and fluency on an oral reading test, yet the mean difference between pre and post summed scores for comprehension was lowest. Interestingly, the effect of the treatment text varied by reading level: "all below average and significantly below average readers in the Texts group had increases in comprehension" (Beverly et al. 2009, p. 199). This outcome was also suggested in a study by Hoffman, Roser, Salas, Patterson, and Pennington (2001). Students' accuracy and word recognition skills were positively and significantly correlated with reading more highly decodable texts. Though the original purpose of the study by Beverly et al. was to define the effect of reading decodable texts, these additional results should be considered:

- phonics instruction elicited improved reading performance for below average readers
- this instruction coupled with hearing authentic literature produced gains in comprehension for below average readers

- below average and significantly below average readers also exhibited gains when provided phonics instruction and the chance to apply those skills to decodable texts

It appears that the role of a systematic phonics approach in everyday classroom instruction may not be so dramatic; yet to interventionists it could prove invaluable. From my review of current literature, there is much evidence to support an explicit and strategic approach to word work (Bos & Vaughn, 2002; Bowyer-Crane et al., 2008; Noltmeyer, et al., 2013). All of this evidence wholly supports a teacher's decision to construct a a comprehensive approach that incorporates phonics, quality texts, and useful comprehension strategies (Langenberg, 2000). With low performing readers lagging further and further behind their peers, otherwise known as The Matthew Effect (Stanovich, 1986), it is imperative that interventionists use what works.

Intervention Models

Guided Reading Plus

All of the information available on what works in reading instruction can be informative yet overwhelming. The Cognitive Foundations of Learning to Read framework (Wren et al., 2000) provides a useful template for determination of successful reading intervention models. The framework is formatted in the shape of a capital "A". It visually represents thirteen components of learning to read with each building upon, and working with, each other. The top of the left leg is labeled "Language Comprehension", the right, "Decoding". These are connected to the overall goal of "Reading Comprehension". This is yet another way to represent the type of comprehensive instruction that is suggested to lead to appropriate reading gains (Langenberg,

2000 and NIFL, 2001). This model will serve as a referent as current interventions used in the research district are examined.

Across the research district, elementary classroom teachers, administrators, and interventionists have been trained in a Comprehensive Intervention Model (CIM) (Dorn, Connor, Copes, & Soffos, 2010; Dorn & Soffos, 2012). When Slavin, Lake, Chambers, Cheung, and Davis (2009) conducted a review of sixty three instructional approaches in beginning reading, those with a focus on professional development were some of those found to have positive achievement effects. Piasta et al.'s (2009) findings are also in line with an approach that promotes clarification and extension of teacher knowledge. Within the CIM training model, there are opportunities for continued professional development. Several sessions have been routinely held each year since CIM was first implemented in Mount Blue Regional School District. Teachers share a, digitally recorded or live, lesson of a predetermined intervention format. Components of the lesson are praised and critiqued by colleagues and next steps for student learning are brainstormed. Within the Comprehensive Intervention Model, is an intervention called Guided Reading Plus (GRP). Dorn & and Soffos, (2012) described GRP as follows:

> The GRP intervention is designed for students who are reading at the emergent to transitional levels …, but are lagging behind their classmates in reading abilities. The goal is to enable the struggling reader to acquire strategies for solving problems in reading and writing, while maintaining a focus on comprehension… The addition of writing and word study to the traditional guided reading group is especially important for struggling readers. (p.73)

In a thirty minute lesson, Phase One is allocated to preplanned word study activity, new book introduction, reading and discussion prompts. In Phase Two the same amount of time is used for assessment with a running record about the previously read text, writing about the new book

from Phase One, and one-to-one witting conferences with the teacher. Guided Reading Plus bears many similarities to the structure of a Reading Recovery lesson. With Marie Clay's work referenced throughout the CIM guidebook (seven of her books and one article are in the reference list) there is little doubt the authors agreed with the philosophy of Reading Recovery. Guided Reading Plus is meant to foster "efficient, flexible, and fluent integration of meaning, structural, and visual information in text" (Dorn, Connor, Copes, & Soffos, 2010, p. 57).

When Guided Reading Plus is dissected according to the Cognitive Foundations of Learning to Read framework (Wren et al., 2000), most of the pieces appear to be accounted for, save systematic introduction of letters and sounds. Dorn and Soffos (2012) stressed the importance of including teaching for phonemic awareness in teacher constructed word study activities with these statements, "Phonological awareness generally emerges in a developmental sequence from awareness of larger units, …to awareness of individual phonemes in words (p. 89). The authors provided guidance for teachers with various examples for developing phonological and orthographic systems and designing word study interventions (Dorn & Soffos, 2012 p. 89-104), leaving letter and word selections to each individual teacher's discretion. They promoted a teaching model similar to the action of a camera lens: the teacher should allow for the focus to move fluidly between words and letters and sounds.

Since the research district has continued to allocate resources to this training over several years, gaining teacher perspectives on the teaching elements and implementation of GRP is beneficial for future planning. Promoting the professional development of interventionists will ensure that the most highly qualified individuals are working with the most struggling learners.

Specialized Program Individualizing Reading Excellence (S.P.I.R.E®)

S.P.I.R.E.® is a multi-sensory program that follows a systematic and synthetic model integrating seven skills: phonological awareness, phonics, handwriting, fluency, vocabulary, spelling, and comprehension. Each lesson includes ten steps: 1. Phonogram cards, 2. Phonological awareness, 3. Word building, 4. Decoding, 5. Pre-reading, 6. Reading, 7. Sound dictation, 8. Pre-spelling, 9. Spelling and, 10. Sentence dictation. Based on Orton-Gillingham methodologies, S.P.I.R.E.® also focuses the learner in "sorting, recognizing, and organizing the raw materials of language for thinking and use" (Academy of Orton-Gillingham Practitioners and Educators, 2012).

According to a 2013 study by Edina Torlakovic´ and Geoffrey Barnum, ELL and Special Education students in grades 2-10 who received S.P.I.R.E.® instruction achieved significant gains on almost all of the primary outcome measures used. Students mastered a significant number of skills as measured by the Initial Placement Assessment (IPA). Significant vocabulary, comprehension, and overall reading gains were observed on performances of the Gates-MacGinitie Reading Test (GMRT). On the Test of Word Reading Efficiency (TOWRE) students achieved significant decoding efficiency gains. Finally, the students achieved significant improvements in word recognition, as indexed by the Test of Silent Word Reading Fluency (TOSWRF). The authors included that these initial outcome measures were closely aligned to the type of instruction used in S.P.I.R.E.®. On secondary outcome measures not as closely linked to instruction received, most of the results were also positive. Students instructed with the S.P.I.R.E.® method achieved significant growth on the Academy of READING Placement Test,

Path Driver for Reading ORF assessment (WCPM), TerraNova (Reading Component), and OTELA (Reading). The authors directed these results to be interpreted with caution since large numbers of students were excluded for various reasons from three of five secondary outcome measures.

These results compound the need for further research to understand how effective this type of systematic phonics instruction might be when combined with independent reading and comprehension strategies like those found in Guided Reading Plus (Dorn & Soffos, 2012).

Summary

The research in this review has yielded evidence that phonological awareness matters; specifically, efficient processing of grapheme-phoneme relationships and the ability to segment syllables into individual sounds. A substantial body of evidence supports the ability to reasonably predict reading failure or success with phonological awareness as well as its reciprocal relationship with letter-name knowledge and reading at the word level, which eventually fosters adequate comprehension. An abundance of research defines relationships between letter-sound knowledge, phonological awareness, teacher decision making and their subsequent implications on reading achievement. Yet more information is needed on the relative impact synthetic and categorical introduction of letters and sounds has on phonological skills and reading achievement when compared to the use of teacher constructed word study activities.

Conclusion

As voluminous as reading research is, it is apparent that a gap still exists. Interventionists in the research district would benefit from evidence that would a) support the current use of GRP with teacher constructed word activities (TCWA) or b) support the use of GRP with the supplementation of TCWA with systematic synthetic phonics instruction. In a systematic approach there appears little allowance for student need. The learning presented is categorical by design with comprehensive utility of letters and sounds the goal. The combination of this approach with the elements of GRP that are intended to facilitate extended literacy processing needs investigating.

The purpose of this study was to answer the following questions:

1. How do nonsense word reading fluency, phoneme segmentation fluency, and overall reading achievement compare for low performing first and second graders receiving the Guided Reading Plus intervention before and after the teacher constructed word work activities are replaced with systematic synthetic phonics instruction?

2. How are MBRSD interventionists using Guided Reading Plus?

3. What experiences with systematic synthetic and/or incidental analytical phonics instruction have district interventionists had?

Because Tier 2 interventions are meant to be targeted, it is necessary that teachers and interventionists have the most effective methods at their disposal. Since low performing readers

need to cover more ground faster, knowledge about the most succinct method to promote literacy is needed.

Methods

This mixed methods study had two basic components: 1) quantitative analysis of students' performance on DIBELS Next nonsense word fluency, phoneme segmentation and Fountas & Pinnell Benchmark Assessment System 1 (Fountas & Pinnell, ©2007) and 2) qualitative analysis of teacher interviews.

Site

Cape Cod Hill School.

Located in the Western Mountains of Maine, the Mount Blue Regional School District, also known as RSU 9, is comprised of eight schools. Cape Cod Hill Elementary School (CCHS) was built in 1993. It initially housed kindergarten through sixth grade and replaced the former New Sharon Elementary School. As of the census of 2010 for the town of New Sharon, there were 1,407 people, 585 households, and 405 families in the town. This was an increase of 110 people, 67 households, and 45 families since the previous census (US Census, 2012). Some of the surrounding towns that are served by the school experienced increases with only Starks having a 2012 estimated population slightly lower than its 2010 census statistic.

The school receives funding for Title One services. Two full time interventionists currently serve 181 kindergarten through fifth grade students. Percentages of minor residents and

whole families ranked as below the national poverty line from towns served by Cape Cod Hill School are shown in Figure 1 (US Census, 2012).

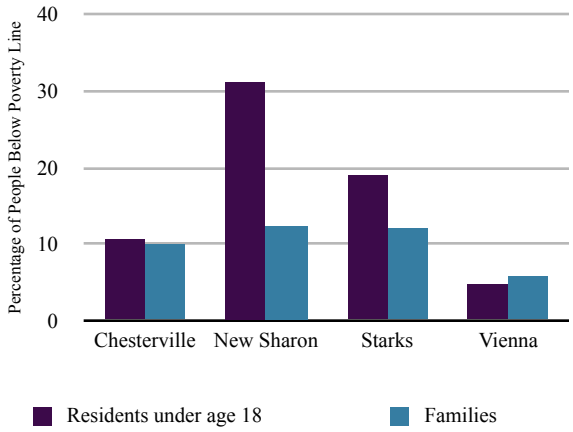

Figure 1. Minors and families ranking below the poverty line by town.

In literacy, teachers vary in their methods of accomplishing Tier 1 goals. Teachers follow the standards set forth in the district curriculum for reading and writing but have the autonomy to choose their own teaching frameworks. Some teachers have been trained in the Comprehensive Intervention Model (Dorn & Soffos, 2011). During the training teachers implemented instructional models within their classrooms designed to address failure in literacy learning.

First graders who score below the fifth stanine on tasks of the Observation Survey (Clay, 2013) are eligible for Reading Recovery (Clay, 2005). Each trained teacher is able to instruct up to 8 children per year in this individualized tutoring program. Schoolwide Title One services are offered by these teachers and are also considered Tier 2 interventions. These interventions consist of small group instruction with teacher student ratios not exceeding 1:3. Priority is given to primary grades and literacy skills intervention. Tier 3 interventions are provided by certified teachers to students identified through state mandated protocols. Shown in Figure 2 are the

percentages of students at each grade level who received intervention services other than Special Education during the 2013-2014 school year.

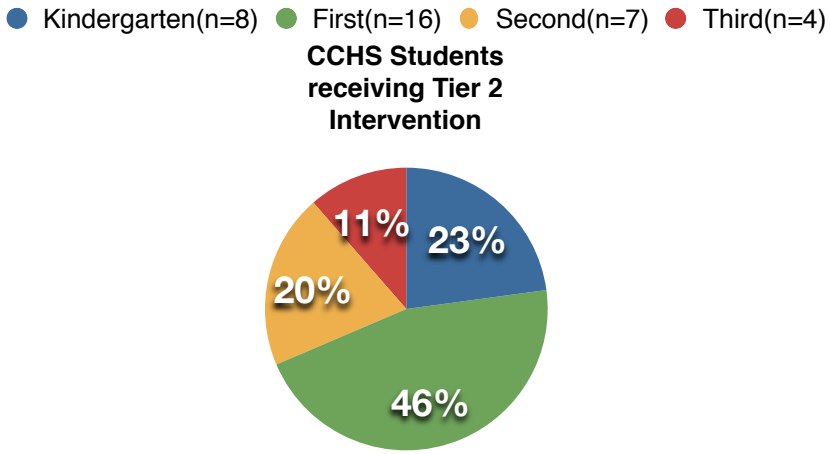

Figure 2. Tier 2 Intervention Services.

When mean scaled scores for 2012 and 2013 of the NECAP were compared across the district and state in the test area of reading, students in grades three through sixth of Cape Cod Hill School performed below the district or the state in one of the two years.When Developmental Reading Assessment *2* scores for the class of 2023 were examined (Figure 3), the average achievement in the fall of their kindergarten year was a level one. Upon entering first grade, the average was a level five. The range of scores from 0 to 12 suggests a response to instruction that could be described as “hit or miss”. The data in Figure 3 may also be interpreted as proof of instruction that is not adequately addressing the students who need to accelerate in reading. With only ten percent (n=3) more of the population meeting the benchmark after another year of instruction in grade two, the urgency to pinpoint an effective intervention increases.

The University of Maine Institutional Review Board (UMF IRB) and district administration approved (Appendix C) the research proposal prior to the commencement of

study. Building principals were advised of the impending study and electronically sent a copy of the consent form signed by the superintendent upon UMF IRB approval.

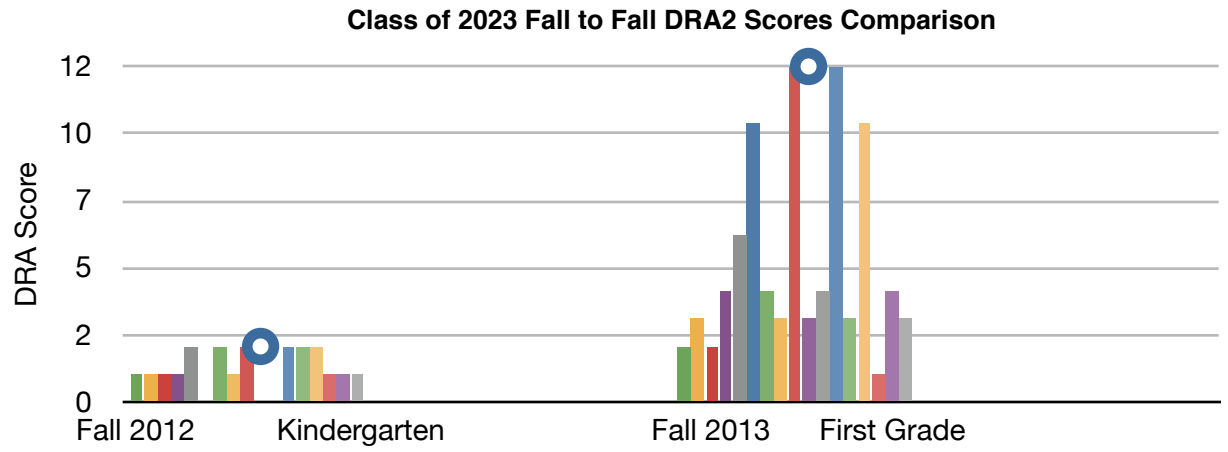

Figure 3. Class of 2023 Fall 2012 and Fall 2013 DRA*2* Scores Comparison.

Participants

Minor participants were from the pool of fifty three first and second graders at Cape Cod Hill School located in New Sharon, Maine. Written parental consent (Appendix E) was obtained for all minors who participated in the study. Informed consent letters explaining the nature of the study, participation requirements, risks, benefits, and confidentiality were sent to parents of nine students (seven first graders and two second graders). These students were identified for Title I services by classroom teachers and/or were already on the researcher's current caseload. Title I services are provided to students who are performing below grade level in reading as determined by a) universal screening measures: Developmental Reading Assessment 2 and the Observation Survey b) classroom formative assessments: leveled book running records, and/or c) benchmark reading assessments. All nine requests received consent. Six of the seven first graders and both second graders gave oral assent (Appendix F). In the combined oral assent script and written

consent letter are: the intent of the study, participation requirements, risks, benefits, and confidentiality; both narrated in child friendly language. Since children in this study were first and second graders, the researcher read this to them regardless of age. After Title One groupings were reconfigured according to student need, two first graders and two second graders were selected to participate in the study. Both first graders were six year old Caucasian males. Both second graders were seven year old Caucasian females. Convenience sampling was used to select adult participants and consisted of Five Title One interventionists who service students in grades kindergarten through second grade and were employed by the Mount Blue Regional School district in Farmington, Maine. An invitation to participate and a copy of the adult consent form (Appendix D) were electronically mailed to these interventionists. Four face to face interviews were conducted. The intention of the interviews (Appendix B) was to learn about Guided Reading Plus (Dorn & Soffos, 2012) implementation and experiences interventionists have had with systematic phonics instruction.

Instruments

DIBELS Next data were collected pre and post interventions. Phoneme segmentation fluency (PSF) (Appendix G) and nonsense word fluency (NWF) (Appendix H) were used to determine level of phonological skill. Each correct letter sound (CLS) was scored as one point and reported as a summed score. Whole words read (WWR) were also reported as a summed score. The Dynamic Measurement Group (2008) reports the predictive validity Cronbach's coefficient of NWF in winter of first grade as .69. When used with second graders, it is reported to be .63. The one month alternate form reliability from fall to spring of first grade is reported to

be .83. To assess phonemic awareness during PSF, students listen to the examiner say words containing between two and five phonemes. After each iteration, the student is expected to isolate and repeat each word's sounds. One point is given for each isolated sound. If sounds are blended together, a point is given to the entire unit as long as the sounds are heard. For example, if the word is "camp", the child could score four points for saying, /c/ /a/ /m/ /p/. Another possible scoring combination for that same word is/c/ /a/ /mp/. This would be scored as "3", since the last two sounds were blended rather than isolated. If the child simply repeats the word, they may be reminded once to say each sound in the word, then this type of response earns one point if repeated. Concurrent validity for fall to spring PSF scores is reported as .28 for first graders. PSF has a one week alternate form reliability of .60 (Dynamic Measurement Group 2008).

To assess overall growth in reading achievement the Fountas & Pinnell Benchmark Assessment was administered at the beginning and end of each teaching phase. Students read a leveled text after a short scripted introduction. Reading rate was timed beginning with level I. The examiner also determined fluency according to a provided rubric. Students were asked to "talk about what happened in the story" after reading and asked scripted questions as necessary in order to assess comprehension. This assessment's fiction text levels A-N have a reported convergent validity with Reading Recovery Texts of .94. Similarly, the non-fiction texts' validity is .93. The reported reliability of all books levels A-Z is .97 (Fountas & Pinnell, 2012).

The fourth instrument used was interviews with interventionists. The protocol (Appendix B) was developed by the researcher. Face validity was assessed and determined to be high by

colleagues not participating in the study. The reliability of the interview questions is unknown and depends on similarity of experience among participants and honesty in reporting.

Daily attendance records, records of the duration of each lesson, and completed lesson plan formats were collected as data as well.

Procedure

The study occurred over a span of 12 weeks. Parent consent forms were sent first. All were returned within one week. Assent from eight of the nine students was obtained as soon as the forms were returned. An email to interventionists requesting participation in an interview, including the consent form to be signed was sent next. Responses were received immediately from three of the five interventionists. School vacation began about half way through the following week. Two interviews were scheduled via email during that time to be conducted once school resumed. Upon the restart of school, first and second grade teachers, the researcher (acting as an interventionist), and the school's second interventionist met to determine the make up of Title One groups. At the conclusion of the meeting, a group of 3 first grade students (Group A) and a second grade group (Group B) of 2 students remained eligible for the study. Subsequently, two of the first grade students remained eligible to participate since student assent was denied by one. Two interviews with interventionists were completed that week. Transcriptions were completed within one week of the interviews. Two more interviews were scheduled, one via email and one face to face, to be held during the next two weeks. Group A was scheduled to meet with the researcher for five twenty minute sessions per week to begin the

first instructional phase of the study. Group B was scheduled for three thirty minute sessions. Due to scheduling conflicts and prior professional commitments on the part of the researcher, the groups only met with the researcher once and a substitute once during the first week. The substitute followed lesson plans written by the researcher. Since the students had previously been on the researcher's caseload, those two sessions provided each group an opportunity to reestablish and practice group norms and routines and were not counted as part of the study. Reading goals were also set at the request of the first grade teachers. All student participants were initially assessed that week with the NWF and PSF tasks of the DIBELS Next and Fountas & Pinnell benchmark texts. Students' instructional levels (90-94% word accuracy, level 2 fluency or above, and satisfactory comprehension or better) were considered passing. Due to illness, the researcher was absent the entire second week of the first GRP phase. Beginning the following week, the researcher taught students using the Guided Reading Plus (GRP) (Dorn & Soffos, 2012) format with teacher constructed word study activities. At the end of three weeks of instruction, students were assessed again using the three instruments previously described. The second teaching phase continued with GRP but systematic phonics instruction was embedded within the word study portion. At the same time this phase began, teachers of the primary grades had begun placing a strong emphasis on synthetic phonics in their classrooms. All first and second grade students had been assessed with S.P.I.R.E® to determine knowledge of vowel sounds and single syllable word and nonsense word reading fluency. Forty-five minutes of daily instruction following the S.P.I.R.E® format was scheduled to occur at these grade levels. Participants in the study worked in their classrooms for steps 1 (phonogram cards), 2 (phonological awareness), and 5 (pre-reading). Steps 3 (word building), 6 (reading), 7 (sound

dictation), 8 (pre-spelling, 9 (spelling) and, 10 (sentence dictation) were part of intervention lessons taught by the researcher. A certified Special Education teacher, and S.P.I.R.E® trainer, determined this format at the request of the researcher and teachers. The researcher attempted to have both teaching phases be of equal duration. Students were assessed at the end of the second teaching phase. Table 1 and Table 2 illustrate the length of the instructional phases of the study and provide a log of the researcher's contact with each group.

Table 1

Sessions in First Teaching Phase- GRP With Teacher Constructed Word Activities

GRP with TCWA	Week One Intro & Assessment	Week Two	Week Three	Week Four	Week Five Intro & Assessment	Total Sessions
Group A	2	0	4	4	5	15-2=13
Group B	2	0	2	3	3	10-2=8

Table 2

Sessions in Second Teaching Phase- GRP With Systematic Synthetic Phonics Instruction

GRP with SSPI	Week One	Week Two	Week Three	Week Four Assessment	Total Sessions
Group A	5	4	5	0	14
Group B	3	2	3	0	8

Analysis

The quantitative and qualitative data collected for this study were used to answer the three research questions.

The quantitative data from student assessments (PSF and NWF scores and Fountas & Pinnell Benchmark Levels) initially informed the first question. **Net or difference scores (*d*) were calculated from pre and post assessment data. These data were used to define the effect of the intervention on individuals. Mean growth scores were calculated to compare the group's response to each type of instruction.** Raw scores from the PSF and NWF assessments were converted to percentile ranks. **Inductive analysis of q**ualitative data from teacher interviews, as described by McMillan and Schumacher (2010) provided answers for the second and third questions. Coding centered on participants' experiences with and perceptions of Guided Reading Plus and systematic phonics instruction. Evaluation procedures offered opportunities to discover connections between quantitative and qualitative data sets.

Limitations

For this study, the researcher served as the instructor and assessor and therefore was not blind to the conditions. This is unlikely to have affected student performance and, therefore, notable effects should be attributed to the respective models. However, the unanticipated increased instructional emphasis on phonics by classroom teachers should be viewed as a potential limitation as it may have disrupted some of the intervention effects.This study took place over a short period of time as an action research project. Group A's lessons were only

scheduled for twenty minutes daily and Group B received, on average, only three lessons per week. Several studies have demonstrated the positive effect of administering at least a thirty minute daily reading intervention on reading acceleration (Mathes et al., 2005; Pinnell, Lyons, Deford, Bryk, & Seltzer, 1994; and Vellutino et al., 1996). Scheduling factors impacted the quantity of material covered during the teaching phases. The researcher also acted as the interviewer of colleagues in the study. There may be bias present in the interview results because the validity of answers is based on the participants' honesty. To increase the likelihood of honesty in reporting, participants were informed of the steps the researcher would use to protect confidentiality (see Appendix D**).**

There may also be biases within the research. The researcher believes that teacher decision making is an important factor that can be lost when scripted programs are instituted. The researcher also believes that categorical teaching of any kind does not allow for students' prior knowledge. Following the S.P.I.R.E.® instruction format should have eliminated this bias.

Delimitations of this include a small sample size and no control group. The researcher used convenience sampling to select student participants - only first and second grade students being serviced by Title One were eligible to participate. This study took place in the school and district where the researcher is employed as a Title One interventionist. These choices were made to honor the time limits of the study.

Results

Nonsense Word Fluency and Phoneme Segmentation Fluency

The quantitative data of the small sample size (*n=4*) prompted evaluation of individual scores to compare nonsense word reading fluency, phoneme segmentation fluency, and overall reading achievement. Low performing first and second graders received the Guided Reading Plus intervention before and after the teacher constructed word work activities were replaced with systematic synthetic phonics instruction. Table 3 shows nonsense word fluency score performances at three different points: the initial assessment, after Guided Reading Plus instruction with teacher constructed word activities (GRP with TCWA), and after instruction with systematic synthetic phonics instruction (GRP with SSPI). Table 4 displays the same data for phoneme segmentation fluency. Net or difference scores (*d*) were calculated by subtracting the pretest score from the posttest score (p.150, Ravid, 2011). Second graders (*n*=2) made positive

Table 3

Nonsense Word Fluency Scores

Participant Pseudonyms	Initial, (*X*)	Post GRP with TCWA, (*X*)	Net or Difference Scores, (*d*)	Post GRP with SSPI, (*X*)	Net or Difference Scores, (*d*)
Mark Gr. 1	26	21	-5	28	+7
Ned Gr. 1	39	31	-8	43	+12
Mary Gr. 2	62	79	+17	76	-3
Jesse Gr. 2	19	30	+11	24	-6

gains in reading nonsense words after instruction with teacher constructed word activities (see Table 2.1). First graders (*n*=2) only showed improvement after synthetic phonics instruction.

Performances on phoneme segmentation were mixed after TCWA (see Table 2.2). A first grader and a second grader made near equal gains (*d=+10, d*=+11) and the other two participants had fewer correct than on their initial assessment (*d*=-1, *d*=-7). All students' phoneme segmentation performance improved positively after SSPI. As first grader, Mark, had the same gain as with TCWA (*d*=+10). Mary, a second grader, did improve (*d*=+6) but just over half as much as with TCWA. The two other students gains were dissimilar. The first grader, Ned, only made a net gain of 4 but Jesse, in second grade, improved 13 points from her previous assessment.

Table 4

Phoneme Segmentation Fluency Scores

	Initial Assessment, (*X*)	Post GRP with TCWA, (*X*)	Net or Difference Scores, (*d*)	Post GRP with SSPI, (*X*)	Net or Difference Scores, (*d*)
Mark Gr. 1	41	51	+10	61	+10
Ned Gr. 1	46	45	-1	49	+4
Mary Gr. 2	38	49	+11	55	+6
Jesse Gr. 2	38	31	-7	44	+13

Mean growth *($\bar{x}$)* after each instructional phase was calculated by determining the mean of the net scores of the sample (see Table 5 and Table 6). The calculations for mean growth of the sample *($\bar{x}$)* further support investigation of individual responses to intervention. It appears that

the gains *($\bar{x}$ post TCWA*=+3.75*, $\bar{x}$ post SSPI*=+2.5**)** are quite close with students showing a slightly larger gain after TCWA. As described above, the responses were split by grade level for nonsense word fluency.

Table 5

Nonsense Word Fluency Mean Growth ($\bar{x}$) Following Each Instructional Phase

Instructional Phase	Mean Growth, ($\bar{x}$)
NWF Post TCWA	+3.75
NWF Post SSPI	+2.5

The mean growth for phoneme segmentation fluency after each instructional phase reflects the more positive response to synthetic phonics instruction by all members of the sample ($\bar{x}$ *post TCWA*=+6.75*, $\bar{x}$ post SSPI*=+8.5).

Table 6

Phoneme Segmentation Fluency Mean Growth ($\bar{x}$) After Each Instructional Phase

Instructional Phase	Mean Growth, ($\bar{x}$)
PSF Post TCWA	+6.75
PSF Post SSPI	+8.5

Since the small sample size (n=4) created an abnormal distribution of scores, raw scores were converted to percentiles (Ravid, 2011, p. 100) simply to provide another referent for student performance as shown in Tables 7 and 8. These tables show the students' performances in rank order for the three assessment periods. In most cases, students' scores did not improve enough with either form of word study to change ranking within the sample. The most striking illustrations provided with this example are of Ned's and Jesse's performances on phoneme

segmentation fluency. Both students scored lower on the second assessment than the first and were not able to close the gap on the third assessment as their peers improved.

Table 7

Nonsense Word Fluency Percentile Rankings

Percentile Rank	NWF Initial Assessment	NWF Post TCWA	NWF Post SSPI
99th%	Mary	Mary	Mary
75th %	Ned	Ned	Ned
50th %	Mark	Jesse	Mark
25th %	Jesse	Mark	Jesse

Table 8

Phoneme Segmentation Fluency: Sample Percentile Rankings

Percentile Rank	PSF Initial Assessment	PSF Post TCWA	PSF Post SSPI
99th %	Ned	Mark	Mark
75th %	Mark	Mary	Mary
50th %	Mary and Jesse	Ned	Ned
25th %		Jesse	Jesse

Nonsense word reading fluency of this sample of low performing first graders did not show improvement after receiving the Guided Reading Plus intervention with teacher constructed word work activities but was improved once replaced with systematic synthetic phonics instruction. The second graders in the sample exhibited the exact opposite response. For

phoneme segmentation fluency the response was mixed across grade levels, but all four students made positive gains after SSPI.

Overall Reading Achievement

A Fountas & Pinnell (2007) benchmark reading assessment was administered three times to each student participant. The timing of this measure coincided with the NWF and PSF assessments. See Table 9 for the instructional reading level passed by each student and their cumulative reading levels gained. Since these are ordinal scores the differences were not calculated but represent the acquisition of levels within the scale. For example, a student passing a level 10 who had previously passed a level 6 gained 2 reading levels.

Table 9

Fountas & Pinnell Benchmark Assessment: Instructional Levels Passed and Net Gains

	Initial Assessment	Post GRP with TCWA	Net Levels Gained	Post GRP with SSPI	Net Levels Gained
Mark Gr. 1	4	6	+1	10	+2
Ned Gr. 1	4	6	+1	8	+1
Mary Gr. 2	16	18	+1	18	0
Jesse Gr. 2	16	16	0	18	+1

In general, the group's response to both types of word study was unremarkable ($\bar{x}$ *post TCWA*=+.75, $\bar{x}$ *post SSPI*=+1). Since text levels must be reported as a whole rather than a part,

it is again important to speculate on each student's performance individually. Overall reading achievement improved over time for each student but did not accelerate as needed (Stanovich, 1986; Clay, 2005) or expected with either intervention type.

Guided Reading Plus and Systematic Synthetic Phonics: Use and Experiences

Qualitative data, in the form of interviews, were used to determine the current level of use of Guided Reading Plus and experiences with systematic synthetic phonics instruction among interventionists within the research district. These interventionists were well established in their positions and all certified Reading Recovery teachers (see Table 10).

Table 10

Adult Participant Demographics

Participant Pseudonyms	Years Experience in Education	Level of Education	Reading Recovery Trained
Jane	19	BS	Yes
Meaghan	23	M+30	Yes
Joanne	31	M+30	Yes
Polly	13	MA	Yes

Note: BS= Bachelors Degree, MA= Masters Degree, M+30= Masters Degree plus 30 credits of continuing education.

Time, Tailored Instruction, and Effective Interventions

The following concept map, Figure 4, shows the major themes, sub themes, and their connections to one another. Though named "major themes", a perceived lack of time, the intent

to tailor instruction, and opinions on effective interventions all had bearing on one another and how interventionists delivered their daily instruction.

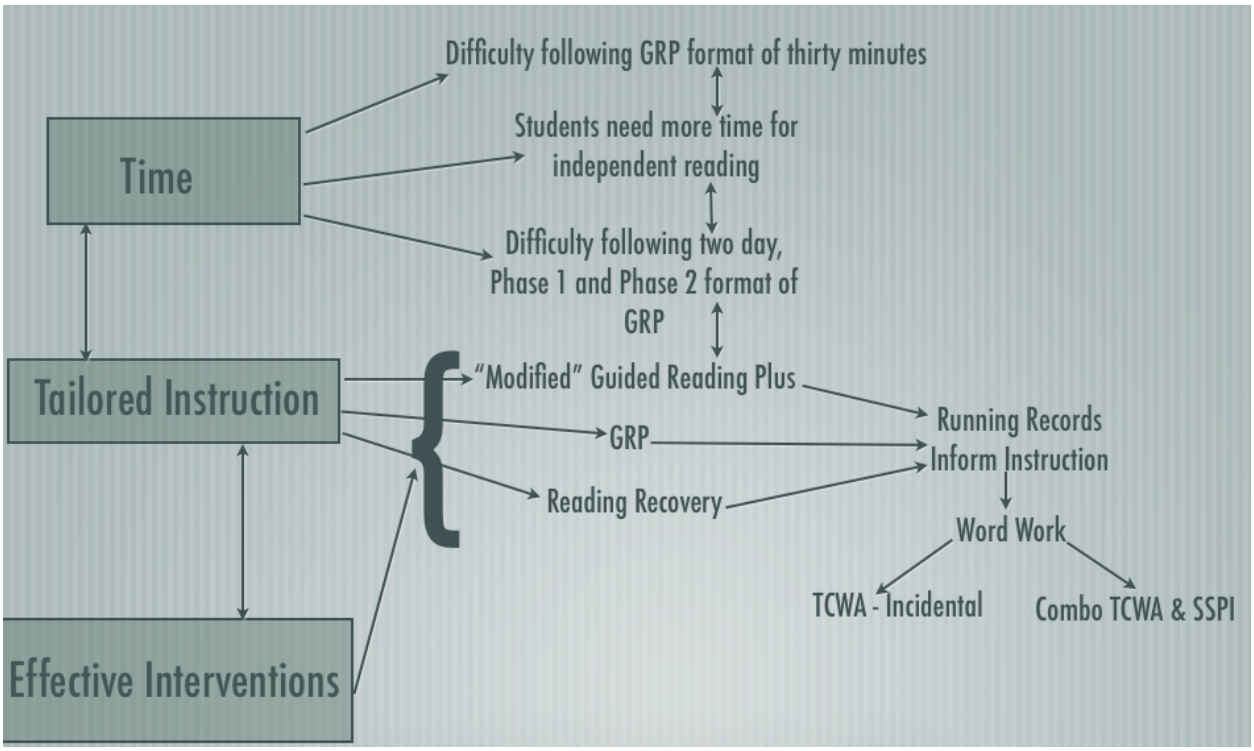

Figure 4. Concept map of qualitative data. Themes and sub themes of interview data.

Every interventionist offered negative feedback on time allotted for interventions, especially Guided Reading Plus. The consensus, even for those who reported using GRP, was that too much is packed into a thirty minute lesson plan to feasibly be completed daily and school schedules interfere with the delivery of consistent instruction. These concepts were inextricably linked to each educator's determination to tailor instruction. Meaghan reported on why she used what she characterized as a modified version of Reading Recovery instead of GRP:

> … as for most of the pieces in Guided Reading Plus, it's a time, I, personally think it's a time piece. When you only have about twenty five minutes of focused work, um, first of all for first graders, I really think there needs to be more re, reading…

Even though Joanne reported implementing GRP with fidelity with one group, her reasoning for altering the format with others is explained in this quote:

> Well, I'm taking the CIMME (Comprehensive Intervention Model for Maine) class right now, so I *am* using Guided Reading Plus with one group. The problem I have (laughs and pauses)…I feel like I need more time with them. I don't feel like I'm getting enough books in with them, particularly if we have a schedule, like my kids are scheduled four times a week…if something gets in the way of that, then they've only done one new book with me and I, I fee…I really have a hard time with that!

Altering or altogether abandoning the GRP framework was evident in every interview with individualizing instruction given as the purpose. Like Joanne, Jane confessed to starting with GRP but usually abandoned the format to include more independent reading:

> Well getting back to Guided Reading Plus, one of the reasons I, I started…abandoning the framework, when I was at [another school], was that I was getting kids…second graders and third graders, who seemed to have a lot of skills but they weren't reading very much at home…and I felt like they just…what they needed was fluency practice and…they just needed to read more.

For Polly, who stated GRP as her primary intervention with small groups, getting to all the pieces of the lesson and the decision to tailor instruction created problems:

> So, yeah, not, I don't always get to it on the every other day format just because we run out of time, we get interrupted, we have a variety of things, um that happen that interfere with that but, and sometimes we play a game just because the kids, I think it reinforces things that are hard to practice over and over again [while] making it a little bit fun. That doesn't always fit into this format so sometimes that takes us off the format.

Not one interviewee discounted the effectiveness of the components of GRP. Even though most did not name GRP as their primary intervention, they self-reported structuring modified versions to include the same components. Participants named running records as their primary source of formative assessment data. These data serve to inform book level choice and word work lessons. Each interviewee shared how their lessons included word work, no matter

the format. Meghan offered this picture of her self designed word work which could be described as teacher constructed: "…and my chosen focus word work for either writing response or a choice, um..in re, in responding to the story is based on their a) need, what they're asking and b) a running record."

Polly's word work is also teacher constructed with the focus determined by student need:

> Fluent writing of words would address phonics, more than phonemic awareness since it's not sounds based. I do think it's important. I do do that often in my small groups. In my groups I do a small bit of word work or phonics work… Letter and word work: same thing, depending on the level of where my kids are at. Kindergartners would do a lot of letter work and then we move into word work or higher level letter work, like blends, silent E, digraphs, you know, more complicated things like that. Guided reading is the core of it all. I try to base all the word work in the reading that we're doing if I can. I either point it out in context when I'm working with a kid individually doing a running record or I show the group too and have them find the words in the book or I, you know, use a variety of activities that bring it back to the book.

Joanne spoke of her word work. It included a blended approach of TCWA and SSPI:

> …they're not always automatic with their sounds and so we just do it every, every time. I've also added *sh, ch, th,* all of those in there. As we start learning other chunks, *ing, er,* I add that, um, 'cus I want them to be automatic. Um, we also do push sounds, so that they can…so many of the kids struggle with being able to hear sounds in order. Now, if I have kids that are, um, uh… moving on to the next thing, then I do sight words. Um, I've gone back and forth with just adding sight words to a pack based on the books we were reading, I never felt like I had enough. Like, it wasn't enough words to keep them going so I've gone to the Dolch word list, and I use, you know, I use…I start with the pre primer and move along through… I will add words from books if I see them, you know, if they're ones they are struggling with,…

To provide more explicit instruction, Jane has tweaked the word work section to take up more or less time in the lesson, also depending on student need:

> …and then I find, okay, this student, ya' know, really needs a lot of phonics instruction so, I'm not asking them to write ya' know, um, comprehension, ya' know, I'm not asking them to respond to the reading in writing, because I feel like they need more decoding, and that's, that's that little part, fluent writing of words, the letter, the word work, uh the phonics or phonological awareness, I mean, in Guided Reading Plus you're only given just a few minutes at the beginning of the lesson,…

The most interesting aspect of all of the interviews were the opinions on effective interventions. Every interviewee named Reading Recovery as the most effective intervention

they use with struggling readers. GRP is an intervention based on research and designed to model the components of a Reading Recovery lesson (Dorn, Connor, Copes, & Soffos, 2010). That said, only one of the four teachers reported using GRP as designed, and even that was with just one group. Jane stated: “Well, I think all those parts are very, very important. I mean, I wouldn’t throw anything out. I don’t often use Guided Reading Plus”. From Meaghan who does not implement GRP: “I’ll be short: one of the best interventions is Reading Recovery”. Speaking of her approach to small group instruction, Joanne described it this way: “So, um, I do model a lot of it after Reading Recovery”. Even though Polly used a modified version, she did name Guided Reading as the template in her description:

> Okay, so Reading Recovery is my first, um, thing that I use, I feel that, that's most effective in what I do and then for the other part of my day I see kids in small groups. And in those groups I don't use a program but I follow guided reading small group format as, as closely as anything else. That's what I’d be as close to.

Past experiences with systematic synthetic phonics instruction were reported by three of the four teachers. The teachers who could readily recollect and articulate these experiences were also those who reported using a word work approach that included SSPI. Both Jane and Joanne mentioned at least two programs and described using word work instruction with systematic approaches to phonics. Joanne talked about using the Dolch word list with her students, starting at the beginning and moving through for learning sight words. Jane talked about targeting her intervention based on the student’s knowledge of letter sounds, especially vowels. Meaghan only briefly named one program on which she did not elaborate and Polly did not remember experience with any such program. These teachers related word work experiences more in line with TCWA, or incidental phonics.

Implementation of Guided Reading Plus among interventionists in the research district varies. Difficulties in following the structure of GRP were reported similarly. Positive views of the effectiveness of the components of a GRP lesson were shared by the teachers. All share a common purpose: to deliver effective instruction that is based on their educational experience in the field and from prior training experiences.

Discussion

The purpose of this research was twofold: 1) to compare student performance in three areas: nonsense word reading fluency, phoneme segmentation fluency, and overall reading achievement before and after the word work section of Guided Reading Plus was replaced with systematic synthetic phonics instruction and 2) to determine how interventionists within the research district use Guided Reading Plus and what experiences with systematic synthetic and/or incidental analytical phonics instruction district interventionists have had.

Overall, the quantitative findings here do little to support or discount prior research on the need for explicit instruction on letter-sound relationships in order to decipher words (Adams, 1990; Byrne, 1996; and Cunningham & Stanovich, 1993) or phonemic awareness and its impact on reading achievement (Adams, 1990; Langenberg, 2000; Dickinson & Snow, 1987; and Langengburg, 2000). The student responses were mixed and trends were difficult to observe except, perhaps, in nonsense word fluency. It is possible that the younger students in this group of struggling readers were more receptive to the systematic synthetic approach to learning how to read words for several reasons. One possibility is their lack of control over, or inexperience with, a self extending system for word solving (Clay, 1991). They simply had more to learn about how

letters and words work. It is also possible that the older students had been practicing ineffective strategies on words longer and thus had a more difficult time “unlearning” them. The daily phonics instruction all students were experiencing within their classrooms may have increased this effect as well, though it seemingly did little to enhance the second graders’ performances.

The impact on overall reading achievement from this study was unremarkable. Collective data did not support prior research on the progression from knowledge of grapheme-phoneme relationships to faster word reading and, ultimately, better comprehension (Snow et al., 1998; Stanovich,1986; and Bradley & Bryant, 1983). The improved performance in the area of phonemic awareness (tested as phoneme segmentation fluency) after SSPI did not consistently transfer to marked improved reading performance. This, again, may have been due to the age of the participants. All were at least one year older than students in prior studies.

The rather small representation of both types of data in this study could be considered consistent with the results from McyIntyre, Rightmyer, Powell, Powers and Petrosko (2006). The quantitative data presented here suggest that the tailoring of interventions based on student need, named teacher decision making in literacy instruction by the aforementioned authors, should be considered sound educational practice. This same concept was tested by Wright, Horn, and Sanders (1997) when they determined the single most important factor affecting student learning within grade levels was the teacher. The teachers interviewed here were all, to some extent, using a comprehensive approach incorporating phonics, quality texts, and useful comprehension strategies as supported by Langenberg (2000). In practice if student performance was declining, a teacher would likely change instructional practices based on assessment data. This was

evidenced by teachers reporting their practice as well as training and experiences which subsequently influenced their desire to design the best instructional models for students.

The qualitative data present a realistic slice of Tier 2 interventions and were a strength of this study. The discussions of time and scheduling as a barrier to effective interventions mirrored one of the limitations of the quantitative data collection. In the study, Group A averaged only 2.6 lessons per week and Group B averaged even fewer at 1.6 per week for five weeks. As mentioned, the small sample size and short duration of the study were also limitations.

Implications for Practice

While the implications of this study should be viewed cautiously because of the study's limitations, continued implementation of Guided Reading Plus should be supported. Since all primary literacy interventionists are also trained in Reading Recovery, they continue to receive professional development in the most current research theories of literacy instruction. Each of these teachers have, by the end of this study, also completed the Comprehensive Intervention Model training. These teachers are translating this ongoing professional education to their practice, not only in Reading Recovery, but with small Tier 2 intervention groups. Having highly trained teachers should continue to be a priority of this district and can only improve student performance (Piasta, Connor, Fishman, & Morrison, 2009).

The perceived impact of scheduling difficulties on the implementation of interventions as reported by interventionists is an issue that deserves administrative attention. Close assessment of length and duration of intervention sessions and student performance outcomes could

determine whether or not next steps are needed. It is imperative to know if the effectiveness of interventions is being lessened by inconsistent or shortened sessions.

Training on how to effectively implement both incidental and systematic phonics as part of a comprehensive literacy plan for instruction would strengthen and broaden teachers' repertoires. In this way, teachers could be even more selective and purposeful in their decision making when it comes to tailoring instruction.

Implications for Research

Directions for future research include replicating this study with a larger sample size and across all primary grade levels including kindergarten. Gathering and comparing student data from separate interventionists using various models of GRP would assist in confirming the effectiveness of TCWA and SSPI. A study that amassed data over the course of an entire school year might also shed light on the total amount of time needed for interventions of any type to produce a desirable effect.

Conclusion

The importance of interventionists receiving ongoing high quality professional education and collegial support was supported by this study more than was any one instructional approach. Since student responses to the interventions in this study were mixed, teachers who know how to effectively respond to the student data they collect may be the most valuable resources a district holds. The opportunities that exist in Reading Recovery continuing professional development to

watch and analyze live teaching assist teachers in applying the latest theories to their own teaching.

As the structure of education becomes more student centered, it can be expected that teachers who act expertly **and** flexibly, with the ability to implement strategic incidental or systematic phonics instruction, will help students close literacy learning gaps faster.

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Appendix A

Definitions

Phoneme

The smallest part of **spoken** language that makes a difference in the meaning of a word is known as a phoneme. English has between 41 and 44 phonemes depending on the speaker's dialect (Chaban, 2010). A single phoneme may be represented by more than one letter.

Grapheme

The smallest part of **written** language that represents a phoneme in the spelling of a word is known as a grapheme. A grapheme may be just one letter, such as b, d, f; or several letters, such as ch, -ck, ea, -igh.

Syllable

A syllable is a word part that contains a vowel or, in spoken language, a vowel sound.

Onset and rime

As parts of spoken language, onsets and rimes are smaller than syllables but larger than phonemes. An onset is the initial consonant(s) sound of a syllable (the onset of bag is b-; of swim, sw-). A rime is the part of a syllable that contains the vowel and all that follows it (the rime of bag is -ag; of swim, -im).

Phonics

The predictable relationship between phonemes (spoken sounds) and graphemes (written letters).

Phonemic awareness

The ability to hear, identify, and manipulate the individual sounds in spoken words. Phonemic awareness has a narrow focus.

Phonological awareness

Phonological awareness is an umbrella term that includes phonemic awareness. Additionally, phonological awareness activities involve work with rhymes, words, syllables, and onsets and rimes.

Instructional Tiers

1. The first tier is referred to as core instruction. This is typically delivered by the classroom teacher.

2. The second tier is comprised of group interventions. These interventions may occur in or outside of the classroom setting and can be orchestrated by the classroom teacher or an interventionist. All MBRSD interventionists are certified teachers.

3. The third tier are intensive interventions. This type of intervention is usually administered by, or under the direction of, teachers with Special Education certification to individuals or students in small groups- the goal being no more than three students in a group.

Appendix B

Interview Protocol/Questions

Hello, Thank you for taking the tine to meet with me. I am here to conduct an interview regarding your experiences with and beliefs about intervention strategies for low-performing first and second grade readers. This should take about thirty minutes and I will work to move us through the interview in order to honor that time frame. This interview will be recorded and I will also take notes. Your responses are confidential and you may skip any questions you wish. Would you like a copy of the questions before we begin?

1. What methods/strategies do you use when providing interventions for low performing first and second grade readers? In general, please describe the effectiveness of the intervention(s).

2. Do you use Guided Reading Plus? Please describe what you perceive to be the advantages and disadvantages of each component of this intervention strategy to address phonological awareness and reading achievement.

Phase 1

a. Fluent writing of words:

b.(Letter/word work) Phonics and/or Phonological awareness:

c. Guided Reading

Phase 2

a. Reading assessment:

b. Independent reading:

c. Writing about reading

3. Have you had any experiences with systematic synthetic phonics instruction? What are your thoughts on this method of instruction and its effectiveness?

4. Is there anything else you would like to add that I haven't asked you about?

Appendix C

Administrator Consent

November 5, 2014

Dear Administrator,

As part of the graduate studies program at the University of Maine Farmington, I am requesting permission to conduct a research study in the Spring of 2015. I will be collecting data from January through April and presenting my research to my peers in an open symposium. I would like to evaluate the impact systematic phonics instruction has on first and second grade readers who receive additional reading instruction from Title One. I am also seeking interviews with other interventionists to hear their thoughts on their implementation of Guided Reading Plus and any other effective interventions they use. Participants in this study will include colleagues across the district as well Cape Cod Hill School first and second grade students. I will acquire written consent from interviewees and parents and oral assent or written consent from students, depending on their age. Participation is voluntary and participants may leave the study at any time. Thought the district and schools may be named, I will not share identifiable data about parents, students, or colleagues involved in the study. Digital files will be stored on a district owned password protected computer. Interview data will be de-identified with the use of pseudonyms. Audio recordings of interviews will be deleted once transcribed. The results of this study will be shared with the course instructor, Johanna Prince and through a visual and verbal presentation at the University of Maine at Farmington's research symposium in May 2015. The final results and study may also be published and/or shared at a conference.

If I have any questions about the research, you may contact me at Cape Cod Hill School, 778-3031 or 491-8162. Please email me at jladd@mtbluersd.org. You may also reach the faculty advisor on this study at (207) 778-7066 or johanna.prince@maine.edu.

Thank you for considering my request to conduct research. If you approve of this request, please sign below and return a copy to me.

Respectfully,
Jennifer Ladd

I have reviewed Jennifer Ladd's research plan for *The Effect of Systematic Synthetic Phonics Instruction on Reading Achievement and Phonological Awareness in Low-Performing First and Second Graders.* I give my consent to conduct this research in the spring of 2015. I am aware that I can review the data and discuss the research project at any point during the research. I may also ask to view the report at the end of the study.

11/5/14	Dr. Thomas J. Ward	Superintendent RSU #9
Date	Name	Position in District/Site

Appendix D

Adult Informed Consent

You are invited to participate in a research project being conducted as my capstone course as a graduate student at the University of Maine at Farmington. Johanna Prince, Interim Director of Graduate Programs in Education, is the supervising faculty member. The purpose of the research is to evaluate the impact systematic phonics instruction has on first and second grade readers who receive additional reading instruction from Title I and determine local experience and use of intervention strategies. If you decide to participate, you will be asked to sit for one interview about your experiences with intervention strategies. The interview will be recorded to be transcribed later and will last no longer than thirty minutes.

Risks

The time and inconvenience of the meeting may be risks of participating in the study. You may skip any questions during the interview.

Benefits

There are no direct benefits to you from participating in the study. However, as a participant you may enjoy expressing your work experiences and views. Aside from this benefit to the participants, this research may help us learn more about current intervention practices in our district and possibly improve our practice.

Confidentiality

Your responses during the interviews will be kept confidential. The paper documents and files from this study will all be kept in a locked file box in my classroom. Digital files will be stored on a district owned password protected computer. Interview data will be de-identified with the use of pseudonyms. Audio recordings of interviews will be deleted once transcribed. Some de-identified data may be shared with Johanna Prince, faculty member for the course. All data from the study, including the participant key, will be kept for seven years and then destroyed.

Participation is voluntary

If you choose to take part in this study, you may stop at any time. You may skip any questions you do not wish to answer. As a colleague, there are no repercussions for not joining. I will not discuss the details of the study with you or others outside the context of data collection.

I, _____(Date)_____, have carefully read and fully understand the purpose of this research and the procedures to be followed. I understand that my responses will be kept confidential, my participation is voluntary, and that I may withdraw at any time without penalty. I also recognize that I may skip any questions I don't wish to respond to. Results of this research may be shared in the form of one or more publications and verbal presentations. If I have any concerns or inquiries about my rights as a subject or the manner in which this research is conducted, I understand that I can contact the principal investigator, Jennifer Ladd, at Cape Cod Hill School, (207) 778-3031 or (207) 491-8162 and jladd@mtbluersd.org. All correspondence will be confidential.You may also reach the faculty advisor on this study at (207) 778-7066 or johanna.prince@maine.edu. By signing above, I assert that I fully understand the above and give my consent to serve as a subject in this research. (If you would like a summary of the results, please make the request of the researcher at the contact given above) Interview Protocol/Questions

Appendix E

Parent Consent Form

Dear Parents,

Your child is invited to participate in a research project. I am a Reading Recovery trained teacher and Title I teacher at Cape Cod Hill School. I am also a student at the University of Maine at Farmington. I am researching the impact two different approaches to word study have on first and second grade readers.

What Will Your Child Be Asked to Do?

If you agree, your child will attend regularly scheduled Title I groups. I will be collecting data on their performance on word reading, sound knowledge, and overall reading performance. During the second half of the study, part of the "word work" portion will change and systematic phonics instruction will be added. This means an ordered set of letters and sounds will be taught. Repeated word reading, rhyming, and breaking words by sounds and syllables will continue to be taught. There will be a total of three data collection points. Participating in the study will not have any affect on grades, or require additional work for your child. All student work will be conducted during the regular school day.

Risks

There are minimal risks. Adding a new way of teaching and noting how students respond will inform future instruction in our building, district, and possibly, beyond.

Benefits

Your child will experience a different teaching strategy and may learn more about reading. This study may help future students since I hope to learn more about the best ways to teach young readers.

Confidentiality:

Your child's name will not be on any of the notes or documents used in the study. Your child's name or other identifying information will not be reported in any publications. Each child's name will be replaced with a code number. The name:code key and all digital files will be kept on a district owned password protected computer. Any paper documents related to the study will be shredded after seven years.

Participation is voluntary

If you choose to have your child take part in this study, s/he may stop at any time.Whether or not your child participates will not impact your child's relationship with myself, the school, his classroom teacher or any other teachers. Participation or non-participation will also be confidential.

Contact Information

If you have any questions about this study, please contact me, Jennifer Ladd, at jladd@mtbluersd.org , at Cape Cod Hill School (207) 778-3031, or my cell phone (207) 491-8162. All correspondence will be confidential. You may also reach the faculty advisor, Johanna Prince, on this study at johanna.prince@maine.edu or 207-778-7066.

Your signature below indicates that you have read, understand, and consent to the above information. You will receive a copy of this form.

_____ Signature and Date

Appendix F

Combined Student Oral Assent/Written Consent

Hi, you know I am a teacher here at our school. I am also a student at the University of Maine at Farmington. I am talking with you now because I am doing a project to learn about the best way to teach kids reading. I would like to ask you to be part of my study. This means that you will come see me at your regular times to work in your reading group. I will try different ways of teaching and keep track of how much you are learning by asking you to read make-believe words, say the sounds in words, and read to me. Being part of the study does not mean you have to do anything extra for school. If you say "yes," you can still stop at any time by just telling me you want to stop. No one will be upset if you don't want to do this, or if you want to stop after you have started.Your parents have said it is ok for you to be in the project if you want to.Your work will be private and only used for my project.Would you like to be in my project?

Oral Assent - Children 0-7 years Yes _____ No _____ Date _____

Signature of person obtaining assent_____

Written Consent - Children 8-17 years

Child's handwritten name _____

Signature of person obtaining consent_____
Date_____

Appendix G

PSF Administration Directions

Allowing partial credit in scoring increases the sensitivity of the measure, thus making it possible to measure growth from partial to complete segmentation. Although partial credit is given, the preferred response is for students to completely segment words at the phoneme level by the end of kindergarten.

Materials

- Scoring Booklet
- Clipboard
- Pen/pencil
- Stopwatch

Administration Directions

Follow these directions exactly each time with each student. Say the words in bold italic type verbatim. Begin with the practice activities. The practice activities are designed to introduce the assessment task to the student. They are untimed and include correction procedures. The correction procedures are not used once the testing begins.

▶ ***We are going to say the sounds in words. Listen to me say all the sounds in the word "fan." /f/ /a/ /n/. Listen to another word,*** (pause) ***"jump." /j/ /u/ /m/ /p/. Your turn. Say all the sounds in "soap."***

Correct response /s/ /oa/ /p/	***Very good saying all the sounds in "soap."***	(Begin testing.)
Incorrect response anything other than /s/ /oa/ /p/	***I said "soap," so you say /s/ /oa/ /p/. Your turn. Say all the sounds in "soap."***	*Correct response* ***Good.*** (Begin testing.)
		Incorrect response ***Okay.*** (Begin testing.)

▶ Begin testing. ***I am going to say more words. I will say the word, and you say all the sounds in the word.*** (Say the first word from the list in the scoring booklet.)

1. Say the first word and start your stopwatch.
2. During the testing:
   - Present the words to the student one at a time by reading across the row.
   - As the student responds, underline each correct sound segment the student says. A sound segment is defined as each different, correct part of the word. Leave omitted sounds blank. Circle repeated words.
   - As soon as the student finishes saying the sounds of the word, say the next word promptly and clearly. If the student indicates that he/she did not hear the word, you may repeat it.
   - Continue to say words one at a time and score the student's responses for 1 minute.
   - At the end of 1 minute, put a bracket after the last sound segment the student said. Stop presenting words and do not score any student responses after 1 minute. If the student is in the middle of a response at the end of 1 minute, you may allow the student to finish his/her response, but place the bracket where the minute ended and do not count any sound segments after the end of the minute.

Appendix H

NSF Administration Directions

There are two separate scores reported for NWF:

1. Correct Letter Sounds (CLS) is the number of letter sounds produced correctly in 1 minute. For example, if the student reads dif as /d/ /i/ /f/ the score for Correct Letter Sounds is 3. If the student reads *dif* as /di/ /f/ or "dif," the score is also 3.
2. Whole Words Read (WWR) is the number of make-believe words read correctly as a whole word without first being sounded out. For example, if the student reads *dif* as "dif," the score is 3 points for CLS and 1 point for WWR, but if the student reads *dif* as "/d/ /i/ /f/ dif," the score is 3 points for CLS but 0 points for WWR.

The goal is for students to read whole words on NWF; however, an advantage of NWF is that it allows for monitoring the development of the alphabetic principle and basic phonics as early as the middle of kindergarten, when producing individual letter sounds is the more common response.

Materials

- Scoring Booklet
- Student materials
- Pen/pencil
- Clipboard
- Stopwatch

Administration Directions

Follow these directions exactly each time with each student. Say the words in bold italic type verbatim. Begin with the practice activities. The practice activities are designed to introduce the assessment task to the student. They are untimed and include correction procedures. The correction procedures are not used once the testing begins. Put the student copy of the materials in front of the student and say the following:

▶ ***We are going to read some make-believe words. Listen. This word is "sog."*** (Run your finger under the word as you say it.) ***The sounds are /s/ /o/ /g/*** (point to each letter). ***Your turn. Read this make-believe word*** (point to the word "mip"). ***If you can't read the whole word, tell me any sounds you know.***

Correct Whole Word Read mip	***Very good reading the word "mip."***	(Begin testing.)
Correct Letter Sounds Any other response with all the correct letter sounds	***Very good. /m/ /i/ /p/*** (point to each letter) ***or "mip"*** (run your finger under the word as you say it).	(Begin testing.)
Incorrect response No response within 3 seconds, or response includes any errors	***Listen. /m/ /i/ /p/ or "mip."*** (Run your finger under the letters as you say the sounds.) ***Your turn. Read this make-believe word.*** (Point to the word "mip.") ***If you can't read the whole word, tell me any sounds you know.***	*Correct response* ***Very good.*** (Begin testing.) *Incorrect response* ***Okay.*** (Begin testing.)

▶ Begin testing. ***I would like you to read more make-believe words. Do your best reading. If you can't read the whole word, tell me any sounds you know.*** (Place the student copy in front of the student.) ***Put your finger under the first word. Ready, begin.***

Appendix I

Fountas & Pinnell Running Record Sheet Example

The Loose Tooth • LEVEL E • FICTION Recording Form

Student _____ Grade _____ Date _____

Teacher _____ School _____

Recording Form

Part One: Oral Reading

Place the book in front of the student. Read the title and introduction.

Introduction: Kate had a loose tooth and she tried lots of things to make it come out. Read to find out what happened to Kate's loose tooth.

Page	Text — *The Loose Tooth* Level E, RW: 198	E	SC	Sources of Information Used: E (M S V)	SC (M S V)
2	Kate had a loose tooth. Her tooth was **very** loose. Kate played with her tooth. But it did not come out.				
4	"Don't play with your tooth," said Kate's mom. "Eat your breakfast." "I want my tooth to come out," said Kate.				
	Subtotal				

Appendix J

Fountas & Pinnell Comprehension Recoding Form Example

The Loose Tooth • LEVEL E • FICTION **Recording Form**

Part Two: Comprehension Conversation

Have a conversation with the student, noting the key understandings he student expresses. Use prompts as needed to stimulate discussion of understandings the student does not express. Score for evidence of all understandings expressed–with or without a prompt. Circle the number in he score column that reflects the level of understanding demonstrated.

Teacher: Talk about what happened in this story.

Comprehension Scoring Key

0 Reflects **no** understanding of the text. Either does not respond or talks off the topic.

1 Reflects **very limited** understanding of the text. Mentions a few facts or ideas but does not express the important information or ideas.

2 Reflects **partial** understanding of the text. Includes important information and ideas but neglects other key understandings.

3 Reflects **excellent** understanding of the text. Includes almost all important information and main ideas.

Key Understandings	Prompts	Score
Within the Text		
Kate had a loose tooth and she was doing everything she could to make it come out. (Gives 2–3 examples, such as wiggled it, played with it, brushed it.)	What was Kate's problem in the story? What did Kate try to do to solve the problem? What else did she do?	0 1 2 3
In the end, she ate an apple and the tooth came out in her soup!	Talk about how the story ended.	
Note any additional understandings:		
Beyond the Text		
Kate really wanted her tooth to come out because (gives a plausible reason).	Why do you think Kate really wanted her tooth to come out?	0 1 2 3
She felt great when her tooth finally came out.	Talk about how Kate felt about her tooth at the beginning of the story and at the end of the story.	
Kate's mom wasn't worried because she knew the tooth would come out.	What do you think Kate's mom was thinking?	
Note any additional understandings:		

Guide to Total Score
6–7 **Excellent** Comprehension
5 **Satisfactory** Comprehension
4 **Limited** Comprehension
0–3 **Unsatisfactory** Comprehension

Subtotal Score: /6

Add 1 for any additional understandings: /1

Total Score: /7

art Three: Writing About Reading *(optional)*

ead the writing/drawing prompt on the next page to the student. Specify the amount time for the student to complete the task. (See *Assessment Guide* for more formation.)

Writing About Reading Scoring Key
0 Reflects **no** understanding of the text.
1 Reflects **very limited** understanding of the text.
2 Reflects **partial** understanding of the text.
3 Reflects **excellent** understanding of the text.