

An Examination of Psycho-Educational Reports and Empirically Validated Practices

Danielle Crofts

Mount Saint Vincent University

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Abstract

The purpose of this study was to examine whether interventions that School Psychology trainees recommend for struggling readers are those that have been shown to be effective in educational research. Twenty-eight reports spanning a 5 year period, were randomly chosen from the archives of a School Psychology training program at an Atlantic Canadian university. Students identified within these reports were in grades 1 to 9, and ranged in age from 6 to 14 years. Of the 28 reports examined, 1 student had difficulties in reading comprehension only, 7 students had difficulties in word reading only, and 20 students experienced difficulties in both areas. Results confirmed the hypothesis that a considerable proportion of these reports did not contain evidenced-based (EB) recommendations targeting reading difficulties. Further, when EB recommendations were present, these were not complete or in depth; that is, they did not specify the range of instructional components necessary to effectively address reading difficulties. Finally, contrary to predictions, neither the number of EB recommendations per report, proportion of reports with EB recommendations, nor the depth of EB recommendations increased from the earlier to the later reporting period. Results are discussed within the context of School Psychology training programs.

Dedication:

To my parents, Peter & Jean Crofts, and my grandmother, the late Maude Gantzer, with appreciation, love, and respect.

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Chapter I

An important role of a school psychologist is to advocate for children in order to help them achieve academically and have positive learning experiences while in school. Children who fail to acquire basic academic skills are frequently referred for a psycho-educational assessment. School psychologists conduct these assessments in order to measure current levels of achievement and examine strengths and weaknesses in cognitive processes that may be related to a child's learning difficulties. Important outcomes of these assessments can include a diagnosis and recommendations for interventions to help the student. Ideally, the school psychologist works collaboratively with teachers, parents, and students. This collaboration is necessary, as teachers will implement interventions with the child. Research has shown that an absence of collaboration with the classroom teacher can result in the recommendations from the psycho-educational assessment not being implemented (Borghese & Cole, 1994). To the best of our knowledge, research examining the quality or empirical validity of the interventions that school psychologists recommend concerning learning difficulties has not been reported.

The current study examined whether the interventions that school psychology trainees recommended for struggling readers are evidence-based; that is, interventions that have been found in the research to be effective with students who are struggling to read. In particular, this study focused on the interventions recommended for children with reading disabilities or those who struggle to learn to read; recommendations addressing other areas of difficulty were not included in this study. Toward this goal, the research literature in the areas of word reading and reading comprehension was examined in order to delineate evidence-based interventions. This line of inquiry is congruent with the movement in the field of psychology more generally for psychological interventions to be based upon empirically validated techniques (e.g., Levant,

2004). The current study examined the recommendations of one specific group of school psychologists in training, students enrolled in a Master of Arts in School Psychology program at an Atlantic Canadian university. This study examined interventions recommended for children who are struggling to acquire competence in reading.

Two areas of reading in which children experience difficulties are word recognition and reading comprehension (e.g., Ehri, 1998). Children who have difficulty with learning to read most frequently have deficits in learning to read words quickly and accurately (e.g., Lovett et al., 1994; Lovett, Lacerenza & Borden, 2000; Lovett, Warren-Chaplin, Ransby & Borden, 1990). Difficulties with word recognition severely impact ones ability to comprehend text (e.g., Shankweiler et al., 1999). Children with serious word reading difficulties are labeled as reading disabled. These children most frequently demonstrate phoneme awareness and/or rapid automatized naming deficits that impact their ability to learn sound-letter correspondences and automatic word recognition (e.g., Lovett et al., 1994; National Reading Panel, 1999a).

Children with adequate word reading may demonstrate difficulties comprehending text (e.g., Shankweiler et al., 1999). Research on children struggling with reading comprehension has suggested that students may have the ability to effectively process information, but they are inefficient at self-initiating effective strategies (Cross & Paris, 1988; Gersten, Fuchs, Williams & Baker, 2001; Jitendra, Hoppes & Xin, 2000). A lack of metacognition is a characteristic that students with learning disabilities often demonstrate (Cross & Paris, 1988; Gersten et al., 2001). Metacognition involves being aware, organizing, controlling, and evaluating ones cognitive activities to ensure efficiency (Cross & Paris, 1988; Gersten et al., 2001). In order to teach students to apply strategies autonomously and effectively, it is essential to use a systematic and direct approach to instruction (e.g., Guthrie & Davis, 2003; Stevens, Slavin & Farnish, 1991;

Jitendra et al., 2000). An important aspect to this type of approach involves scaffolding. Scaffolding entails the teacher gradually transferring control of strategy initiation and use to students. In addition, systematic and direct instruction using a “mastery-learning paradigm” has been recommended. Students learn how to apply strategies through repetition and practice until mastery, which can result in students transferring the strategies to text outside the context of the initial instruction (e.g., Gajria & Silvia, 1992; Guthrie, Wigfield & Perencevich, 2004).

Word Decoding

A current understanding of reading disabilities includes the important role of word recognition and phonological awareness (e.g., Siegel, 1998; Lovett, Lacerenza & Borden, 2000). Word decoding is the locus of difficulty in children with reading disabilities (for review see Stanovich, 2000). Research has shown that these difficulties involve problems learning grapheme-phoneme correspondences and accurate and fluent word recognition (e.g., Ehri, 1998; Lovett et al., 1990). Skilled readers are able to recognize words automatically (e.g., Ehri, 1998). Research has demonstrated that difficulties in the ability to rapidly and automatically recognize words are a characteristic shown by children with reading disabilities. Research has demonstrated that effective word recognition skills involve developing associations between graphemes and phonemes within individual words. This involves making connections between written words and their pronunciation (Ehri, 1998). Mastery of the alphabetic principle is a key element for successful reading (Foorman & Torgesen, 2001).

Research has shown that the difficulties experienced by struggling readers are often due to deficits in phonological processing (Lovett, Steinbach & Frijters, 2000; Siegel, 1998). Phonological processing skills in the early elementary years are associated with successful reading acquisition in later grades (e.g., Torgesen, Wagner, Rashotte, Burgess & Hecht, 1997;

Wagner, Torgesen & Rashotte, 1994). There are several areas of phonological processing that have been proposed to be deficient in children with reading disabilities. These include phoneme awareness, or the ability to manipulate individual sounds within words, and “using phonological codes as an aid to working memory” (Lovett, Steinbach, et al., 2000, p. 335). According to Siegel (1998), reading pseudowords is a good indicator of phonological processing. Pseudowords are nonsense words, not real words. Reading pseudowords requires an understanding and application of grapheme-phoneme conversion rules and can not be recognized purely by “sight”. Research has demonstrated that children with reading disabilities have difficulty reading pseudowords due to deficits in phonological processing (for review see Siegel, 1998).

Acquiring knowledge about the correspondence between letters and sounds is essential in learning how to read words (for review see Adams, 1994; Ehri, 1998). In terms of word recognition, there is now a substantial body of research that demonstrates the type of instruction and the intensity of instruction that is necessary to improve the skills of struggling readers (e.g., Foorman & Torgesen, 2001; Lovett, Lacerenza & Borden, 2000). There are three components of interventions that help improve word recognition skills in struggling readers (See Appendix A); instruction that focus on improving phoneme awareness skills, explicit and systematic phonics instruction that aims to increase letter-sound correspondence knowledge and word decoding skills, and meta-cognitive approaches to decoding larger words, and building up sight recognition of frequent orthographic units (Lovett, Lacerenza & Borden, 2000).

Research has demonstrated that successful phonologically-based remediation is possible with children with reading disabilities (e.g., Lovett et al., 1994; Lovett, Lacerenza & Borden, 2000; Lovett, Lacerenza, Borden et al., 2000; Lovett, Steinbach et al., 2000). One important

focus in this remediation is phoneme awareness (Lovett et al., 1994; Siegel, 1998). According to the National Reading Panel (1999a), exercises that focus on improving phoneme awareness skills have been shown to improve the word recognition skills of struggling readers. Phoneme awareness is the ability to hear and manipulate individual sounds within words (Adams, 1994). Children with reading disabilities have difficulties blending phonemes to create words and segmenting words into individual phonemes (Lovett, Steinbach, et al., 2000). Research has demonstrated that direct instruction focusing on children's recognition and manipulation of phonemes can increase student's phoneme awareness, which is an important skill in learning how to read (Foorman & Torgesen, 2001). Instruction is most beneficial when it focuses on teaching the awareness of individual phonemes, is combined with instruction on learning grapheme-phoneme correspondences, and is conducted with smaller groups of students (Foorman & Torgesen, 2001; National Reading Panel, 1999a).

Explicit and systematic phonics instruction that aims to increase letter-sound correspondence knowledge and word decoding strategies is an important component of reading interventions that have been shown to be effective. According to an in-depth review by the National Reading Panel (1999a), systematic phonics is more effective for improving children's ability to read nonwords, and regular words, than non-systematic phonics programs. In addition, the National Reading Panel (1999a) have suggested that non-systematic and non-phonics approaches are less effective in teaching relationships between letters and sounds and building word recognition skills than systematic phonics. According to the National Reading Panel (1999a), systematic phonics programs involve teaching children the correspondences between letters and sounds in a structured way through planned, sequential lessons. These planned sequential lessons would include instruction on the correspondences between consonant letters

and sounds, “short and long vowel letters and sounds, and vowel consonant diagraphs” (Ehri, Nunes, Stahl & Willows, 2001, p. 394). This may also include “blends of letter-sounds that form larger subunits in words” (Ehri et al., 2001, p. 394), including onsets and rimes. In general, the goal of systematic phonics instruction is to teach the alphabetic system in order to be able to decode words efficiently (National Reading Panel, 1999b). Phonics programs most often include practicing word reading in both isolation and in vocabulary controlled texts.

The Phonological Analysis and Blending/Direct Instruction Program (PHAB/DI), is an effective phonologically-based reading program. PHAB/DI employs systematic and explicit instruction in phonological segmentation and blending to remediate difficulties in word decoding (Lovett et al., 1994; Lovett, Steinbach, et al., 2000). These segmentation and blending skills are taught first orally (phoneme awareness) and then through print. There are two components to the PHAB/DI program. The first component uses direct instruction to train children in phoneme segmentation. This is accomplished through teaching children how to segment spoken words into individual sounds, and emphasizing letter-sound and letter-cluster-sound correspondences. Children are taught word segmentation skills, which entails sounding out words slowly into small units. This training in segmentation focuses on teaching an awareness of subsyllabic units and the individual sounds within words (Lovett et al., 1994; Lovett, Steinbach, et al., 2000). The second component of PHAB/DI focuses on blending individual sounds to form words. This is accomplished through training children how to combine small units and individual sounds to produce words at a spoken rate (Lovett et al., 1994; Lovett, Steinbach, et al., 2000). An important component of the PHAB/DI program is the emphasis on learning sounds in a cumulative manner, and practicing these letter-sound correspondences until they have been

mastered. This promotes children's transfer of these skills to decoding familiar and unfamiliar words in text (Lovett et al., 1994; Lovett, Steinbach, et al., 2000).

Lovett and her colleagues (Lovett et al., 1994; Lovett, Lacerenza & Borden, 2000) have also developed a program that focuses on meta-cognitive approaches to decoding larger words, and building up word recognition of frequent words. The Word Identification Strategy Training Program (WIST) was developed partially based on the Benchmark School Word Identification/Vocabulary Development Program developed by Gaskins and her colleagues (Gaskins et al., 1988). The WIST program has been shown to be an effective reading program that explicitly teaches metacognitive skills to improve decoding unfamiliar words (Lovett et al., 1994; Lovett, Steinbach, et al., 2000). The first component of this program involves teaching students 120 high-frequency words. This involves instruction on approximately five new words a day (Lovett et al., 1994; Lovett, Lacerenza, Borden et al., 2000). Once these high-frequency words have been practiced the WIST program teaches children four metacognitive decoding strategies. These strategies are: 1) identifying words through analogy 2) finding the part of an unfamiliar word you know 3) attempting "variable vowel pronunciations" and 4) "peeling off" prefixes and suffixes in an multisyllabic word" (Lovett, Steinbach, et al., 2000, p. 338).

Lovett and her colleagues (Lovett, Steinbach, et al., 2000) compared outcomes of students with deficits in the areas of phonological processing and/or visual naming speed, who had received the PHAB/DI program, the WIST program or a Classroom Survivor Skills Program (CSS). The results of this study demonstrated that successful remediation of deficits in word recognition and decoding is possible with appropriate, explicit intervention that involves direct instruction. Both PHAB/DI and the WIST programs were effective in increasing participants' knowledge of the correspondences between letters and sounds, and their ability to decode words.

In addition, these results transferred to words not practiced in these interventions. For both treatments, participants with reading disabilities also improved significantly on measures of phonological awareness (Lovett, Steinbach, et al., 2000). Children who received PHAB/DI demonstrated an increase within the domain of phonological awareness of “broader based and deeper generalization” (Lovett, Lacerenza & Borden, 2000, p. 461) of both spoken and written words. The phonologically-based word decoding skills transferred to unfamiliar words outside of this intervention; however, these skills did not transfer to irregularly spelled words. Children who received WIST demonstrated an increase with identification of words that were both regular and irregular resulting in “broader based generalization for real English words” (Lovett, Lacerenza & Borden, 2000, p. 461). Students with phonological awareness and/or rapid automatized naming deficits made significant increases in word identification skills and knowledge of letter-sound correspondences (Lovett, Steinbach et al., 2000).

Lovett and her colleagues (Lovett, Lacerenza, Borden, et al., 2000) also explored the outcomes of children with reading disabilities who received the PHAB/DI intervention and the WIST program. This study demonstrated that subjects who received PHAB/DI in combination with WIST significantly improved on their word recognition and decoding skills more so than each program in isolation. In addition, the improvements these children made were found to transfer to text that was not included in the programs (Lovett, Lacerenza, Borden, et al., 2000). The results of this study suggested that both phonological remediation and metacognitive strategy instruction are necessary components of effective interventions for children with reading disabilities (Lovett, Lacerenza & Borden, 2000; Lovett, Lacerenza, Borden, et al., 2000).

Reading Comprehension

In the area of reading comprehension, one focus of research has been on cognitive strategy instruction. Cognitive strategies are explicit procedures that aim to promote active comprehension of text and increase children's awareness and ability to monitor their comprehension (National Reading Panel, 1999c). The current state of the field in research on reading comprehension strategies can be best understood by several sources. First, the National Reading Panel (1999c) conducted a review of research on instruction of comprehension in normal readers. In order for studies to be included in this review, four conditions had to be met. The studies had to be related to reading comprehension instruction in normal readers, be published in a scientific journal, involve at least one experimental group that received treatment compared to a control group or have at least one quasi-experimental variable, and include subjects or classrooms that were randomly assigned to treatment or control groups or matched on reading comprehension measures (National Reading Panel, 1999c). From this review the National Reading Panel (1999c) identified seven types of strategies that they concluded have demonstrated empirical evidence in strengthening reading comprehension in normal readers. The National Reading Panel (1999c) further suggested that these evidence-based strategies are most effective when children are taught to use them in combination. A second source that identified strategies that have been shown to improve reading comprehension is Pressley, Johnson, Symons, McGoldrick and Kurita (1989). They identified six strategies that have been shown to be effective with elementary school children who are considered normal readers. Finally, Guthrie and colleagues (Guthrie, Wigfield, Barbosa et al., 2004; Guthrie, Wigfield & Perencevich, 2004) have also identified six strategies that have been shown to be effective in enhancing children's comprehension and have incorporated these six strategies into an

instructional program intended to enhance motivation and reading comprehension in normal readers. Importantly, the strategies that have been identified as effective in increasing reading comprehension in readers overlap between these three sources (See Appendix B). These cognitive strategies have been shown to enhance reading comprehension in average readers. I next outline research which shows that these strategies are also effective for struggling readers.

Students struggling with reading often have difficulty summarizing the main idea of text (Jitendra, Cole, Hoppes & Wilson, 1998). Summarization refers to students forming precise representations of text after reading (Guthrie, Wigfield & Perencevich, 2004). Numerous studies have demonstrated that direct instruction on summarization strategies has been effective in increasing comprehension for struggling readers (e.g., Gajria & Silvia, 1992; Jitendra et al., 1998; Jitendra et al., 2000). Gajria and Silvia (1992) compared children with and without learning disabilities on comprehension tasks after children with reading deficits were explicitly taught five rules on summarization. These authors found that children with reading difficulties can learn summarization strategies to aid them with comprehension of text, and that these strategies were maintained and generalized to future text. Similar studies have explored the use of summarization strategies in combination with self-monitoring techniques to enhance comprehension of a story's main idea (e.g., Jitendra et al., 1998; Jitendra et al., 2000). These studies included using prompt cards to aid students in activating strategies and monitoring their comprehension. These prompt cards had four components used as check points to help activate and monitor strategy use. These four components included reading the text, using the prompt card to initiate strategies, applying the strategy to comprehend the main idea of the material, and writing down the main idea (Jitendra et al., 2000). The results of these studies (Jitendra et al., 1998; Jitendra, et al., 2000), demonstrated that direct instruction in summarization and self-

monitoring was effective with students with reading disabilities. After receiving direct instruction, children continued to use these strategies at a six week follow-up. Summarization is a cognitive strategy that has been suggested as being effective by the National Reading Panel (1999c), Guthrie and his colleagues (Guthrie, Wigfield & Perencevich, 2004), and Pressley and his colleagues (Pressley, et al., 1989).

Comprehension monitoring is another strategy that has been shown to be effective for increasing the reading comprehension of struggling readers. Comprehension monitoring refers to being aware of, appraising, managing and remediating ones own comprehension (Baumann, Seifert-Kessell & Jones, 1992). In order to monitor comprehension, a student must learn to evaluate the purpose of his/her reading, monitor if they have comprehended the text successfully and activate strategies to help comprehend when experiencing difficulty (Baumann et al., 1992; Bos & Filip, 1984; Payne & Manning 1992). Bos and Filip (1984) explored the differences between average students and students with learning disabilities in their ability to discriminate between consistent and inconsistent information in two expository passages. These authors found that average achieving students automatically monitored their comprehension and were able to identify inconsistencies within the text. On the other hand, students with learning disabilities did not monitor their comprehension and had difficulty identifying inconsistencies; however when cued, most students with reading disabilities were successful at implementing comprehension monitoring strategies and identifying text inconsistencies. The results of this study have suggested that explicitly training students with reading disabilities in how to monitor their comprehension and activate strategies when they are having difficulty would be beneficial (Bos & Filip, 1984). According to the National Reading Panel (1999c), comprehension monitoring has been identified as an effective strategy in increasing normally achieving

children's reading comprehension. Although comprehension monitoring was not identified as a separate strategy in the work of Guthrie and his colleagues (e.g., Guthrie, Wigfield & Perencevich, 2004) or Pressley and his colleagues (Pressley et al., 1998), the activity of comprehension monitoring is embedded within the strategies they do identify, and within the transactional instruction model of reading proposed by Pressley and colleagues (Pressley et al., 1992).

Question generation is a cognitive strategy that has been shown to be effective in aiding struggling reader's comprehension of text. Question generation refers to students' creating questions to help comprehend the content of text. This strategy aims to help children focus on themes, search for and combine information, and monitor comprehension to initiate deep processing of text (e.g., Rosenshine, Meister & Chapman, 1996). Generating questions encourages students to invest in reading by focusing on their prior knowledge and the information they want to know (Guthrie, Wigfield & Perencevich, 2004; Rosenshine et al., 1996). Guthrie and his colleagues (Guthrie, Wigfield and Perencevich, 2004) have suggested that question generation facilitates motivation to learn as it incorporates children's interests with the subject of text. Rosenshine et al. (1996) reviewed the literature on interventions using question generation to remediate reading difficulties and increase comprehension. Rosenshine et al. (1996) have suggested that generating questions is an effective strategy as the studies demonstrated that students' reading comprehension increased. Question generation is a strategy that the National Reading Panel (1999c) and Pressley et al. (1989) have suggested as being effective in increasing children's reading comprehension. Guthrie, Wigfield and Perencevich (2004) additionally propose that question generation is an effective strategy and incorporate it

into their Concept-Oriented Reading Instruction (CORI) program; however, within the CORI program, this strategy is referred to as “questioning in reading” rather than question generation.

Question answering is another cognitive strategy that research has demonstrated to be effective in helping struggling students comprehend text. Question answering refers to students’ reading material and then searching the text again to find answers to questions. Research on question answering suggests that re-reading text in order to answer specific questions increases understanding of text; however, more research in this area is needed (Pressley et al., 1989). Guthrie and his colleagues (Guthrie, Wigfield & Perencevich, 2004) have a more elaborated strategy that incorporates question answering in CORI. Within the CORI program the question answering strategy is referred to as searching for information. Searching for information entails developing goals, searching text to find applicable information, focusing on pertinent sections of text, and bringing together prior knowledge and the new information in order to accomplish their goal. The National Reading Panel (1999c) has suggested that question answering is an evidence-based strategy that has been shown to increase reading comprehension in children. Pressley et al. (1989) also suggest in a review of effective reading comprehension strategies that question answering is an effective strategy. This strategy is also considered an effective strategy by Guthrie, Wigfield and Perencevich (2004) and is incorporated in the CORI program, as described above.

Using semantic organizers such as story structure or story grammar training is another strategy that has demonstrated effectiveness in increasing the comprehension of struggling readers. Story grammar or structure training refers to teaching children to ask themselves specific questions utilizing knowledge of text structure in order to comprehend text. Some examples are questions pertaining to the main character, setting, actions of characters, problems,

goals and outcomes (Pressley et al., 1989; Vallecorsa, & deBettencourt, 1997). Studies have demonstrated that story grammar or structure training can increase children's comprehension of text (National Reading Panel, 1999c; Pressley et al., 1989; Vallecorsa & deBettencourt, 1997). The structuring of stories is a strategy that is also taught to children through CORI. Drawing diagrams and charts is promoted to help children comprehend the main points of text. This comprehension strategy involves combining and understanding the main points of text, the setting, the characters and their motives (Guthrie, Wigfield & Perencevich, 2004). According to the National Reading Panel (1999c), Guthrie, Wigfield and Perencevich (2004) and Pressley et al. (1989), semantic organizers such as story structure are evidence-based cognitive strategies to increase children's reading comprehension.

Mental imagery and graphic organizers have been shown to be an effective comprehension strategy for struggling readers. This refers to children either representing a sequence of events through a mental picture or through a diagram or visual aid in order to increase comprehension (Pressley et al., 1989). Pressley et al. (1989) reviewed studies that investigated the effectiveness of mental imagery to increase reading comprehension and memory. Their review demonstrated that creating images that are representative of stories assists children's comprehension and memory of text. Although studies have shown that mental imagery can be an effective strategy in helping children remember and comprehend text, Pressley et al. (1989) have suggested that more research in this area is needed. Kim, Vaughn, Wanzel and Wei (2004) conducted a review of research examining the effectiveness of graphic organizers in increasing the comprehension of text in students with learning disabilities. Their review found that the use of graphic organizers is a beneficial tool in aiding the reading comprehension of students with learning disabilities. Kim et al., (2004) suggested that graphic

organizers may benefit students with learning disabilities in organizing verbal information and therefore aid their recall of information presented in texts. Systematic instruction on how to organize an understanding of text using visual aids, such as graphs, can help students remember themes in order to increase comprehension (National Reading Panel, 1999c). Mental imagery and graphic organizers are considered to be evidence-based strategies in the literature on increasing children's reading comprehension (Guthrie, Wigfield & Perencevich, 2004; Kim et al., 2004; National Reading Panel, 1999c; Pressley et al., 1989).

Concept-Oriented Reading Instruction (CORI) is a program of classroom instruction that helps students achieve active comprehension through the use of multiple strategies (Guthrie, Wigfield & Perencevich, 2004). It is offered here as one example of exemplary classroom reading instruction. Guthrie and his colleagues (Guthrie, Wigfield, Barbosa et al., 2004; Guthrie, Wigfield & Perencevich, 2004) propose that engagement in reading supports effective understanding of material through a combination of direct instruction in comprehension strategy use, and classroom contexts that supports student's motivations to read. In order to facilitate engagement in reading and increase motivation, CORI utilizes five instructional approaches. These teaching strategies include developing content goals, allowing students to choose texts of interest, presenting students with activities that promote hands-on experience, using texts that are interesting, and facilitating collaboration with classroom peers to discuss content and questions about material (Guthrie, Wigfield & Perencevich, 2004).

In addition to promoting engagement in text, CORI explicitly teaches multiple strategies focusing on increasing reading comprehension. These strategies include activating background knowledge, questioning in reading, searching text for specific information, using graphic organizers, summarization, and identifying the structure of text (Guthrie, Wigfield &

Perencevich, 2004). Within CORI, strategy instruction is explicit and includes teacher modeling and scaffolding. The goal of this instruction is to help students understand the strategy, how to execute and master these strategies, and how to self-regulate their strategy use (Guthrie, Wigfield & Perencevich, 2004). As reviewed above, many of the strategies shown to be effective in the CORI program overlap with those strategies found to be effective in the National Reading Panel (1999c) and by a review conducted by Pressley et al. (1989).

One study compared the outcomes of grade three students who had received CORI to strategy instruction (SI) that excluded the instructional components aimed at supporting student's motivations (Guthrie, Wigfield, Barbosa et al., 2004). A second study compared the outcomes of CORI to SI as well as to traditional instruction (TI) (Guthrie, Wigfield, Barbosa et al., 2004). The results of these studies demonstrated that students who received CORI, as opposed to SI or TI, were more successful on measures of passage comprehension and displayed an increase in motivations and strategy use (Guthrie, Wigfield, Barbosa et al., 2004). The results of these studies demonstrated that a program, such as CORI, that involves direct, explicit instruction on multiple comprehension strategies combined with techniques that enhance children's motivation to read, is effective in increasing children's reading comprehension (Guthrie, Wigfield, Barbosa et al., 2004).

Recommendations Made by School Psychologists

Shinn and McConnell (1994) have suggested that the practice of psychologists within the school system is increasingly becoming ineffective due to not following validated practices; school psychologists, they argue, are spending too much time assessing students. Instead, Shinn and McConnell, (1994) suggested that school psychologists should focus on advocating for children to ensure that appropriate instructional practices are implemented in order to help the

child achieve. This would involve being up to date on research about effective instruction and intervention, and helping teachers and parents understand and employ evidence-based practices (Shinn and McConnell, 1994). School psychologists can be most effective in their practice by being knowledgeable about evidence-based practices. This knowledge of effective strategies and interventions can aid students by increasing their positive learning opportunities, and discontinuing instructional strategies or interventions that will not benefit student's learning (Shinn and McConnell, 1994). Overall, research exploring whether school psychologists recommend evidence-based strategies and interventions for student's who struggle with reading is absent.

What might current recommendations look like if not based on empirically validated findings? One might find that reading comprehension strategies that have not been found to be effective are recommended. For example, it may be recommended that children re-read a passage in order to better comprehend text. In fact, re-reading is not an effective strategy for reading comprehension, but can be effective for reading fluency. Children struggling with word decoding may be encouraged to use context to recognize the unfamiliar words they encounter (Levine & Reed, 2001). This goes against building up automatic word recognition skills which is one hallmark of good readers. Other recommendations may aim to circumvent the reading difficulty or to increase motivation, without addressing the remedial needs of the learner. For example, it may be recommended that children read materials on topics they are highly interested in (Levine & Reed, 2001), but this would not address a child's word recognition difficulties. It may also be recommended that teachers use tape-recorded books, books with pictures, movies or verbally present text to supplement reading (Levine & Reed, 2001). While this may be a way to enrich the child's experience, the remedial needs of the learner are not addressed. In addition,

children with word recognition difficulties may be taught to construct their own dictionary of letter-sound correspondences with the aid of pictures. These strategies may be effective when combined with an explicit and systematic phonics program, but are not effective in the absence of such.

The current study examined the interventions recommended by students completing their Masters of Arts degree in School Psychology at one Atlantic Canadian university. The main research question to be addressed was whether recommendations for struggling readers were based on empirically validated practices. A related question was whether the interventions suggested correspond to the areas of difficulty experienced by the student. Finally, the question was addressed of whether the proportion of evidence-based strategies had increased over an earlier versus later reporting period in the span of five years. Specific hypotheses included:

- 1) A considerable proportion of reports will not include recommendations that are evidence-based. That is, the recommendations will not specify the effective components of interventions necessary to remediate word reading and reading comprehension difficulties.
- 2) Not all reports will have recommendations that correspond to the specific area of reading difficulty that the child has demonstrated.
- 3) The proportion of evidence-based recommendations will increase from the earliest chronological reports to the most recent reports.

Due to this study examining the recommendations made by school psychology students in training, this study is not representative of practices of school psychologists within School Boards. While this is a limitation, the proposed study may be viewed as a conservative examination of the main hypothesis. Students are supervised by university faculty or faculty

affiliates, who presumably would be more familiar with evidence-based practices than those in the field. It is, nonetheless, important to keep in mind that the results of this study may not be representative of the practices of registered school psychologists working within the school system.

Chapter II

Method

Secondary Data Source

The database for this study consisted of psycho-educational reports currently archived at Mount Saint Vincent University. These reports were completed as part of GSPY 6843, Practicum in Psychological Assessment. Students enrolled in the M.A. in School Psychology program conducted assessments in various schools throughout the Halifax Regional School Board. Public school students who were referred for assessments were assessed by these Master's students who were supervised by instructors for GSPY 6843. A psycho-educational report was written and the original copy filed and retained under the direction of the School Psychology faculty. These files are maintained in a locked file cabinet in a locked storage room that is accessed by School Psychology faculty and authorized graduate assistants.

Psycho-educational reports spanning from 2000 to 2005 were included in this study. Reports written within the school years of 2000/2001, 2001/2002, 2002/2003, 2004/2005 were used. This allowed the researcher to collect 28 reports from a four year period, while spanning five years in total. Reports from 2005/2006 were purposely left out of this study as the author of this thesis conducted assessments that year as part of GSPY 6843, Practicum in Psychological Assessment.

Procedures and Measures

For this study, data was obtained from previously completed psycho-educational reports. Reports were initially accessed by a graduate assistant, who was not further involved in this research. The graduate assistant completed several steps:

- 1) The graduate assistant randomly drew reports from the archived files for each of those years included in the study. A report was examined to see if the child assessed had a low score in word reading or reading comprehension (below the 25th percentile or a grade equivalent score two grades below the student's placement). If a report met one of these criteria, it was used in this study. The process continued until seven reports were collected from each of the four years.
- 2) The graduate assistant scanned the report and photocopied sections to include the following information: year of report; child's age and grade at testing; any diagnosis made; test names and scores (percentile or standard score) on all reading related tests (word reading, non-word reading, reading comprehension, phoneme awareness).
- 3) The graduate assistant photocopied the Recommendations section of the report (generally a page or two that comes at the end of the report), along with the test score appendix, if present. The graduate assistant removed all identifying information from these photocopied sections of the reports that became part of the database.

In order to examine what interventions were being recommended, all photocopied recommendations regarding remediation for reading difficulties were examined. Each recommendation was coded as evidence-based (EB) or non-evidence-based (NEB) according to the coding system outlined below. All non-evidence-based recommendations were further recorded and examined in order to gain a further understanding of what interventions were being recommended.

Coding for Word Reading and Reading Comprehension Recommendations

Each recommendation was recorded under the appropriate area of remediation (word recognition or reading comprehension). For word recognition, recommendations were further

broken down as targeting phonological awareness, phonics, or higher-level word recognition. Reports that did not contain any recommendations targeting reading were given a zero when calculating number of recommendations. Reports where the child did not experience difficulty in a specific area were not included in the analysis for that academic area.

Coding for Word Recognition Recommendations

The recommendations targeting difficulties in word reading were divided into three areas: phonological awareness, phonics, and higher-level word recognition. To code a strategy as EB and to explore the content of recommendations, discreet categories for each academic area were examined. For phonological awareness recommendations, EB categories included; 1) Instruction in blending large units (such as syllables, onsets, and rimes), 2) Instruction in blending phonemes, 3) Instruction in segmenting large units, and 4) Instruction in segmenting units into phonemes. If an EB phonological awareness recommendation was present within a report, the report was assigned to category 1, (containing evidence-based recommendations in phonological awareness). If none of the above recommendations were present within a report, the report was assigned to category 2 (containing non-evidence-based or no recommendations; See scoring rubric, Appendix C).

Reports containing evidence-based recommendations targeting phonological awareness were further coded according to their depth or completeness. The depth of EB phonological awareness recommendations for a report were examined and assigned to a category representing the completeness of the instruction being recommended. Each report was assigned a number value when word reading was an area of difficulty. The values were constructed to reflect the completeness of the remediation recommended in each area, with zero representing no EB recommendations and 1.00 representing a relatively thorough treatment of the area. The

category values were; 0= No evidence-based phonological awareness recommendations, 0.33= Instruction in segmenting OR blending large units and/or phonemes, 0.66= Instruction in segmenting AND blending large units and/or phonemes, 1.00= Systematic OR explicit instruction in segmenting and blending large units and/or phonemes. Systematic or explicit instruction would involve instruction in a structured sequential manner or sufficient intensity using scaffolding and frequent repetition until the child masters these skills (See scoring rubric, Appendix D). An example of phonological awareness recommendations for a report that received a depth score of 1.00 follows:

1. Teach phonological awareness; begin by demonstrating the relationship of parts to wholes. Then model and demonstrate how to segment short sentences into individual words, showing how the sentence is made up of words. 2. Use chips or manipulatives to represent number of words, then move onto word level understanding through introducing multisyllabic words for segmentation into syllables. 3. Move to phoneme tasks by modeling a specific sound and asking the student to produce that sound both in isolation and in a variety of words and syllables. 4. Practice these strategies using blending and deleting strategies.

This report contained phonological awareness recommendations that had the components of explicit instruction in segmenting and blending both phonemes and large units, and therefore received the highest depth value. No example of phonological awareness recommendations for a report received a depth score of 0.33 or 0.66.

The recommendations targeting phonics were coded into the following categories; 1) General mention of phonics remediation recommended (i.e., She would benefit from phonics remediation), 2) Instruction in letter-sound correspondences, and 3) Instruction in phonetic analyses. If a recommendation falling in ones of these categories was present within a report, the

report was assigned to category 1 (evidence-based recommendations present). If none of the above recommendations were present within a report, it was assigned to category 2 (non-evidence-based or no recommendations; See scoring rubric, Appendix E).

Reports that contained EB recommendations targeting phonics were further coded according to the overall depth or completeness. The depth of EB phonics recommendations for a report was examined and assigned to a category representing completeness of the instructional program being recommended. Each report was assigned a number value when word reading was an area of difficulty. The values were constructed to reflect the completeness of the remediation recommended in each area, with zero representing no EB recommendations and 1.00 representing a relatively thorough treatment of the area. The category values were; 0= No evidence-based phonics remediation recommended, 0.33= General mention of phonics remediation (i.e., She would benefit from phonics remediation), 0.66= Explicit OR systematic phonics remediation recommended, 1.00= Explicit and systematic phonics remediation recommended. Explicit phonics remediation would include a focus on direct instruction on the correspondences between all the letters and letter blends of written language and in using this knowledge to sound out words. Systematic phonics remediation would include teaching children in a structured, planned and sequential manner (See scoring rubric, Appendix F). An example of a phonics recommendation in a report that received a depth score of 0.33 follows:

As she is demonstrating difficulty with decoding and phonetic awareness it is recommended that she receive assistance in decoding and phonetic skills.

This report contained a very vague or general mention of phonics remediation that was neither explicit nor systematic. An example of a phonics recommendation for a report that received a depth score of 0.66 follows. This recommendation was written for a 12 year old child in grade

six who performed four grade levels behind in his ability to decode real words and nonsense words.

He has difficulties with learning sound-symbol pairings. To strengthen this area, a review of basic decoding skills could be completed. He could first practice decoding the vff/th sounds and then progressively practice with more letters and sounds. Practice activities could involve drills with flashcards and beat the clock games. These activities should be repeated often to help him retain the information. Other activities include creating a story that he can read that incorporates the specific letters/sounds that he is working on.

Although this recommendation hints at a systematic approach to phonics remediation by several levels, it falls short of a systematic phonics program. This recommendation does, however, contain components of explicit phonics remediation such as the emphasis on repetition and mastery, and therefore received a 0.66 for the depth value. It may be apparent that the scoring for the depth of phonics was quite liberal.

For recommendations targeting higher-level word recognition, the categories included; 1) Increasing sight-word vocabulary, 2) Identifying words through analogy, 3) Finding the part of an unfamiliar word you know, 4) Attempting “variable vowel” sounds, and 5) “Peeling off” prefixes and suffixes. If an EB recommendation was present within a report, the report was assigned to category 1 (evidence-based recommendation present). If none of the above recommendations were present within a report, it was assigned to category 2 (non-evidence-based or no recommendations; See scoring rubric, Appendix G).

Reports that contained EB recommendations targeting higher-level word recognition difficulties were further coded according to their depth or completeness. The depth of EB higher-level word recognition recommendations for a report was examined and assigned to a

category representing the completeness of the program of instruction being recommended. Each report was assigned a number value when word reading was an area of difficulty. The values were constructed to reflect the completeness of the remediation recommended in each area, with zero representing no EB recommendations and 1.00 representing a relatively thorough treatment of the area. The category values were; 0= No evidence-based higher-level word recognition recommendations, 0.20= One higher-level word recognition recommendation, 0.40= Two higher-level word recognition recommendations, 0.60= Three higher-level word recognition recommendations, 0.80= Four higher-level word recognition recommendations, 1.00= Five higher-level word recognition recommendations (See scoring rubric, Appendix H). An example of a higher-level word recognition recommendation for a report that received a depth score of .20 follows:

She revealed a strength in her word knowledge, sight vocabulary, and her spelling skills.

Each of these strengths could be used to develop her reading abilities (e.g., continue to encourage her to look for words within unfamiliar words to help her sound them out).

This report received a 0.20 value as it contained one EB higher-level word recognition recommendation (finding the part of an unfamiliar word you know).

Coding for Reading Comprehension Recommendations

The recommendations targeting reading comprehension were coded into the following categories; 1) Direct Instruction on Summarization, 2) Direct Instruction on Comprehension Monitoring, 3) Direct Instruction on Question Generation, 4) Direct Instruction on Question Answering, 5) Direct Instruction on Story Structuring, 6) Direct Instruction on Graphic Organizers, 7) High-Interest Books, and 8) Motivation Strategies. Each of these strategies involves the student being explicitly taught how and when to apply these strategies through

scaffolding and frequent practice to ensure the student has mastered them and is able to apply them independently. If an EB recommendation was present within a report, the report was assigned to category 1 (evidence-based recommendations present). If none of the above recommendations were present within a report, it was assigned to category 2 (non-evidence-based or no recommendations; See scoring rubric, Appendix I).

Reports that contained EB recommendations targeting reading comprehension were further coded according to their depth or completeness. The total depth of EB reading comprehension recommendations for a report was examined and assigned to a category representing the completeness of the remediation. Each report was assigned a number value when reading comprehension was an area of difficulty. The values were constructed to reflect the completeness of the remediation recommended in each area, with zero representing no EB recommendations and 1.00 representing a relatively thorough treatment of an area. The category values were; 0= No evidence-based reading comprehension recommendation, 0.14= One reading comprehension recommendation, 0.28=Two reading comprehension recommendations, 0.42=Three reading comprehension recommendations, 0.56=Four reading comprehension recommendations, 0.70=Five reading comprehension recommendations, 0.84=Six reading comprehension recommendations, 1.00=Seven reading comprehension recommendations (See scoring rubric, Appendix J). When calculating the depth of reading comprehension recommendations, reports containing recommendations for high-interest books as well as motivational strategies were only counted as one EB strategy, as they both target motivation for reading. An example of a reading comprehension recommendation for a report that received a depth score of 0.14 follows:

She may benefit from reading books that are of high-interest to her. As she is interested in arts and crafts, perhaps part of her reading material could include craft books.

This report received a 0.14 value as it contained one EB reading comprehension recommendation (high-interest books). An example of reading comprehension recommendations for a report that received a total depth score of 0.28 follows:

High interest, low reading level materials are recommended for her. To help with comprehension, it may be useful to illustrate the main idea of the text using Main Idea Maps. This may help her visualize the main points that are put forth in each paragraph and how ideas and facts flow together.

This report received a 0.28 value as it contained two EB reading comprehension recommendations (high-interest books and the use of a graphic organizer). An example of reading comprehension recommendations for a report that received a total depth score of 0.42 follows:

Choosing simple, predictable books that are highly interesting to him and emphasizing word recognition and comprehension skills will help him improve his reading abilities. Having him complete activities such as summarizing the information presented on a page, answering questions that ask who, what, when, where, and why may help him understand the information presented.

This report received a 0.42 value as it contained three EB reading comprehension recommendations (high-interest books, summarization and story structuring). Again, it may become apparent that scoring was quite liberal. For example, the above recommendation suggests that the student “complete activities such as summarization...” This is not written in a manner that emphasizes teaching the student the strategy of summarization, which after

sufficient instruction, scaffolding, and practice comes under the student's own control to use in order to increase his reading comprehension and learning.

Chapter III

Results

Sample

Archived psycho-educational reports were chosen randomly and only those that reported difficulty in the area of reading were included in this study. These psycho-educational reports were written about students in grades one to nine (M grade = 4.36, SD = 2.3), ranging in age from six to 14 years (M years = 10, SD = 2.39) and were from diverse elementary/junior high schools within the Halifax Regional School Board. For those 28 students, seven received a diagnosis of a learning disability, two were labeled “at risk” for a learning disability, 14 received no diagnosis, and five were reported to be within “expected levels” for reading ability. Of the 28 students, one experienced difficulty in reading comprehension only, seven experienced difficulty in word recognition only and 20 experienced difficulties in both areas (word recognition and reading comprehension).

Hypothesis 1: A considerable proportion of reports will not include recommendations that are evidence-based. That is, the recommendations will not specify the effective components of interventions necessary to remediate word reading and reading comprehension difficulties.

To explore this hypothesis, descriptive statistics were calculated in order to examine the number of recommendations made that were evidence-based and the number that were not for each report and across reports.

Word Reading Recommendations

Overall, 27 reports identified children who had difficulty in word reading. For this subset of 27 reports, each recommendation addressing word reading was categorized as either EB or

NEB, and was further defined by the area or component of word reading it targeted (i.e., phonological awareness, phonics, higher-level word recognition). Of the 27 reports for which the child struggled with word reading, 14 reports (51.9 percent) did not have any recommendations targeting this skill. The remaining 13 reports had a total of 29 recommendations. Of the 29 recommendations, 22 (75.9 percent) of the recommendations were EB and seven (24.1 percent) were NEB.

The results support the hypothesis; a considerable proportion of reports did not include recommendations that are evidence-based (see Table 1). Of the 27 reports identifying word reading difficulties, five reports contained both EB and NEB recommendations, which resulted in a larger *n* than 27 when adding the number of reports with EB, NEB and no recommendations per area of word reading. Of the 27 reports identifying children with word reading difficulties, two reports contained EB phonological awareness recommendations, one report contained a NEB phonological awareness recommendation, while 25 reports contained no recommendations targeting phonological awareness difficulties. In total, 92.6 percent of reports contained no EB recommendations for phonological awareness.

In the area of phonics, eight reports contained EB recommendations while 19 reports contained no recommendations targeting phonics difficulties. Since a mention of phonics was coded as EB, there were zero reports that contained NEB phonics recommendations. In total, 70.4 percent of reports contained no EB recommendations in phonics. In the area of higher-level word recognition, eight reports contained EB recommendations, five reports contained NEB recommendations and 17 reports contained no recommendation targeting higher-level word recognition. In total, 70.4 percent of reports contained no EB higher-level word recognition recommendations. For total word reading recommendations (phonological awareness, phonics

Table 1

Proportion of Word Reading Recommendations for Reports

	<i>n</i>	<i>Proportion</i>
Word Reading		
Difficulties in Word Reading	27	96.4%
Phonological Awareness Recommendations		
EB Recommendations	2	7.4%
NEB Recommendations	1	3.7%
No Recommendations Given	25	92.6%
Reports Containing no EB Recommendations	25	92.6%
Phonics Recommendations		
EB Recommendations	8	29.6%
NEB Recommendations	0	0%
No Recommendations Given	19	70.4%
Reports Containing no EB Recommendations	19	70.4%
Higher-Level Word Recognition Recommendations		
EB Recommendations	8	29.6%
NEB Recommendations	5	18.5%
No Recommendations Given	17	63%
Reports containing no EB Recommendations	19	70.4%
Total Word Reading Recommendations		
EB Recommendations	12	44.4%
NEB Recommendations	6	22.2%
No Recommendations Given	14	51.9%
Reports containing no EB Recommendation	15	55.6%

Note. Five reports in word reading contained both EB and NEB recommendations.

and higher-level word recognition recommendations combined), 12 reports contained EB recommendations, 6 reports contained NEB recommendations, and 14 reports contained no recommendations targeting word reading difficulties. In total, 55.6 percent of reports contained no EB word reading recommendations.

The depth dimension of EB word reading recommendations was examined to explore the quality or completeness of recommendations for each report. As elaborated in the coding section, the depth dimension was constructed to reflect the completeness of remediation recommended for reports, with zero representing no EB recommendations and 1.00 representing a relatively thorough treatment of the area. The recommendations targeting word reading difficulties were coded for each of the three areas: phonological awareness, phonics, and higher-level word recognition strategies. Of the 27 reports identifying children with word reading difficulties, two reports contained EB phonological awareness recommendations. Of the two reports with EB phonological awareness recommendations, both were categorized as containing the highest level of depth or completeness (See table 2). In the area of phonics, eight reports contained EB recommendations. Of the eight reports, four reports contained a general mention of phonics remediation, which was categorized as meeting a low level of depth or completeness. Four reports contained explicit or systematic recommendations, which were categorized as meeting a middle level of depth or completeness. No reports contained phonics recommendations that received a high depth value of 1.00 (See Table 3). In order to obtain a depth value of 1.00, a report needed to contain EB phonics recommendations that were explicit and systematic. In the area of higher-level word recognition strategies, eight reports contained EB recommendations, all of which contained one higher-level word recognition recommendation. These were categorized as meeting a low level of depth or completeness. No

Table 2

Depth of Evidence-Based Phonological Awareness Recommendations for Reports

Recommendations	Depth Value	<i>n</i>	% of total WR Difficulties (N=27)	% of Reports with EB Recommendations (n=2)
No evidence-based phonological awareness recommendations	0	25	92.6 %	---
Instruction in segmenting OR blending large units or phonemes	0.33	0	---	---
Instruction in segmenting AND blending large units or phonemes	0.66	0	---	---
Systematic OR explicit instruction in segmenting AND blending large units and/or phonemes: This would involve instruction in a structured sequential manner OR sufficient intensity using scaffolding and frequent repetition until the child masters these skills.	1.00	2	7.4 %	100 %

Table 3

Depth of Evidence-Based Phonics Recommendations for Reports

Recommendations	Depth Value	<i>n</i>	% of total WR Difficulties (N=27)	% of Reports with EB Recommendations (n=8)
No Evidence-Based Phonics Remediation Recommended	0	19	70.4%	---
General mention of phonics remediation i.e., She would benefit from phonics remediation.	0.33	4	14.8 %	50%
Explicit OR systematic phonics remediation: instruction on the correspondences between all the letters and letter blends of written language and the sounds these letters produce, and using this knowledge to decode words. This is done through providing students with instruction with sufficient intensity using scaffolding and frequent repetition until the child masters these skills, OR through teaching children letter-sound correspondences in a structured, planned and sequential manner.	0.66	4	14.8%	50%
Explicit and systematic phonics remediation: instruction on the correspondences between all the letters and letter blends of written language and the sounds these letters produce, and using this knowledge to decode words. This is done through teaching children all letter-sound correspondences in a structured, planned and sequential manner while providing them with sufficient intensity using scaffolding and frequent repetition until the child masters these skills.	1.00	0	---	---

reports contained higher-level word recognition recommendations that received a depth value of 0.40 or above (0.40, 0.60, 0.80 or 1.00). In order to obtain a depth value of 0.40 or above, a report needed to contain between two (medium depth value) and five (highest depth value) EB higher-level word recognition recommendations (See Table 4).

Reading Comprehension Recommendations

Overall, 21 reports identified children with difficulty in reading comprehension. For this subset of 21 reports, each recommendation addressing reading comprehension was categorized as either EB or NEB. Of the 21 reports for which the child struggled in reading comprehension, 11 reports (52.4 percent) did not have any recommendations targeting this skill. The remaining 10 reports had a total of 22 recommendations. Of the 22 recommendations, 12 (55.5 percent) of the recommendations were EB and 10 (45.5 percent) were NEB.

The results support the hypothesis; a considerable proportion of reports did not include recommendations that are evidence-based (See Table 5). Of the 21 reports identifying reading comprehension difficulties, five reports contained both EB and NEB recommendations, which resulted in a larger n than 21 when adding the number of reports with EB, NEB and no recommendations. Of 21 reports, seven reports contained EB recommendations, seven reports contained NEB recommendations, and 11 reports contained no recommendations targeting reading comprehension difficulties. In total, 66.7 percent of reports did not contain EB recommendations in reading comprehension.

The depth dimension of EB reading comprehension recommendations per report was examined to explore the quality or completeness of these recommendations. As elaborated in the coding section, the depth dimension was constructed to reflect the completeness of the

Table 4

Depth of Evidence-Based Higher-Level Word Recognition Recommendations for Reports

Recommendations	Depth Value	<i>n</i>	% of total WR Difficulties (<i>N</i> =27)	% of Reports with EB Recommendations (<i>n</i> =8)
No Evidence-Based Higher-Level Word Recognition Recommendations	0	19	70.4%	---
One Evidence-Based Higher-Level Word Recognition Recommendation	0.20	8	29.6%	100%
Two Evidence-Based Higher-Level Word Recognition Recommendations	0.40	0	---	---
Three Evidence-Based Higher-Level Word Recognition Recommendations	0.60	0	---	---
Four Evidence-Based Higher-Level Word Recognition Recommendations	0.80	0	---	---
Five Evidence-Based Higher-Level Word Recognition Recommendations	1.00	0	---	---

Table 5

Proportion of Reading Comprehension Recommendations for Reports

	<i>n</i>	<i>Proportion</i>
Reading Comprehension		
Difficulties in Reading Comprehension	21	75%
Reading Comprehension Recommendations		
EB Recommendations	7	33.3%
NEB Recommendations	7	33.3%
No Recommendations Given	11	52.4%
Reports Containing no EB Recommendations	14	66.7%

Note. Five reports in reading comprehension contained both EB and NEB recommendations.

remediation recommended for reports, with zero representing no EB recommendations and 1.00 representing a relatively thorough treatment of the area. Of the 21 reports indicating reading comprehension difficulties, seven reports contained EB reading comprehension recommendations. Of the seven reports, five reports contained one EB recommendation, which was categorized as meeting a low level of depth or completeness. One report contained two EB recommendations, which was again classified as meeting a low level of depth or completeness. One report contained three EB recommendations, which was categorized as meeting a middle level of depth or completeness. No reports contained reading comprehension recommendations that received a depth value of 0.56 or above (0.56, 0.70, 0.84 or 1.00). In order to obtain a depth value of 0.56 or above, a report needed to contain between four (medium depth value) and seven (highest depth value) EB reading comprehension recommendations (See Table 6).

Overall Recommendations (Word Reading and Reading Comprehension Combined)

Of the 28 reports for which children struggled with reading, seven reports (25 percent) did not have any recommendations targeting this area of difficulty. The remaining 21 reports had a total of 59 recommendations. Of the 59 recommendations, 34 (57.6 percent) of the recommendations were EB and 25 (42.4 percent) were NEB.

Throughout the areas examined, the results support the hypothesis and a considerable proportion of reports did not include recommendations that are evidence-based. Ten reports contained both EB and NEB recommendations (five word reading and five reading comprehension), which resulted in a larger n than 28 when adding the number of reports with EB, NEB and no recommendations. Of the 28 reports 14 reports contained EB recommendations,

Table 6

Depth of Evidence-Based Reading Comprehension Recommendations for Reports

Recommendations	Depth Value	<i>n</i>	% of total RC Difficulties (N=21)	% of Reports with EB Recommendations (n=7)
No Evidence-Based Reading Comprehension Recommendations	0	14	66.7%	---
One Evidence-Based Reading Comprehension Recommendation	0.14	5	23.8%	71.4 %
Two Evidence-Based Reading Comprehension Recommendations	0.28	1	4.8%	14.3 %
Three Evidence-Based Reading Comprehension Recommendations	0.42	1	4.8%	14.3 %
Four Evidence-Based Reading Comprehension Recommendations	0.56	0	---	---
Five Evidence-Based Reading Comprehension Recommendations	0.70	0	---	---
Six Evidence-Based Reading Comprehension Recommendations	0.84	0	---	---
Seven Evidence-Based Reading Comprehension Recommendations	1.00	0	---	---

16 reports contained NEB recommendations, and seven reports contained no recommendations targeting difficulties in reading. In total, 50 percent of reports had no EB recommendations in the area of reading (See table 7).

Hypothesis 2: Not all reports will have recommendations that correspond to the specific area of reading difficulty that the child has demonstrated.

To explore this hypothesis, descriptive statistics were calculated to examine the number of recommendations that targeted the area of difficulty identified by reports.

Word Reading Recommendations

There were 27 reports that corresponded to word reading difficulties. For this subset of 27 reports, each report was categorized as containing recommendations targeting or not targeting word reading difficulties, and was further defined by the area component of word reading it targeted (i.e., phonological awareness, phonics, higher-level word recognition). Of the 27 reports with identified word reading difficulties, 13 reports did not contain recommendations targeting word reading difficulties. When examining the proportion of reports with recommendations (EB and NEB combined) that targeted word reading difficulties, 14 reports targeted this skill. When examining the proportion of reports containing EB recommendations that matched word reading difficulties, 12 reports targeted this skill. In total, 48.1 percent of reports did not contain recommendations that targeted word reading difficulties (See Table 8).

Reading Comprehension Recommendations

There were 21 reports that corresponded to reading comprehension difficulties. For this subset of 21 reports, each reading recommendation was categorized as targeting or not targeting reading comprehension difficulties. Of the 21 reports with identified reading comprehension difficulties, 11 reports did not contain recommendations that targeted reading comprehension

Table 7

Proportion of Total Recommendations (Word Reading and Reading Comprehension Recommendations Combined) for Reports

	<i>n</i>	<i>Proportion</i>
Total of Word reading and Reading Comprehension Recommendations		
EB Recommendations	14	50%
NEB Recommendations	16	57.1%
No Recommendations Given	7	25%
Reports Containing no EB Recommendations	14	50%

Note. 10 reports contained both EB and NEB (word reading and reading comprehension) recommendations.

Table 8

Proportion of Reports with Recommendations Targeting Word Reading Difficulty

	<i>n</i>	Proportion
Word Reading		
Difficulty in Word Reading	27	96.4%
Reports not Targeting Word Reading Difficulties	13	48.1%
Reports Targeting Word Reading Difficulties With EB and NEB Recommendations	14	51.9%
Reports Matching Word Reading Difficulties With EB recommendations	12	44.4%

difficulties. When examining the proportion of reports with recommendations (EB and NEB combined) that targeted reading comprehension difficulties, 10 reports targeted this skill. When examining the proportion of reports containing EB recommendations that matched reading comprehension difficulties, seven reports targeted this skill. In total, 52.4 percent of reports did not contain recommendations that matched reading comprehension difficulties (See Table 9).

Hypothesis 3: The proportion of evidence-based strategies will increase from the earliest chronological reports to the most recent reports.

In order to examine this hypothesis, reports were divided into two reporting periods; earlier reports (2000/2001 and 2001/2002) and later reports (2002/2003 and 2004/2005).

Word Reading Recommendations

Of the 27 reports that identified children with word reading difficulties, 14 were from the earlier reporting period and 13 were from the later reporting period. Independent *t*-tests were used to examine whether more reports contained EB recommendations in the later versus earlier reporting period for each of phonological awareness, phonics, higher-level word recognition strategies and the three combined. Results from the *t*-tests showed that there were no differences between the means for later versus earlier reporting periods for each of phonological awareness, phonics, higher-level word recognition and the three combined (See Table 10 for means and standard deviations).

Similar analyses were carried out for the depth dimension. Independent *t*-tests for the depth dimension for each of phonological awareness, phonics, higher-level word recognition and the three combined showed no differences between the means for later versus earlier reporting periods (See Table 11 for means and standard deviations).

Table 9

Proportion of Reports with Recommendations Targeting Reading Comprehension Difficulty

	<i>n</i>	Proportion
Reading Comprehension		
Difficulty in Reading Comprehension	21	75%
Reports not Targeting Reading Comprehension Difficulties	11	52.4%
Reports Targeting Reading Comprehension Difficulties (EB and NEB Recommendations Combined)	10	47.6%
Reports Match Reading Comprehension Difficulties With EB Recommendations	7	33.3%

Table 10

Results of t-Tests Comparing Proportion of Reports with Evidence-Based Word Reading Recommendations

Variable	<i>M</i>		<i>SD</i>		<i>df</i>	<i>t</i>	<i>p</i>
	Earlier	Later	Earlier	Later			
Word Reading Recommendations							
Proportion of Reports with EB Phonological Recommendations	.00	.13	.00	.32	25	-1.5	>.10
Proportion of Reports with EB Phonics Recommendations	.29	.31	.47	.48	25	-.12	>.10
Proportion of Reports with EB Higher-Level Word	.27	.19	.42	.38	25	.52	>.10
Recognition Recommendations							
Proportion of Reports with EB Word Reading (the 3 combined) Recommendations	.36	.39	.46	.46	25	-.21	>.10

Table 11

Results of t-Tests Comparing Depth of Reports with Word Reading Recommendations

Variable	<i>M</i>		<i>SD</i>		<i>df</i>	<i>t</i>	<i>p</i>
	Earlier	Later	Earlier	Later			
Depth of Word Reading Recommendations							
Depth of Phonological Awareness Recommendations	.00	.15	.00	.38	25	-1.54	>.10
Depth of Phonics Recommendations	.17	.13	.28	.21	25	.39	>.10
Depth of Higher-Level Word Recognition Recommendations	.07	.05	.10	.09	25	.70	>.10
Depth of Word Reading (the 3 combined) Recommendations	.24	.30	.34	.50	25	-.40	>.10

Additional analyses were carried out for the number of EB recommendations per report. Independent *t*-tests were used to examine whether reports contained a higher number of EB recommendations in later versus earlier reporting periods for each of phonological awareness, phonics, higher-level word recognition and the three combined. Results from *t*-test showed there were no differences between the means for later versus earlier reporting periods for each of phonological awareness, phonics, higher-level word recognition and the three combined (See Table 12 for means and standard deviations).

Reading Comprehension Recommendations

Of the 21 reports that identified children with reading comprehension difficulties, 11 were from earlier reporting period and 10 were from later reporting period. Independent *t*-tests were used to examine whether more reports contained EB recommendations in the earlier versus later reporting period for reading comprehension. Results from *t*-tests showed there were no differences between the means for later versus earlier reporting periods for reading comprehension (See Table 13 for means and standard deviations).

Similar analyses were carried out for the depth dimension. Independent *t*-tests for the depth dimension for reading comprehension showed no differences between the means for later versus earlier reporting periods (See Table 14 for means and standard deviations).

Additional analyses were carried out for the number of EB recommendations per report. Independent *t*-tests were used to examine whether reports contained a higher number of EB recommendations in later versus earlier reporting periods for reading comprehension. Results from *t*-tests showed there were no differences between the means for later versus earlier reporting periods for reading comprehension (See Table 13).

Table 12

Results of t-Tests Comparing Number of Evidence-Based Word Reading Recommendations per Report

Variable	<i>M</i>		<i>SD</i>		<i>df</i>	<i>t</i>	<i>p</i>
	Earlier	Later	Earlier	Later			
Number of Word Reading Recommendations per Report							
EB Phonological Awareness Recommendations	.00	.46	.00	1.20	25	-1.44	>.10
EB Phonics Recommendations	.29	.31	.47	.48	25	-.12	>.10
EB Higher-Level Word Recognition Recommendations	.36	.23	.50	.44	25	.70	>.10
EB Word Reading (the 3 combined) Recommendations	.64	1.0	.84	1.63	25	-.72	>.10

Table 13

Results of t-Tests Comparing Proportion, Depth and Number of Evidence-Based Reading Comprehension Recommendations for Reports

Variable	<i>M</i>		<i>SD</i>		<i>df</i>	<i>t</i>	<i>p</i>
	Earlier	Later	Earlier	Later			
Reading Comprehension Recommendations							
Proportion of Reports with EB Recommendations	.16	.36	.36	.42	19	-1.19	>.10
Depth of Reading Comprehension Recommendations	.05	.08	.13	.10	19	-.66	>.10
EB Reading Comprehension Recommendations per Report	.36	.70	.92	.95	19	-.82	>.10

Chapter IV

Discussion

The purpose of this study was to examine whether interventions that school psychology trainees recommend for struggling readers are those that have been shown to be effective in educational research. In particular, this study examined the interventions recommended for children with reading disabilities or those who struggle to learn to read; recommendations addressing other areas of difficulty were not explored in this study. With this purpose in mind, this study had several hypotheses. The first hypothesis stated that a considerable proportion of reports will not include recommendations that are evidence-based. That is, the recommendations will not specify the effective components of interventions necessary to remediate word reading and reading comprehension difficulties. The results of this study supported the first hypothesis. It was found that a considerable proportion of reports did not contain recommendations to remediate reading difficulties that are supported by research. An examination of the depth or completeness of the evidence-based strategies that were recommended revealed that many EB recommendations did not specify the components necessary to effectively address reading difficulties.

The second hypothesis stated that not all reports would have recommendations that correspond to the specific area of reading difficulty that the child has demonstrated. The results of this study supported this hypothesis. It was found that a considerable proportion of reports did not contain recommendations targeting the area of difficulty identified by these reports. In fact, approximately half of the reports identifying reading difficulties did not contain recommendations corresponding to the specified area of difficulty.

The third hypothesis stated that the proportion of evidence-based recommendations would increase from the earliest chronological reports to the most recent reports. The results of this study did not support this hypothesis. It was found that that the proportion of evidence-based recommendations for reports did not increase from the earlier to the later reporting period. Likewise, it was found that the depth or completeness of the recommendations within reports did not increase from the earlier to the later reporting period. Similarly, it was found that the number of evidence-based recommendations per report did not increase from the earlier to the later reporting periods.

Many of the results of this study were as expected, and raise some interesting questions. No research, to the best of our knowledge, has examined the quality or empirical validity of the interventions school psychologists recommend for reading difficulties, or whether they target the child's specific area of reading difficulty. There is, however, ample research that identifies the type of instruction and components of intervention necessary to effectively remediate reading difficulties.

Recommendations Made by School Psychologist Trainees

With so much literature on the type of intervention and intensity of instruction that is effective in the remediation of reading difficulties, one might think that recommendations made by school psychologist trainees would be supported by research. With this in mind, it is discouraging that such a low number of recommendations were based in research.

Word Reading

Of the 28 reports used in this study that identified reading difficulties, 27 reports identified children with word reading difficulties. Of these 27 reports, less than half contained EB word reading recommendations. In addition, about 52 percent of these reports failed to give

any recommendations to remediate this skill. Also discouraging was the depth or completeness of the EB recommendations that were made. The depth dimension was used to reflect the completeness of the remediation recommended in each area.

Of the 27 reports identifying word reading difficulties, there were only two reports that contained EB phonological awareness recommendations while 25 reports (about 93 percent) contained no EB phonological awareness recommendations. Although there were a low number of phonological awareness recommendations, the depth or completeness of the recommendations within these two reports met a category of the highest depth. These recommendations were categorized as having a high depth or completeness due to containing explicit recommendations on instruction in blending and segmenting large units and phonemes.

In the area of phonics, there were eight reports that contained EB recommendations and 19 reports (about 70 percent) that did not contain EB recommendations. Of the eight reports containing EB phonics recommendations, four reports contained a general mention of phonics. Although a recommendation of phonics remediation is EB, simply mentioning this type of intervention is not adequate or effective. Thus, these four reports met a low level of depth or completeness. The remaining four reports contained explicit recommendations of phonics remediation, which met a higher level of depth or completeness; however these reports lacked recommendations concerning the systematic approach necessary for children experiencing word recognition difficulties. Of the 27 reports that indicated word reading difficulties, no reports met the highest level of depth or completeness in the phonics domain. In order to meet the highest level of depth, reports needed to contain recommendations that involved explicit and systematic phonics remediation.

In the area of higher-level word recognition, there were eight reports that contained EB recommendations and 19 reports (about 70 percent) that did not contain EB higher-level word recognition recommendations. Of the eight reports containing EB higher-level word recognition recommendations, all contained one strategy and met a low level of depth or completeness. Of the 27 reports identifying word reading difficulties, no reports contained EB higher-level word recognition recommendations that met a middle or high depth value. In order to meet a higher depth value, reports needed to contain between two and five EB recommendations targeting this skill. When combining reports containing phonological awareness, phonics and higher-level word recognition recommendations, there were 12 reports that contained EB recommendations, and 15 reports (about 56 percent) that did not contain EB word reading recommendations.

It is surprising that more reports did not recommend EB word reading recommendations, and also that the EB recommendations that were made did not meet a higher level of depth. Three areas of focus for interventions based on research have been shown to effectively improve children's difficulties in word reading. These include interventions that focus on improving phonological awareness, phonics and metacognitive approaches to building up sight-word vocabulary and decoding unfamiliar words (Lovett, Lacerenza & Borden, 2000).

Research has demonstrated that acquiring knowledge about the correspondence between letters and sounds is essential in learning how to read words (for review see Adams, 1994; Ehri, 1998). In fact, struggling readers most often experience difficulties due to deficits in phonological processes (Lovett, Steinbach, Frijters et al., 2000; Siegel, 1998). Research has shown that effective remediation for word recognition difficulties consists of instruction that is explicit and intense in the area of phoneme awareness (Lovett et al., 1994; National Reading Panel, 1999a).

In the area of phonics, research has shown that explicit and systematic remediation that focuses on increasing a student's knowledge of letter-sound correspondences as well as teaching word decoding strategies is effective (National Reading Panel, 1999b). In fact, systematic phonics is more effective than nonsystematic phonics or non-phonics remediation in increasing children's knowledge of the relationship between letters and sounds and increasing their word recognition skills (National Reading Panel, 1999b). In addition to phonological and phonics remediation, metacognitive or high-level word recognition remediation has also been shown to be an effective component in increasing children's recognition of frequent words and decoding unfamiliar words (Lovett et al., 1994; Lovett, Lacerenza & Borden, 2000).

An important aspect of phonological awareness, phonics and higher-level word recognition remediation is explicit and systematic instruction. Explicit and systematic instruction involves directly teaching children in a structured, planned and sequential manner, while using scaffolding and frequent practice until the child masters these skills. Research by Lovett and her colleagues (Lovett, Lacerenza & Borden, 2000; Lovett, Lacerenza, Borden et al., 2000), demonstrated that the most effective remediation for children experiencing word recognition and decoding difficulties involves explicit and systematic phonological remediation combined with metacognitive strategy instruction.

Reading Comprehension

Of the 28 reports used in this study that identified reading difficulties, 21 of these reports identified children with reading comprehension difficulties. Of these 21 reports there were seven reports that contained EB reading comprehension recommendations while 14 (about 67 percent) contained no EB reading comprehension recommendations. The finding that half of these reports failed to give any recommendations to remediate reading comprehension is discouraging. Also

discouraging is the depth or completeness of the EB recommendations that were made. For the seven reports that did contain EB reading comprehension recommendations, five reports contained one recommendation and accordingly met a low level of depth or completeness. The same recommendation was used for each of these five reports, which was to use high-interest books. Although this was classified as an EB recommendation, in isolation this instructional strategy is not effective. This type of recommendation can help increase a child's motivation to read, but fails to target the remedial needs of the learner. The CORI program focuses on motivation and engagement for reading comprehension instruction; however this program combines this focus with direct, explicit instruction in the use of multiple comprehension strategies (Guthrie, Wigfield & Perencevich, 2004; Guthrie, Wigfield, Barbosa et al., 2004). It is surprising that the majority of reports with EB reading comprehension recommendations only included one strategy as research has suggested that EB strategies are most effective when children are taught to use them in combination (National Reading Panel, 1999c). Of the remaining two reports with EB recommendations, one report contained two recommendations and again met a low level of depth or completeness. One report met a middle level of depth or completeness as it contained three EB recommendations. Of the 21 reports identifying reading comprehension difficulties, no reports met a high level of depth. In order to meet a higher level of depth, reports needed to contain between four and eight EB strategies targeting reading comprehension.

It was surprising that more reports did not contain EB reading comprehension recommendations, and also that the EB recommendations that were made did not meet a higher level of depth. There is a large body of research delineating the type of instruction and intervention to improve reading comprehension. Past research has suggested that children

struggling with reading comprehension have the ability to effectively process text, but they demonstrate inefficiency with self-initiating effective strategies (Cross & Paris, 1988; Gersten et al., 2001; Jitendra et al., 2000). Effective processing of text would involve being aware, organizing, controlling and evaluating ones cognitive activities to ensure efficiency (Cross & Paris, 1988; Gersten et al., 2001). Thus, research on effective reading comprehension interventions has focused on the use of cognitive strategy instruction (Guthrie, Wigfield, Barbosa et al., 2004; National Reading Panel, 1999c; Pressley et al., 1989). Cognitive strategies are explicit procedures that aim to promote active comprehension of text and increase children's awareness and ability to monitor their comprehension (National Reading Panel, 1999c). The cognitive strategies that have been identified as effective in improving children's comprehension include summarization, comprehension monitoring, question generation, question answering, story structuring, graphic organizers and motivational strategies (Guthrie, Wigfield & Perencevich, 2004; National Reading Panel, 1999c; Pressley et al., 1989).

Similar to effective word reading interventions, explicit instruction is an important component of improving children's reading comprehension (e.g., Guthrie, Wigfield & Perencevich, 2004; Stevens et al., 1991; Jitendra et al., 2000). Explicit instruction in reading comprehension includes scaffolding, which involves supporting the student until competence, and gradual transfer of strategy initiation to the student. In combination with scaffolding, using a "mastery-learning paradigm" has been recommended. This entails students learning how to apply strategies through repetition and practice until they have mastered these strategies (e.g., Gajria & Silvia, 1992; Guthrie, Wigfield & Perencevich, 2004). Overall, research demonstrates that direct, explicit instruction on multiple comprehension strategies combined with techniques that enhance children's motivation to read, is effective in increasing children's reading

comprehension (e.g., Guthrie, Anderson, Alao & Rinehart, 1999; Guthrie, Wigfield, Barbosa et al., 2004).

If such a low proportion of reports contained EB recommendations, what is being recommended? In the area of word reading, examples of recommendations that were categorized as NEB follow: “Follow along while listening to audio books or have him read lower level reading material to improve sight-word vocabulary”; “Use metacognitive abilities to determine whether the word he is reading makes sense in the context of the sentence”; “Make a collage of all things found in a favorite magazine beginning with a certain sound”. Implementing these recommendations will not be effective in remediating word reading difficulties. They do not address the student’s word decoding difficulties and will not help build up the students automatic word recognition skills. While these recommendations may be a way to enrich the child’s experience, components of effective remediation are not present.

In the area of reading comprehension some examples of recommendations that were categorized as NEB follow: “Becoming familiar with the use of a dictionary and a thesaurus may aid in improving her reading”; “Highlight important words or information in paragraphs to help focus on important information”; “Work with synonyms and antonyms to increase his comprehension of words. Exercises where he matches words with sentences may also be helpful”. Again, these types of recommendations are not expected to have an impact on a child’s reading comprehension. These recommendations do not address the students reading comprehension difficulties and do not teach students to initiate cognitive strategies that have been shown to be effective for improving reading comprehension. Again, while these recommendations may be a way to enrich experience, they do not address the student’s difficulties with evidence-based practices.

Recommendations Matching Area of Difficulty

In addition to systematic and explicit instruction, another important aspect of effective intervention would be that the recommendations target the area of difficulty. One would think that recommended strategies would target and remediate specified areas of difficulty shown by the student. However, this study found that there were a considerable proportion of reports that contained recommendations that did not target reading difficulties. Of the 27 reports identifying word reading difficulties, 13 reports did not target this difficulty with recommendations. Of the 21 reports identifying reading comprehension difficulties, 11 reports did not target this area of difficulty with recommendations. If students are not being given recommendations that target the area in which they experience difficulty then the remedial needs of the learner will not be met, and the difficulties they experience will likely become even more serious as they fall further behind academically. One reason why there may be a failure to address the specific area for which the student shows difficulty is a limited understanding of the different cognitive components of reading (recognition and comprehension) and how these interact.

Earlier Versus Later Reporting Periods

In conducting this study it was expected that the proportion of EB practices would increase from the earliest chronological reports to the most recent. One would think that EB practices would increase over this time period as school psychology programs would train their students in the most up-to-date interventions, based on the latest research. The results from this study found, however, that there was not an increase in the proportion of reports with EB recommendations, the depth of EB recommendations or even the number of EB recommendations per report from the earliest to the latest reporting periods. The results of this

hypothesis raise an interesting question. Are school psychology programs teaching their students about evidence-based practices for learning disabilities and skill acquisition more generally?

In general there is a movement in psychology for interventions to be based on research (Levant, 2004). Research examining the training provided within school psychology programs on EB interventions for reading difficulties appears non-existent. However, Shernoff, Kratochwill and Stoiber (2003) conducted a study examining the “level of training” in evidence-based practices more generally in school psychology programs. The authors suggested that there is support within the field of school psychology for evidence-based training to be provided within programs, however several barriers exist. Barriers include a lack of financial means, the faculty’s knowledge and ability to train and supervise the use of up-to-date EB strategies and the lack of guidelines on training evidence-based practices. In line with these challenges, there also appears to be challenges for the implementation of evidence-based practices for school psychologists working within the school system. Kratochwill and Shernoff (2004) suggested that it may be difficult to implement evidence-based practices within the school setting due to time and resource constraints. Additionally, some school psychologists may rely on their clinical judgment as opposed to research when creating, implementing and assessing the effectiveness of the interventions they employ (Kratochwill & Shernoff, 2004).

Implications and Limitations

An important implication of this study is the apparent need for more extensive training in evidence-based interventions for learning problems for school psychology trainees. Training in evidence-based practices is essential to effectively meet the remedial needs of students who are struggling within schools. Research has suggested that school psychologists would be most effective by being up to date on evidence-based practices and using this knowledge to advocate

for children and increase their positive learning experiences. This would be accomplished through discontinuing ineffective interventions and instructional strategies and educating teachers and parents on current strategies supported by research (Shinn and McConnell 1994).

One limitation of this study is that it examined the psycho-educational reports of school psychology students and only from one institution. However, the absence of any research examining the empirical validity of recommendations made by school psychologists makes even this first step an interesting and valid study for several reasons. First, the content of this study might be thought of as a relatively conservative test of the hypothesis that interventions recommended by school psychologists are not evidence-based; students have an instructor and supervising psychologist that is associated with a teaching institution. Thus, interventions might be expected to be evidence-based more so than would be found in the population of school psychologists more generally. Second, upon graduation from the M.A. program, most school psychologists begin to work independently with only minimal supervision. Thus practitioners may well be using similar recommendations that they learned in their training programs. Recommendations of practicing school psychologists may indeed resemble the reports examined for this study. Finally, the current study serves as an initial pilot of this methodology for examining the recommendations of school psychologists.

Conclusion

The results of this study are discouraging and raise several questions. With the amount of research identifying the effective components of reading interventions, why were there not more EB recommendations? Also, why were the EB interventions that were being recommended not at a level of depth or completeness as research demonstrates they need to be in order to be effective? The purpose of recommendations is to help remediate the student's learning

difficulties, so why did so many reports within this study contain recommendations that did not target the learner's specific area of difficulty? Shinn and McConnell (1994) suggest that school psychologists are spending too much time completing assessments. A further difficulty would appear to be that school psychology trainees are not being adequately instructed in evidence-based approaches to address learning difficulties.

End Note

For the 28 reports used in this study, performance below the 25th percentile was proposed as the criterion to determine if a student experienced difficulties in reading. However, after an examination of the 28 reports it was noted that 14 reports did not include percentiles for a student's performance, rather grade equivalents were reported. Due to the unavailability of a Wechsler Individual Achievement Test manual (now outdated), it was decided that for these 14 reports two or more grade levels behind in one area of reading would be used and would get at the same population as below the 25th percentile. For example, according to the Wechsler Individual Achievement Test-Second Edition (WIAT-II; Psychological Corporation, 2002), if a student in early grade three performed at a grade equivalent of early grade one on the Word Reading subtest, they would have obtained a standard score of 68 and have performed at the 2nd percentile. Likewise, according to the WIAT-II, if a student in mid grade seven performed at a grade equivalent of mid grade five on the Reading Comprehension subtest, they would have obtained a standard score of 87 and have performed at the 19th percentile. One exception to using two or more grade levels behind was for students in grade one. Of the 14 reports that used grade equivalents as opposed to percentiles to report a student's performance, two reports were written about student's in grade one. In this case, more than one grade level behind was used as a criterion as this is indicative of a serious reading problem. For example, according to the WIAT-II, if a student in late grade one performed at a grade equivalent of late kindergarten on the Pseudoword Reading subtest, they would have obtained a standard score of 82 and have performed at the 12th percentile.

References

- Adams, M. J. (1994). *Beginning to read: Thinking and learning about print*. New Jersey: Lawrence Erlbaum Associates.
- Baumann, J. F., Seifert-Kessell, N., & Jones, L. A. (1992). Effect of think-aloud instruction on elementary students' comprehension monitoring abilities. *Journal of Reading Behavior, 26*, 143-167.
- Borghese, N., & Cole, E. (1994). Psychoeducational recommendations: Perceptions of school psychologists and classroom teachers. *Canadian Journal of School Psychology, 10*, 70-87.
- Bos, C. S., & Filip, D. (1984). Comprehension monitoring in learning disabled and average students. *Journal of Learning Disabilities, 17*, 229-233.
- Cross, D. R., & Paris, S. G. (1988). Developmental and instructional analyses of children's metacognition and reading comprehension. *Journal of Educational Psychology, 80*, 131-142.
- Ehri, L. C. (1998). *Word recognition in beginning literacy*. New Jersey: Lawrence Erlbaum Associates.
- Ehri, L. C., Nunes, S. R., Stahl, S. A., & Willows, D. M. (2001). Systematic phonics instruction helps students learn to read: Evidence from the national reading panel's meta-analysis. *Review of Educational Research, 71*, 393-447.
- Foorman, B. R., & Torgesen, J. (2001). Critical elements of classroom and small-group instruction promote reading success in all children. *Learning Disabilities Research & Practice, 16*, 203-212.
- Gajria, M., & Salvia, J. (1992). The effects of summarization instruction on text comprehension of students with learning disabilities. *Exceptional Children, 58*, 508-516.

- Gaskins, I. W., Downer, M. A., Anderson, R. C., Cunningham, P. M., Gaskins, R. W., Schommer, M., & Teachers of the Benchmark School. (1988). A metacognitive approach to phonics: Using what you know to decode what you don't know. *Remedial and Special Education, 9*, 36-41, 66.
- Gersten, R., Fuchs, L., Williams, J. P., & Baker, S. (2001). Teaching reading comprehension strategies to students with learning disabilities: A review of research. *Review of Educational Psychology, 71*, 279-320.
- Guthrie, J. T., Anderson, E., Alao, S., & Rinehart, J. (1999). Influences of concept-oriented reading instruction in strategy use and conceptual learning from text. *The Elementary School Journal, 99*, 343-366.
- Guthrie, J. T., & Davis, M., H. (2003). Motivating struggling readers in middle school through an engagement middle of classroom practice. *Reading and Writing Quarterly, 19*, 59-85.
- Guthrie, J.T, Wigfield, A., & Perencevich, K. C. (Eds.). (2004). *Motivating Reading Comprehension: Concept-Oriented Reading Instruction*. New Jersey: Lawrence Erlbaum Associates.
- Guthrie, J. T., Wigfield, A., Barbosa, P., Perencevich, K. C., Taboada, A., Davis, M., H., Scaffidi, N. T., & Tonks, S. (2004). Increasing reading comprehension and engagement through concept-oriented reading instruction. *Journal of Educational Psychology, 96*, 403-423.
- Jitendra, A. K., Cole, C., L., Hoppes, M. K., & Wilson, B. (1998). Effects of a direct instruction main idea summarization program and self-monitoring on reading comprehension of middle school students with learning disabilities. *Reading and Writing Quarterly, 14*, 379-397.

- Jitendra, A. K., Hoppes, M. K., & Xin Y. P. (2000). Enhancing main idea comprehension for students with learning problems: The role of summarization strategy and self-monitoring instruction. *The Journal of Special Education, 34*, 127-139.
- Kim, A., Vaughn, S., Wanzek, J., & Wei, S. (2004). Graphic organizers and their effects on the reading comprehension of students with LD: A synthesis of research. *Journal of Learning Disabilities, 37*, 105-118.
- Kratochwill, T. R., & Shernoff, E. S. (2004). Evidence-based practice: Promoting evidence-based interventions in school psychology. *School Psychology Review, 33*, 34-48.
- Levant, R. F. (2004). The empirically validated treatments movement: A practitioner/educator perspective. *Clinical Psychology: Science and Practice, 11*, 219-224.
- Levine, M. D., & Reed, M. (2001). *Developmental variation and learning disorders*. Massachusetts: Educators Publishing Service.
- Lovett, M. W., Borden, S. L., DeLuca, T., Lacerenza, L., Benson, N. J., & Brackstone, D. (1994). Treating the core deficits of developmental dyslexia: Evidence of transfer of learning after phonologically- and strategy-based reading training programs. *Development Psychology, 30*, 805-822.
- Lovett, M. W., Lacerenza, L., & Borden, S. L. (2000). Putting struggling readers on the PHAST track: A program to integrate phonological and strategy-based remedial reading instruction and maximize outcomes. *Journal of Learning Disabilities, 33*, 458-476.
- Lovett, M. W., Lacerenza, L., Borden, S. L., Frijters, J., C., Steinbach, K., A., & De Palma, M. (2000). Components of effective remediation for developmental reading disabilities: Combining phonological and strategy-based instruction to improve outcomes. *Journal of Educational Psychology, 92*, 263-283.

- Lovett, M. W., Steinbach, K. A., & Frijters, J. C. (2000). Remediating the core deficits of developmental reading disability: A double-deficit perspective. *Journal of Learning Disabilities, 33*, 334-358.
- Lovett, M. W., Warren-Chaplin, P. M., Ransby, M., J., & Borden, S. L. (1990). Training the word recognition skills of reading disabled children: Treatment and transfer effects. *Journal of Educational Psychology, 82*, 769-780.
- National Reading Panel. (1999a). Phonemic awareness instruction. *Teaching children to read: An evidence based assessment of the scientific research literature on reading and its implications for reading instruction* (chap. 2 pp. 1-53). Retrieved July 10, 2006, http://www.nichd.nih.gov/publications/nrp/upload/report_pdf.pdf
- National Reading Panel. (1999b). Phonics instruction. *Teaching children to read: An evidence based assessment of the scientific research literature on reading and its implications for reading instruction* (chap. 2 pp. 89-145). Retrieved July 10, 2006, http://www.nichd.nih.gov/publications/nrp/upload/report_pdf.pdf
- National Reading Panel. (1999c). Text comprehension instruction. *Teaching children to read: An evidence based assessment of the scientific research literature on reading and its implications for reading instruction* (chap. 4 pp.39-69). Retrieved July 10, 2006, http://www.nichd.nih.gov/publications/nrp/upload/report_pdf.pdf
- Payne, B. D., & Manning, B. H. (1992). Basal reader instruction: Effects of comprehension monitoring training on reading comprehension strategy use and attitude. *Reading Research and Instruction, 32*, 29-38.

- Pressley, M., Beard El-Dinary, P., Gaskins, I., Schuder, T., Bergman, J. L., Almasi, J., & Brown, R. (1992). Beyond direct explanation: Transactional instruction of reading comprehension strategies. *The Elementary School Journal*, *92*, 513-555.
- Pressley, M., Johnson, C. J., Symons, S., McGoldrick, J., A., & Kurita, J., A. (1989). Strategies that improve children's memory and comprehension of text. *The Elementary School Journal*, *90*, 3-32.
- Psychological Corporation. (2002). *Wechsler Individual Achievement Test* (2nd ed.). San Antonio, Texas: Author.
- Rosenshine, B., Meister, C., & Chapman, S. (1996). Teaching students to generate questions: A review of the intervention studies. *Review of Educational Research*, *66*, 181-222.
- Shernoff, E. S., Kratochwill, T. R., & Stoiber, K. C. (2003). Training in evidence-base interventions (EBIs): What are school psychology programs teaching? *Journal of School Psychology*, *41*, 467-483.
- Siegel, L. S. (1998). *Word recognition in beginning literacy*. Lawrence Erlbaum Associates, Mahwah: New Jersey.
- Shankweiler, D., Lundquist, E., Katz, L., Stuebing, K. K., Fletcher, J. M., Brady, S., Fowler, A., Dreyer, L. G., Marchione, K. E., Shaywitz, S. E., & Shaywitz, B. A. (1999). Comprehension and decoding: Patterns of association in children with reading difficulties. *Scientific Studies of Reading*, *3*, 69-94.
- Shinn, M. R., & McConnell, S. M. (1994). Improving general education instruction: Relevance to school psychologists. *School Psychology Review*, *23*, 351-371.
- Stanovich, K. E. (2000). *Progress in understanding reading: Scientific foundations and new frontiers*. New York: The Guilford Press.

- Stevens, R. J., Slavin, R. E., & Farnish, A. M. (1991). The effects of cooperative learning and direct instruction in reading comprehension strategies on main idea identification. *Journal of Educational Psychology, 83*, 8-16.
- Torgesen, J. K., Wagner, R. K., Rashotte, C. A., Burgess, S., & Hecht, S. (1997). The contributions of phonological awareness and rapid automatized naming ability to the growth of word reading skills in second to fifth grade students. *Scientific Studies of Reading, 1*, 161-185.
- Vallecorsa, A. L., & deBettencourt, L. U. (1997). Using a mapping procedure to teach reading and writing skills to middle grade students with learning disabilities. *Education and Treatment of Children, 20*, 173-188.
- Wagner, R. K., Torgesen, J. K., & Rashotte, C. A. (1994). The development of reading-related phonological processing abilities: New evidence of bi-directional causality from a latent variable longitudinal study. *Developmental Psychology, 30*, 73-87.

Appendix A

Evidence-Based Strategies for Word Reading

1. Explicit and systematic instruction in phonological awareness

- a) Blending Large Units: instruction in combining spoken units larger than the phoneme, e.g., blending onset and rimes or syllables.
- b) Blending Phonemes: instruction in combining individual sounds to produce words.
- c) Segmenting Large Units: instruction in breaking spoken words into syllables or syllables into onsets and rimes.
- d) Segmenting Phonemes: instruction in breaking or segmenting spoken words and syllables into individual sounds.

2. Explicit and systematic phonics instruction

- a) Instruction in letter-sound correspondences: direct instruction on the correspondences between all the letters and letter blends of written language and the sounds these letters represent.
- b) Applying Phonic Analysis to Decode Unfamiliar Words: direct instruction on how to use knowledge of the alphabetic principle to decode words.

3. Higher-Level Word Recognition/Metacognitive Strategies

- a) Increasing Sight-Word Vocabulary: building sight-words through exposure and mastery of words.
- b) Identifying Words Through Analogy: direct instruction on how to compare unfamiliar words to familiar words to help decode.
- c) Finding the Part of an Unfamiliar Word You Know: direct instruction on how to look for familiar words within unfamiliar words.
- d) Attempting Variable Vowel Sounds: direct instruction on how to use different vowel sounds for a word and determine which sound results in an actual word.
- e) “Peeling Off” Prefixes and Suffixes: direct instruction on how to identify and segment prefixes and suffixes to identify shorter root words.

(Foorman & Torgesen, 2001; Lovett et al., 1994; Lovett, Lacerenza & Borden, 2000; Lovett, Lacerenza & Borden et al., 2000; Lovett & Steinbach et al., 2000).

Appendix B

Evidence-Based Strategies for Reading Comprehension

1. Summarization: direct instruction on how to form a precise representation of text after reading.
2. Comprehension Monitoring: direct instruction on how to be aware of, appraise, manage and remediate ones own comprehension
3. Question generation or Questioning in Reading: direct instruction on how to create questions to help comprehend the content of text.
4. Question Answering or Searching for Information: direct instruction on how to read material and then search the text to find the answers to questions.
5. Story Structuring or Semantic Organizers: Teaching students directly how to ask themselves specific questions (e.g., about main character, setting, actions of characters, goals and outcomes) in order to help comprehend text.
6. Graphic Organizers or Mental Imagery: direct instruction on how to represent a sequence of events through a mental picture or through a diagram or visual aids in order to aid comprehension.
7. Motivation: used to engage children through exposure to text of high interest.

Note. Direct instruction would involve teaching children how and when to use these cognitive strategies through scaffolding and frequent practice. This would enable the children to generalize these strategies and learn how to use them independent of the teacher.

(Guthrie, Wigfield and Perencevich 2004; National Reading Panel, 1999c; Pressley, et al., 1989)

Appendix C

Coding of Evidence-Based Phonological Awareness Recommendations

	1=Yes	2=No
Instruction in Blending Large Units: combining spoken units larger than the phoneme, e.g., blending onsets and rimes or syllables.	1	2
Instruction in Blending Phonemes: combining individual sounds to produce words.	1	2
Instruction in Segmenting Large Units: breaking spoken words into syllables or onset-rimes.	1	2
Instruction in Segmenting Units into Phonemes: breaking or segmenting spoken words and syllables into individual sounds.	1	2

Appendix D

Coding of Depth of Evidence-Based Phonological Awareness Recommendations

No evidence-based phonological awareness recommendations	0
Instruction in segmenting OR blending large units and/or phonemes	0.33
Instruction in segmenting AND blending large units and/or phonemes	0.66
Systematic OR explicit instruction in segmenting AND blending large units and/or phonemes: This would involve instruction in a structured sequential manner OR sufficient intensity using scaffolding and frequent repetition until the child masters these skills.	1.00

Appendix E

Coding of Evidence-Based Phonics Recommendations

	1=Yes	2=No
General mention of phonics remediation recommended i.e., She would benefit from phonics remediation.	1	2
Instruction in letter-sound correspondences: direct instruction on the correspondences between all the letters and letter blends of written language and the sounds these letters produce.	1	2
Instruction in phonetic analyses: direct instruction on how to use knowledge of the alphabetic principle to decode words.	1	2

Appendix F

Coding of Depth of Evidence-Based Phonics Recommendations

No evidence-based phonics remediation recommended	0
General mention of phonics remediation i.e., She would benefit from phonics remediation.	0.33
Explicit OR systematic phonics remediation: instruction on the correspondences between all the letters and letter blends of written language and the sounds these letters produce, and using this knowledge to decode words. This is done through providing students with instruction with sufficient intensity using scaffolding and frequent repetition until the child masters these skills OR through teaching children letter-sound correspondences in a structured, planned and sequential manner, which teaches all correspondences.	0.66
Explicit systematic phonics remediation: instruction on the correspondences between all the letters and letter blends of written language and the sounds these letters produce, and using this knowledge to decode words. This is done through teaching children letter-sound correspondences in a structured, planned and sequential manner while providing them with sufficient intensity using scaffolding and frequent repetition until the child masters these skills.	1.00

Appendix G

Coding of Evidence-Based Higher-Level Word Recognition Recommendations

	1=Yes	2=No
Increasing sight-word vocabulary: building sight-word banks through exposure and mastery of words.	1	2
Identifying words through analogy: instruction on how to compare unfamiliar words to familiar words to help decode.	1	2
Finding the part of an unfamiliar word you know: instruction on how to look for familiar words within unfamiliar words.	1	2
Attempting variable vowel sounds: instruction on how to use different vowel sounds for a word and determine which sound results in an actual word.	1	2
Peeling off prefixes and suffixes: instruction on how to identify and segment prefixes and suffixes to identify shorter root words.	1	2

Appendix H

Coding of Depth of Evidence-Based Higher-Level Word Recognition Recommendations

No evidence-based higher-level word recognition recommendations	0
One higher-level word recognition recommendation	0.20
Two higher-level word recognition recommendations	0.40
Three higher-level word recognition recommendations	0.60
Four higher-level word recognition recommendations	0.80
Five higher-level word recognition recommendations	1.00

Appendix I

Coding of Evidence-Based Reading Comprehension Recommendations

	1=Yes	2=No
Summarization: direct instruction on how to form a precise representation of text after reading:	1	2
Comprehension Monitoring: direct instruction on how to be aware of, appraise, manage and remediate ones own comprehension.	1	2
Question generation: direct instruction on how to create questions to help comprehend the content of text.	1	2
Question answering: direct instruction on how to read material and then search the text to find the answers to questions.	1	2
Story structuring: direct instruction on how to ask themselves specific questions (e.g., about main character, setting, actions of characters, goals and outcomes) in order to comprehend text.	1	2
Graphic organizers: direct instruction on how to represent a sequence of events through a mental picture or through a diagram or visual aids in order to aid comprehension.	1	2
High-interest books: used to engage children through exposure to text of high interest.	1	2
Motivation strategies: used to engage children in reading text.	1	2

Note. Direct instruction would involve sufficient instruction on how and when to use these cognitive strategies through scaffolding and frequent practice. This would enable the student to gradually gain control of their strategy use in order to increase their reading comprehension.

Appendix J

Coding of Depth of Evidence-Based Reading Comprehension Recommendations

No evidence-based reading comprehension recommendations	0
One evidence-based reading comprehension recommendation	0.14
Two evidence-based reading comprehension recommendations	0.28
Three evidence-based reading comprehension recommendations	0.42
Four evidence-based reading comprehension recommendations	0.56
Five evidence-based reading comprehension recommendations	0.70
Six evidence-based reading comprehension recommendations	0.84
Seven evidence-based reading comprehension recommendations	0.98