A Case Study of Successful Early Screening and Intervention

by Linda S. Siegel

As a psychologist who has spent many years doing research on and assessing people for dyslexia and other learning disabilities, I have been concerned about the large number of people who escape detection and who fail to get the remediation necessary to become successful readers. Early detection of children at risk and early intervention to prevent the devastating effects of school failure, including homelessness (e.g., Barwick & Siegel, 1996), anti-social behavior (Sprague & Walker, 2000, Wasserman et al., 2003), and suicide (e.g., McBride & Siegel, 1997), would go a long way to solving this problem.

The aim of this body of research was to identify children at risk for reading difficulties early in their school career. Once identified, an additional aim was to develop a classroom-based program that would address the difficulties that these children experienced. We believed that it was important to provide a classroom-based program rather than a pullout intervention as it is more practical, less expensive, and easier to implement.

The project involved the introduction of phonological awareness training and direct instruction in letter/sound knowledge to teachers, which was a new initiative for the district that had primarily stressed guessing words from context and provide little instruction in systematic phonics.

This article describes the implementation of an early screening and intervention project, the results, and lessons learned. In 1996, a fortuitous set of circumstances provided an opportunity to examine the possible success of an early screening and intervention program. Some forward-thinking educators in the North Vancouver school district, nestled in the Coast Mountains in British Columbia, Canada, on the shores of the Pacific Ocean, allowed our team from the University of British Columbia to study the implementation of this program in their schools. Similar to many other districts in Canada and the U.S., this district had a large number of English Language Learners (ELL) who typically experience challenges in learning literacy skills. This research, an early implementation of a type of Response to Intervention (RTI), was a new experience for the researchers and school personnel. The project was a cooperative one between the university and the school district. Two dynamic and knowledgeable school psychologists introduced the concepts of phonological awareness and systematic phonics into the district. The project involved the introduction of phonological awareness training and direct instruction in letter/sound knowledge to teachers, which was a new initiative for the district that had primarily stressed guessing words from context and provide little instruction in systematic phonics. The early screening and intervention program was designed to be sensitive to the needs of these ELL students as well as to those who spoke English as a first language.

As is often the case, the school district was uncomfortable with the use of a control group, as they thought it was not ethical to deny this instruction to children. However, they did want the entire district included in the study so that it became a type of population study, not a limited sample. Every student whose parent signed the consent form participated in the study. Only two parents declined at initial intake. These parents eventually consented at the request of their children. While they participated in the annual assessment, the children enjoyed the break from class and the undivided attention of the research assistant.

The children in this school district represent mixed socioeconomic levels, with 20% of the children coming to school with a first language other than English. At the time of this study, there were 30 languages spoken by the children in this district; the most common ones were Cantonese, the language of Hong Kong and south China, and Farsi, the language of Iran and spoken in a number of other countries by some minorities.

Children were assessed in kindergarten and every year through the seventh grade for our study and as part of the progress-monitoring program. Most of the ELL children attended Heritage language programs in which they were taught reading and writing skills in their first language. These classes are sponsored by the Canadian government and occurred after school or on Saturdays.

All instruction, including intensive instruction in small groups, was implemented by the general education classroom teacher within the core classroom (Tier 1 in the terminology of RTI).

Initially, one of the 30 schools in the district decided not to use the program. All but one school in a high socioeconomic level area of the district participated. However, the "hold-out" school later decided to implement the screening and intervention because the children's performance fell relative to the other schools in the district.

The version of RTI used for this intervention was designed

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Abbreviations

ELL: English Language Learners

RTI: Response to Intervention

to develop reading skills for all children, but especially those struggling with reading and for children learning English as a second language (ELL), and was based on several principles:

1. Intervention should begin as soon as the child was experiencing some difficulties.
2. Early screening is critical, and children should be screened for potential problems as soon as possible.
3. Good classroom instruction in reading is essential and should begin as early as possible.
4. Teachers need to be trained in developing phonological awareness and phonics skills in their students. In this case, the teachers were partners in the design of the intervention. The book, *Firm Foundations*, (no date) was the basis of the Tier 1 intervention and was written by teachers in the North Vancouver School District.
5. Monitoring progress is key to understanding student development and detecting the difficulties that students may experience.
6. Emphasis should be on intervention, rather than labeling and classifying students.

The intervention emphasized Tier 1 skills. Tier 1 instruction in kindergarten and grade 1 focused on phonological awareness and phonics. Tier 1 instruction continued in grade 2 and the later grades and stressed reading comprehension, vocabulary, morphology, and word analysis strategies. The school district also used two locally developed resources: Reading 44 and Writing 44, North Vancouver School District. Most children had successfully mastered decoding and reading comprehension skills so relatively few children needed more detailed and comprehensive interventions.

Risk Identification

The first step in implementing RTI with these students was to identify the children at risk. We used a screening tool consisting of a letter naming task, some phonological awareness tasks, a simple spelling task, and a syntactic awareness task, which was a test of grammatical skills in which the children heard a sentence and had to fill in the missing word. An example of this syntactic awareness task is as follows: The children heard the sentence; "Dad _____ Bobby a letter yesterday" and we said "Bing" instead of the missing word. This task measures the children's ability to understand the basic structure of English sentences and is important in reading text. These tasks are described in detail in Lesaux, Lipka, and Siegel, (2006) and Lesaux and Siegel (2003).

In many cases it was possible for the teachers to administer these tasks, after a relatively brief training. The advantage of having teachers administer the tasks was that they could see the children's language and phonological awareness skills (or lack of them). We used local norms that we generated and informed teachers as to whether a child was above average, average, or below average on each task. A below average ranking on a particular task was considered in the "at-risk" range. The teachers used this information to pay special attention and monitor the progress of the all the children, but especially the "at-risk" students.

We believed that if we could implement a good reading program in the early grades, then it would reduce the need for specialized intervention in later grades.

Tier 1 Intervention

For our Tier 1 intervention, we designed a program to be used with the entire class. For most school districts specialized intervention is expensive and often difficult to implement. We believed that if we could implement a good reading program in the early grades, then it would reduce the need for specialized intervention in later grades.

The intervention that we chose is called Firm Foundations (North Vancouver School District, no date). It is a program developed by the school psychologists and teachers of the North Vancouver School District. It was designed to develop vocabulary, phonological awareness, and some phonics skills. It consists of games and activities addressed to the following skills: vocabulary, that is, picture labeling, rhyme detection, syllable detection, and segmentation; phoneme detection and segmentation, for example, recognizing the first or the final sound in a word; and knowing the sounds of letters.

The Firm Foundations program consists of Circle Time, Center Time, and Performance Assessments. In Circle Time, the entire class is together and the children sit on the floor and engage in a particular activity. For example, they may tap on their arms to indicate the number of syllables (or sounds) in a particular word. In Center Time, they can visit centers in which they work on certain skills, such as literacy. Often, the teacher takes a small group of children who are having difficulty with a particular literacy concept, such a recognizing the initial phoneme in a word, and works intensively with them. Performance Assessments are informal tests of a particular concept. These tests were not given to arrive at grades or a diagnosis but were developed for the classroom teacher to get an idea of the strengths and challenges for an individual child. Small group instruction, and in some rare cases individual instruction, was provided for students who needed it. Targeted, systematic, explicit instruction including teacher modeling, scaffolding of instruction, and ample opportunities for students to practice was characteristic of the instruction.

Results

Our study demonstrated how effective Tier 1 instruction reduced the incidence of later reading problems and cut the need for later remedial instruction. We found that 25% of the children who had English as a first language and 50% of the ELLs were showing significant difficulties in kindergarten and

we considered these students to be at risk (Lesaux & Siegel, 2003). There was no stigma attached to this identification since it was merely for the benefit of the teacher and was not for a special education designation. The proportion of students experiencing reading difficulties declined steadily throughout the grades (Lipka & Siegel, 2010; Lipka, Vukovic, & Siegel, 2005, Low & Siegel, 2005). In seventh grade we found that virtually all the children had developed proficient reading skills and only 1.5% of the children who had English as a first language and 1.5% of the ELL were dyslexic. In addition, Low and Siegel (2008) also found that the reading comprehension skills of the children in the district were at a high level on standardized tests.

In general, we found no differences between the normally achieving readers in the group that had English as a first language and the group that were English language learners However the situation with dyslexics was different (Etmanskie, Partanen, & Siegel, 2016). In some cases, notably reading, spelling, phonological awareness, and morphological and syntactic skills, the ELL dyslexics had *higher* scores than the dyslexics who were first-language English users. There are several possible reasons for this finding. English spelling requires the awareness of how English represents sounds in print and visual memory for irregular words, such as *said*, *does*, *want*, which cannot be spelled correctly by using the sounds of the letters alone. Exposure to a language increases one's sensitivity to the sounds of language. Therefore, children who are exposed to more than one language may have an advantage in that they have a wider repertoire of sound awareness. Most of the ELL children in this study were exposed to instruction in reading and writing in their first language. Many of the children in this study learned to read and write in Chinese in their Heritage Language classes. Chinese has phonological components but also requires a great deal of visual memory. The other most common language spoken by the ELL children was Farsi, which is written in Arabic script. Arabic script also requires a great deal of visual memory and visual discrimination. It should be noted that the dyslexics still had significant reading and spelling problems compared to typically achieving readers, but their language experiences and bilingualism appear to have attenuated their reading difficulties.

One of the most important lessons is that it is possible to identify children at risk for reading disabilities in kindergarten and to provide them with an effective classroom-based intervention.

In other studies, we have also found the same superiority of bilingual to monolingual dyslexics in Portuguese (Da Fontoura & Siegel, 1995), Arabic (Abu Rabia & Siegel, 2002), and Italian (D'Angiulli, Siegel, &Serra, 2001). It is important to remember that these students learned reading and writing in their first language, in addition to English.

The Positive Role of Education in Reducing the Influence of the Home Environment

The intervention appeared to be successful for children from a wide variety of backgrounds (D'Angiulli, Siegel, Hertzman, 2004; D'Angiulli, Siegel, & Maggi, 2004). We examined the relationship between socioeconomic status and reading skills in both the ELL group and the children who had English as a first Language. As is common, when the children first entered school, there was a strong correlation between their socioeconomic status (home background) and their reading skills. This relationship decreased considerably as students progressed up the grades, indicating that proper instruction could significantly reduce the influence of home background on reading skills. Therefore, the beneficial effects of early intervention are especially important for children whose home backgrounds do not include an emphasis on literacy and/or children who are being educated in a second or additional language.

What We Learned from this Case Study

One of the most important lessons is that it is possible to identify children at risk for reading disabilities in kindergarten and to provide them with an effective classroom-based intervention (Partanen & Siegel, 2014; Siegel 2009, 2011). A consistent, aligned, and standardized curriculum, based on scientific research and implemented well, can result in significant improvements in achievement without the need to pull children out of their daily classroom instruction.

Phonological awareness training, in addition to phonics, is helpful. An emphasis on oral vocabulary is critical for many children, including those who are English language learners or from lower socioeconomic backgrounds. Early intervention, in terms of appropriate Tier 1 instruction that is classroom based, is essential.

Classroom teachers have a critical role to play in developing phonological awareness skills. Firm Foundations, the program used in this district, was written by teachers for teachers and is easy to use. The teachers placed an emphasis on developing vocabulary and modeling appropriate grammatical structures, which helped develop the language skills of all the children and especially the ELL group.

For children who enter school speaking a language that is not the language of instruction, maintenance of and instruction in their first (Heritage) language is essential. Finally, excellent Tier 1 instruction is of critical importance.

A small number of people working cooperatively with teachers and administrators can make significant changes in the system. Commitment from the school and district leaders is essential. Developing partnerships with teachers maintains commitment and helps to insure fidelity of the intervention. Involvement of teachers in planning and executing the program is essential. The results of this study show that early screening and intervention are possible and are successful in improving the literacy skills of all students.

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