

**Critical Review:**  
**The Effects of a Supplemental Reading Program for Struggling English-Language Learning Grade 1 Students**

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This critical review examines the effects of a systematic, explicit supplemental reading program for Grade 1 English Language Learning students who were struggling readers. Study designs include randomized control trials and reviews. Overall, research supports the use of the *Proactive Reading* Program to improve some literacy skills of bilingual children who are experiencing some reading difficulties. The findings of this review have implications for both practising speech-language pathologists and teachers.

***Introduction***

Goldstein (2006) states that there are increasing numbers of bilingual children (also referred to as English Language Learners, or ELLs) within the school system. As such, this is leading to changes in some of the demands placed on speech-language pathologists (SLPs) and their delivery of service. Goldstein (2006) goes on to say that SLPs are also being asked to provide concrete, clinical evidence regarding the effectiveness of the treatments they provide. According to Goldstein (2006), there exists very limited research on bilingual children. The evidence that does exist indicates that assessments should be completed in both languages, sociolinguistic variables should always be considered, and intervention should be delivered in both languages.

There is evidence to suggest that ELL children experience reading difficulties, as compared to their monolingual peers. In fact, it is hypothesized that ELL children may need between four and seven years to achieve appropriate grade-level milestones in reading (Mathes, Pollard-Durodola, Cardenas-Hagan, Linan-Thompson & Vaughn, 2007). However, the research that exists on treating reading difficulties is predominantly on monolingual children, so there is little evidence to guide treatment for bilingual children who are struggling to read (Pollard-Durodola, Mathes, Vaughn, Cardenas-Hagan & Linan-Thompson, 2006). It has been demonstrated that prevention of reading failure among monolingual children with reading difficulties is possible through the use of an explicit, supplemental reading program, but it is not well known if this generalizes to bilingual students who are struggling to read (Mathes et al., 2007).

***Objectives***

Given that there are so many ELL students in the school system and 79% of ELL students in the United States are native Spanish speakers, the primary objective of this paper is to critically evaluate the existing literature regarding the effect of an explicit, supplemental reading program delivered to Grade 1 native Spanish-speaking students who were experiencing reading difficulties. The secondary objective is to determine appropriate clinical recommendations in the practice of speech-language pathology. The hypothesis of this review is that the supplemental reading program will improve the literacy skills of ELL students who are struggling to read.

Search Strategy

Computerized databases, including SCOPUS and CINAHL, were searched. The following key terms and search strategy were used (ESL) OR (ELL) AND (literacy) OR (oracy). Articles were also found using references of reputable papers.

The search was limited to articles written in English between 1998 and 2008, in order to find only recent studies.

Selection Criteria

The studies that were included in this critical review paper examined the effects of supplemental reading intervention for ELL students who were experiencing difficulties in reading. Only articles that investigated Spanish-speaking students in early elementary school were considered for inclusion.

Data Collection

Results of the literature search produced the following types of articles congruent with the previously discussed selection criteria: three

randomly controlled trials (including one article with two parallel studies) and three reviews, two of which concern the aforementioned randomized control articles.

### ***Results***

The Institute of Educational Sciences within the United States Department of Education, in conjunction with the National Institute for Child Health and Human Development have funded a series of studies that examine how literacy can be best taught to native Spanish-speaking students in elementary schools in the U.S. Under this funding, a group of researchers conducted four studies on an intervention (which was delivered in a small-group format) for Spanish-speaking ELL Grade 1 students who were at risk for development of reading difficulties. The reading program was entitled *Proactive Reading* and had been previously shown to significantly improve reading skills in native English speaking children (Pollard-Durodola et al., 2006; Mathes et al., 2007). This evaluation only examines these four studies and two reviews.

All four studies revealed that students who received the supplemental reading program performed better on a number of the various reading measures, as compared to the comparison students. Across the four studies, 17 reading measures were divided into four general areas:

#### *Letter naming*

- Letter-name identification
- Rapid letter naming

#### *Phonological processing*

- Letter-sound identification
- Phonological awareness composite
- Nonword repetition

#### *Language related*

- Listening comprehension
- Picture vocabulary
- Verbal analogies
- Oral language composite

#### *Reading/Writing*

- Letter-word identification
- Word attack
- Dictation
- Passage comprehension
- Word reading efficiency
- Dynamic Indicators of Basic Early Literacy Skills Beginning of Year Story (DIBELS BOY)
- Dynamic Indicators of Basic Early Literacy Skills End of Year Story (DIBELS EOY)
- Spelling

This supports the notion that a systematic, explicit, supplemental reading program that is delivered in addition to the core reading program will benefit ELL students who are at risk of experiencing significant reading difficulties.

Vaughn, Mathes, et al.. (2006) investigated the effect of a supplemental English reading program for native Spanish-speaking Grade 1 students who were struggling with reading while receiving their core reading instruction in English. Forty-one students who failed reading screenings in both English and Spanish were selected for participation in the study and were randomly assigned to either the intervention or comparison group. All children completed various reading and language tests in English and Spanish prior to and after the completion of the intervention program. An Analysis of Covariance (ANCOVAs) was performed on the data in order to remove the statistical effects of covariates: students' ages and their pre-test scores. Results indicated that the intervention students achieved significantly better post-intervention English scores on various outcome measures (See Appendix A). However, there were no differences between the two groups on the Spanish measures. These results suggest that an explicit, supplemental reading program will help improve some literacy skills when it is delivered in the same language as the core reading program, which supports the hypothesis of this critical review.

Vaughn, Linan-Thompson, et al.. (2006) examined the effects of the same supplemental intervention program previously discussed. However, in this case the program was translated into Spanish, for native Spanish-speaking Grade 1 students who were struggling with reading. Participants were 69 students who were receiving their core reading instruction in Spanish, failed two reading screening measures, and were then randomly assigned to either the intervention group or the comparison group. Students in both groups completed assessments for literacy and language-related measures in both Spanish and English, before and after the completion of the intervention. The ANCOVAs indicated that the students in the intervention group scored significantly better than the comparison students on many of the outcome measures in Spanish (see Appendix A). Intervention students showed very little advantage over the comparison students on the English reading and language measures, indicating that the benefits of the intervention program did not generalize to English.

Vaughn, Cirino, et al.. (2006) replicated the two original studies by conducting two parallel investigations on supplemental reading instruction on native Spanish-speaking Grade 1 students, in English and Spanish. One-hundred and seventy-one students, who failed reading screening measures, participated in the studies. Students were assigned to the English group or Spanish group, depending on the language of their core reading program in school. They were then randomly assigned to the intervention group or comparison group, within each language group. All students completed reading and language tests before and after the delivery of the intervention program. Results of the ANCOVAs for both the Spanish and English studies revealed that students in the intervention group performed significantly better on various outcome measures (See Appendix A). However, both studies also demonstrated that there were no improvements in the reading and language measures in the language that the intervention program was *not* delivered in, indicating a lack of generalization between Spanish and English.

Pollard-Durodola et al. (2006) and Mathes et al. (2007) further explore the four original studies. Though little detail regarding the research design and the statistical procedure is given, the authors of both articles provide substantial amounts of information regarding the nature of the intervention reading programs, including information on individual “strands” within the programs. Detail is also given on the pre- and post-test measures used to determine literacy and language scores. As a result, these reviews are useful for evaluating the nature of the intervention program and could help a speech-language pathologist who wants to implement a similar program for struggling ELL readers.

### *Discussion*

When the results of the four studies are considered together, some interesting trends in the data emerge. The only area in which there was consistent improvement was phonological awareness. All four investigations demonstrated that the intervention had a positive effect on letter-sound identification and phonological awareness, but none of the studies showed any effect on nonword repetition. Generally, the experimental students did not show any advantage over the comparison students in the language-related tests, indicating that the reading program had little or no effect on language. Although there were general improvements in the reading and writing outcome measures, they were inconsistent. No identifiable patterns in the results for reading and writing were evident.

All four investigations have similar strengths, due to the fact that they were organized and carried out the same way, with the same intervention program. The four investigations are all randomized control trials, which significantly helps control for selection bias. This fact alone indicates that these studies have the highest level of evidence possible. Additionally, intervention validity checks were performed for all studies by examining the pace of the instruction, appropriate lesson presentation, use of correct scaffolding, elicitation of responses from the students, provision of independent practice for all students, suitable error correction, constant maintenance of student attention, and instruction for students until mastery is attained. ANCOVAs were performed in the four studies, thereby eliminating the statistical effects of covariates. Effect sizes were reported for all outcome measures in all investigations. Finally, all four studies explicitly stated all pre-test scores, in addition to the post-test scores. Therefore, these four investigations provide a very high level of evidence, due to their various strengths

In addition to the aforementioned strengths, the article by Vaughn, Mathes, et al.. (2006) does present some weaknesses. One significant limitation is the absence of clustering scores. The purpose of clustering scores is to ensure that the groups of students were truly independent of each other. Since clustering scores were not calculated, it is possible that the groups of students were not independent. This raises some serious questions regarding the use of an Analysis of Covariance, since this test assumes that all groups are independent from one another (this issue was resolved in the parallel investigation conducted in English and Spanish). Another limitation is the fact that number of participants was somewhat lower than what it should have been, based on the determination of medium effect sizes.

The Vaughn, Linan-Thompson, et al.. (2006) study has all the previously discussed strengths. In addition to those strengths, it also has a sufficiently large sample size for determining medium effect sizes. However, there is a serious weakness that was also present in the Vaughn, Mathes, et al. (2006) study: the absence of clustering scores. The lack of clustering scores indicates the possibility of the groups of students not being independent of one another, which as previously stated, means that the use of an ANCOVA may have not been appropriate. Also, the authors reported that some of the core reading instruction in the classroom was sometimes delivered in Spanish and English. This could potentially affect the impact of the intervention, as it

was delivered under the assumption that it would be in the same language as the core reading program.

As expected, the Vaughn, Cirino, et al.. (2006) parallel investigation is very similar to the previous two studies. It has all the strengths of the preceding two studies, discussed above. In addition to those strengths, it also reports clustering scores for all groups. This confirmed that the groups of students were, in fact, independent of one another, which indicates that the use of an ANCOVA was indeed appropriate for this investigation. A significant limitation that was mentioned by the authors was the fact that some of the comparison students actually received additional reading instruction, on top of the core reading program. This may have increased the post-intervention scores of the comparison group, thereby potentially making the results less significant. However, in spite of this, the results of the study still support the benefit of the intervention.

For all of the investigations, it is also necessary to question the ethics of delivering a supplemental reading program designed to improve literacy to some students and not others. However, it is also important to note that the randomized control nature of these studies does in fact add to the strength of the research.

### ***Conclusion***

The present research suggests ELL children who are experiencing some difficulties with literacy early on would likely benefit from a reading intervention program in order to prevent more significant problems in the future. Although there are some inconsistencies in the results, it was demonstrated that the *Proactive Reading* program did improve phonological awareness in students who received the program, which is an important component in early literacy.

### ***Recommendations***

Since the series of four investigations was conducted by the same group of researchers, it would be beneficial if this research could be replicated by a different group of researchers. Although having the same researchers conduct the series of studies will help improve consistency in data collection and analysis, the same set of biases will likely be present. The use of different researchers would help to eliminate these biases.

In order to investigate the generalizability of the intervention reading program, it is necessary to carry

out this research with Spanish-speaking children in other geographical areas, such as New York or Chicago. All students in these studies were Hispanic students in southern Texas, which is close to the Mexican border. Furthermore, it would be beneficial to determine if the reading program could help improve literacy skills in ELL children who speak a language other than Spanish as their native tongue.

The four studies showed that there was virtually no transfer of literacy skills between the language in which the intervention program was delivered and the students' other language. Future research could investigate the transfer between the two languages when the reading program is delivered in both languages.

Finally, in order to address the ethical concerns of providing a reading intervention program to only half the students, due to the randomized nature of the study, other measures could be taken. Students who are selected for the comparison group could receive the intervention program after the data is collected and the study is completed. This would preserve the randomized nature of the study and would solve the ethical problem of not delivering intervention to some students.

### ***Clinical Implications***

A clinician who wishes to utilize this information should balance the strength of the studies with the inconsistent results. The four original investigations provide a very high level of evidence, but the results are somewhat equivocal. It is clear that phonological awareness skills are increased, but the results for reading are mixed. Therefore, it is recommended that clinicians use the findings of this study cautiously, if they are intending to target literacy skills as a whole.

The information from the Pollard-Durodola et al.. (2006) and Mathes et al.. (2007) review papers would be very helpful for a clinician who wants to implement a similar program because so much detail is given regarding the theory and the execution of the *Proactive Reading* program. It is recommended that clinicians consult these reviews, in addition to the four original studies.

### ***References***

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**Appendix A: Summary of outcome measures across the four studies.**

		English study by Vaughn, Mathes, et al.. (2006)	English study by Vaughn, Cirino, et al. (2006)	Spanish study by Vaughn, Linan- Thompson, et al. (2006)	Spanish study by Vaughn, Cirino, et al. (2006)
<i>Letter Naming</i>	Letter-name identification				
	Rapid letter naming				
<i>Phonological processing</i>	Letter-sound identification				
	Phonological awareness composite				
	Nonword repetition				
<i>Language Related</i>	Listening comprehension				
	Picture vocabulary				
	Verbal analogies				
	Oral language composite				
<i>Reading/Writing</i>	Letter-word identification				
	Word attack				
	Dictation				
	Passage comprehension				
	Word reading efficiency				
	DIBELS BOY <sup>1</sup>				
	DIBELS EOY <sup>2</sup>				
	Spelling				

**Note: Shaded areas indicate that after the intervention, the experimental group results were significantly higher than the comparison group on that outcome measure. Slashes indicate that the particular outcome measure was not used in that study.**

<sup>1</sup>Dynamic Indicators of Basic Early Literacy Skills Beginning of Year Story

<sup>2</sup>Dynamic Indicators of Basic Early Literacy Skills End of Year Story