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Reading Interventions For K-3 Students In Culturally Linguistically Diverse Backgrounds: A Synthesis Of Research

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READING INTERVENTIONS FOR K-3 STUDENTS IN CULTURALLY LINGUISTICALLY
DIVERSE BACKGROUNDS: A SYNTHESIS OF RESEARCH

By

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ABSTRACT

With the alarming statistics that 1 in 4 children in the United States grow up without learning how to read, California recently launched a new literacy campaign to ensure every child learns how to read by the third grade. Children who do not read at their level by the third grade will often struggle academically throughout their education and are at greater risk of dropping out. While the focus has remained on students who are native English speakers, California consists of a large immigrant population, resulting in a surge of bilingual students. Bilingual students, who are often English-language learners, may face difficulties learning how to read. When screened for dyslexia in the primary grades of K-3, bilingual students will often be categorized as a group that can benefit from phonemic awareness interventions. However, this method is not efficient on its own and increases the number of long-term English learners. For this Capstone project, a descriptive synthesis will be conducted to summarize group design research investigating reading intervention research for students who are English learners and bilingual students. All areas of reading including phonemic awareness, phonics, fluency, vocabulary, and reading comprehension will be synthesized. This preliminary systematic review will contribute to understanding the most effective instructional practices for this growing population of children throughout California and the United States.

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INTRODUCTION

Learning how to read is a crucial skill that provides a foundation for lifelong learning and success in this society. Reading is essential in that it not only improves communication and writing skills, but also empowers readers by developing critical thinking skills, creativity, and independence. Reading also serves as a tool to gain more knowledge and expand on new ideas. Evidently, it is proven that children who do not learn how to read experience reduced opportunities for success (Butler, Marsh, Sheppard, 1985). This includes poverty, lack of academic achievements, and unemployment (Morrisroe, 2014). Other consequences may also arise as a result of not knowing how to read, such as academic frustration and anxiety. It is clear that struggling children require proper reading interventions and support to ensure they can reach their full potential.

During the past few decades the United States has implemented numerous initiatives and has funded programs that are designed to increase literacy rates. Programs such as Head Start are examples of one of the many early childhood intervention programs. At the federal level the No Child Left Behind (NCLB) Act was passed in 2002. This act requires all third graders to take a standardized test to make sure they are reading at least at their grade level and receive proper instructional help. Laws have also been passed at the state level to ensure students in third grade level can read adequately (Feister, 2013). Furthermore, funding for education research has developed new evidence-based reading interventions. Overall literacy rates have either improved or remained stable, depending on states, due to these efforts. However, certain groups of students, particularly English language learners, still have alarming reading scores (Bostad, 2015).

English language learners, mostly the result of Hispanic immigrants to the United States, are one of the fastest-growing student populations (National Center for Education Statistics). School districts face challenges in adapting to the changing demographics and ensuring the needs of culturally and linguistically diverse children are met (Bostad, 2015). Whether the children are immigrants themselves or come from a family of immigrants, many of these students enter primary school with a lack of exposure to the English language (Cheung and Slavin, 2012). Therefore, they may not be caught up to other students of the same grade level. This puts the students at a disadvantage at first, however they can learn to become proficient readers with early interventions and tutoring.

Reading interventions consist of tailored instruction delivered to students who are struggling readers (Hempenstall, 2016). All individuals regardless of age, can receive these reading interventions at any stage in their learning process, as deemed fit. The interventions are designed to address the specific reading skills an individual needs to work on, therefore they may vary from person to person. Professionals such as teachers and reading specialists are often responsible for ensuring that students receive the appropriate reading intervention based on specific needs and goals. Teachers may decide that a student benefits more from phonics instructions, vocabulary skills, or any other type of intervention based on their observation of the student. Additionally the interventions can be designed to be delivered one-on-one or in a group setting. Recently, there has also been an increase in the number of interventions that are technology-based and use computer or tablet programs to assist students. The ultimate goal is to enhance overall reading skills to reach a proficient level that allows individuals the opportunity to be successful.

The primary elementary grades are known to be of critical importance because reading difficulties may be prevented and reduced through early reading interventions (Wanzek, 2018). Since reading involves an accumulation of different skills, it's necessary to target these gaps to reach more advanced texts. Larger impacts on reading outcomes are due to interventions in the primary grades as opposed to interventions that occur in the upper elementary grades and secondary grades (Scammacca, 2015). At the middle and high school levels it becomes increasingly demanding to even follow along with the rest of the class since there is now a large deficit of skills that should have been learned years ago. There is also evidence that early intervention can drastically reduce reading disabilities (Mathes, 2005). The more time goes by without correcting any reading difficulties can in itself lead to more academic issues in the long run. Furthermore, heightened neuronal plasticity in children results in critical periods for learning and development that can help them develop the foundational skills for reading early on (Hochberg, 2011). For this reason it is better to address the problem as early as possible.

Background

In the early 2000s, the United States became involved in a national debate known as the "Reading Wars", which consisted of a panel of researchers and educators attempting to identify the best method for reading instruction (National Reading Panel, 2000). This led to the concept of the Big 5, the five key components of reading: phonemic awareness, phonics, fluency, vocabulary, and reading comprehension. Phonemic awareness is the ability to identify, hear, and manipulate sounds in words. It is the understanding that words are made up of sounds. Phonics refers to the connection between written words or letters to spoken sounds. An important aspect of phonics is the process of decoding and eventually sounding out words based on the predictable relationships between sounds and letter patterns (NRP, 2000). Fluency is identified as

the ability to read accurately at an appropriate rate and with proper expression. A clear distinction to be made is that fluency is more complex than reading with speed. Pronunciation is equally important in fluency. Vocabulary is the understanding, defining, pronunciation, and utilization of new words. This can be further deconstructed as expressive and receptive vocabulary. Lastly, comprehension is the understanding and analysis of the text that was read. To master reading comprehension, a solid foundation on the previous four skills is essential because it combines all these areas (NRP, 2000).

Interventions include distinct components depending on which of the five skills need to be addressed. Interventions in phonemic awareness typically include practices to help students become aware of the individual sounds in words. Examples of the practices that could be used are the blending of sounds together, including syllables and phonemes (Learning Point Associates, 2004). By putting together sounds a student is able to consciously think about how to sound out parts of words. It is also important to practice pulling apart sounds to become familiar with spelling and spoken words. Next, students can also improve in phonological awareness by manipulating phonemes to form new words. It is critical that the person providing the intervention articulates sounds properly and that students are corrected in their mistakes. Using a mirror to enunciate sounds may be helpful for some students. Reading interventions for phonics may include practicing the relationship between letters and sounds to decode new words (Learning Point Associates, 2004). Strategies such as using an arm to sound out words and chanting can aid in phonics. As for reading interventions for fluency, common practices are oral close reading, partner reading, and assisted reading. This helps build reading stamina required to become fluent readers. It is essential that students not only actively listen to others reading, but also practice themselves. Vocabulary interventions can consist of learning prefixes, suffixes,

synonyms, antonyms, and understanding vocabulary in texts and other contexts. There is literature that suggests students may be more likely to learn vocabulary words if they are actively engaged while learning, as opposed to memorizing a definition from a dictionary. This can include drawing pictures, acting out the meaning of the words, and creating sentences with it. Finally for reading comprehension, interventions may include practice and strategies in summarizing the text, answering comprehension questions, identifying the main idea, and understanding the character goals (Hempenstall, 2016). It is important to note that many different strategies exist for each of the five key components of reading.

Over the past two decades additional research has confirmed the importance of the Big 5, providing more insight on the best way to teach children how to read. However, most of this research produces reading interventions designed for native English speakers. Bilingual students who speak English and Spanish may need a different type of reading intervention that is better suited for them (Tharp, 1991).

English language learners (ELLs) face unique challenges when learning to read in English. It is often a difficult task because they have to acquire new vocabulary words and learn grammar rules as they read (Gyovai, 2009). Additionally, there are different phonetic and spelling rules of the English language that vary from Spanish so adjusting to that change can be confusing. For this reason, many English language learners commonly encounter issues with reading comprehension and fluency (Tharp, 1991). Also, struggles in phonics could result in challenges for pronunciation. Specific reading interventions catered to this group of students is necessary for their improvement. Adjustments to instruction can be made so that activities support ELLs. Providing instruction in an engaging environment with cultural references can further contribute to their reading enhancement.

Furthermore, it is important to be aware of the social issues that many ELLs endure, including discrimination in the education system and a lack of support to their individual needs (Solari, 2022). Children who are immigrants can find adjusting to school in the United States tough because of the differences in their educational experience. In Hispanic countries like Mexico, not every family can afford to send their children to school. In impoverished areas it is especially difficult to receive a good education even if a child enrolls in school. The quality of education is generally not up to the higher standards as in America (OECD, 2023). Hence why for many immigrant students it can be a shock coming to a school where English is taught using other strategies they are not used to. Even children born in the United States who come from families whose primary language is Spanish often struggle with reading (Francis, 2006). When English is not their native language and it is not practiced at home it can be easy to fall behind. To add to this, data from standardized testing reveals that some bilingual students are oftentimes misdiagnosed with learning disabilities, such as dyslexia, because of their poor performance on tests (Marrs, 2022). This results in children around the nation not getting the appropriate help they need.

Research Objectives

This systematic review will analyze existing literature on the five areas of reading to explore how they can be included to create the most effective reading intervention for bilingual Spanish speaking students. The specific aims and objectives for this capstone project are to identify what the most effective method of reading interventions is for bilingual students in the primary grades of K-3 who also classify as english-learning students. The potential significance is that this systematic review will help teachers and professionals working with children to develop an appropriate reading intervention. The overall goal is to decrease the number of

long-term English learners, benefitting our community. Long-term English learners are characterized by having deficits in the English language that have accumulated over the years, which in turn negatively impacts their ability to reach their full academic potential. In California, almost 60% of English language learners are classified as long term English learners (Olsen, 2010), so it is important to address this issue.

METHODS

To investigate the effect of reading interventions including the five components of reading on ELLs in Kindergarten through 3rd grade, studies for the systematic review were included if they met all of the criteria below:

Criteria

1. Participating students were in Grades K through 3 (ages 5 - 9). Studies could be included if the study contained data for students who were within this average grade or age range.
2. Participants identified as English language learners or as having limited English proficiency as a result of being bilingual in Spanish. Studies could be included if a minimum of 50% of the participants met the grade or age range and were identified as bilingual.
3. Studies that measured the outcomes of reading interventions for the 5 areas of reading instruction. This consists of reading comprehension, phonemic awareness, phonics, fluency, and vocabulary. At least 3 of the reading components had to be the focus of the intervention.
4. Studies needed to have at least two conditions, including a control or comparison group. They had to incorporate an experimental or quasi-experimental study design.

5. The language of instruction had to be English and/or Spanish. Articles were published in English.
6. Studies that identified students only as struggling readers and not bilingual were to be excluded.
7. The studies were published in peer reviewed journals from 2000 to 2018.
8. Studies were conducted in the United States.

Search Procedures

A systematic literature search was conducted in electronic databases, including ERIC, PsycNET, and PsycINFO. Studies had to be published in peer-reviewed journals from 2000 to 2018, reflecting current research from the last two decades. The following keywords were used to locate relevant articles: *reading comprehension, phonics, fluency, vocabulary, phonemic awareness, bilingual, Spanish-English, primary grades, reading intervention, English language learners, and dual language*. Different combinations of the previous descriptors were used to maximize the article search. Approximately 177 articles contained all keywords and descriptors. References of relevant studies were also searched through to find additional articles.

The titles and abstracts of remaining studies were screened for inclusion based on the criteria. Next, the full-text articles were analyzed for inclusion. Most were excluded because the study design did not contain a control group. Having a control group is valuable in research studies because it allows for the comparison of intervention outcomes. This helps eliminate any factors that may have contributed to the experiment results. Additionally, more articles were disregarded because they did not contain 3 or more of the 5 key areas of reading. More than half of the participating students had to come from a Hispanic background with Spanish as their first

language, which further reduced the number of potential studies. After applying the criteria, 5 studies were chosen for data extraction.

Data Extraction

Data gathered from the 5 studies included participant characteristics, methodology of study, sample size, intervention features, and outcomes. Additional information gathered was the setting and duration of the interventions. The studies consisted of students in Grade 1 ($k = 3$), Grades K-2 ($k = 1$), and Grades K-3 ($k = 1$). The total number of students analyzed was $N = 1718$. Although some studies had started off with a larger number of participants, the number recorded in Table 1 reflects the accurate number of students from which data was collected. The majority of interventions took place in classroom settings within normal school hours ($k = 4$) and only one study contained interventions after school hours and during summer sessions ($k = 1$). Four of the studies were experimental, with the expectation of Foorman et al. (2018), which was a quasi experimental design. All studies contained a control group, or a group that did not receive the intervention. The interventions took place 2 - 5 times per week, as demonstrated in Table 1. The curriculum of each intervention varied between studies. The sessions lasted anywhere from 30 to 50 minutes, although data for this was not reported for Ehri et al. (2007). The total number of weeks ranged from 12 to 65 weeks of intervention. Gunn et al. (2000) displayed a focus of only 3 reading components: phonemic awareness, phonics, and fluency. The rest of the studies ($k = 4$) included a focus on all 5 areas of reading: phonemic awareness, phoneme, fluency, vocabulary and comprehension.

Table 2 provides supplemental information on the studies, including student identification, group intervention size, and instructor. All of the studies limited their interventions to mainly small groups, the maximum number of students being 6. Instructors were

either trained teachers, interventionists, or professionals. The students were identified as English language learners, with 4 studies explicitly mentioning that Spanish was their first language.

Table 1. Study Characteristics

Study	N	Grade	Design	Setting	Weekly Sessions	Duration of Sessions	Total Weeks	Intervention Area	Curriculum
Vaughn et al. (2006)	41	1	Exp.	In School	5	50 min	30	Phonemic awareness, phonics, fluency, vocabulary, reading comprehension	Proactive reading
Ehri et al. (2007)	186	1	Exp.	In School	2	Not stated	24	Phonemic awareness, phonics, fluency,	Reading Rescue

								vocabulary, reading comprehension	
Forman et al. (2018)	1157	K-2	QED	In School	5	45 min	27	Phonemic awareness, phonics, fluency, vocabulary, reading comprehension	Sound Partners, Bridge of Vocabulary, Language in Motion
Baker et al. (2016)	78	1	Exp.	In School & After School	5	30 min	12	Phonemic awareness, phonics, fluency, vocabulary, reading comprehension	Transition Lessons

								nsion	
Gunn et al. (2000)	256	K-3	Exp.	In School	3	30 min	65	Phonemic awareness, phonics, fluency	Supplemental Instruction decoding phonological awareness

Table 2. Study Characteristics Part 2: Student Identification, Group Size, and Instructor

Study	Student Identification	Group Intervention Size	Instructor
Vaughn et al. (2006)	English language learners (Spanish/English)	3 - 5 students	Trained bilingual intervention teachers
Ehri et al. (2007)	Low SES; Language minority; 90% First	one-on-one &	Members of school staff with RES

	language Spanish	Small group	training
Foorman et al. (2018)	English learners	4 - 5 Students; Small group	Trained interventionists
Baker et al. (2016)	Spanish speaking English learners	Small group	Bilingual certified teachers
Gunn et al. (2000)	62% Hispanic students with low reading skills	Small group 2 - 3 students; 1:1	Teachers

Data Synthesis

Once data was extracted from the selected studies, a synthesis was conducted summarizing each study. Vaughn et al. (2006) sought to identify the effectiveness of an English language intervention designed for ELLs who were designated as at risk for reading difficulties. This was based on reading assessments given to students in the classroom. The 41 participants included English language learners who spoke Spanish and were in first grade. The researchers were attempting to see whether the given intervention improved reading outcomes, based on standardized testing before and after the school year. The participants were randomly divided into two groups, the control group which received regular classroom instruction and the experimental group which received the intervention. The reading intervention contained an emphasis on all five areas of reading: phonemic awareness, phonics, vocabulary, fluency, and reading comprehension. Interventions were delivered in small groups of 3 through 5 students by trained bilingual intervention teachers. This took place in a classroom setting from Monday

through Friday for 50 minutes, lasting a total of 30 weeks. Activities included letter knowledge, word recognition, connected text fluency, comprehension, vocabulary development, and other components. The activities also contained group work and individual tasks. The results indicated that students who received the English language intervention showed great improvement in reading compared to the control group. There was improvement in each of the five areas, as seen in the standardized testing reports. This also demonstrated the effectiveness of targeted instruction to help develop reading skills in ELLs.

The next study Ehri et al. (2007) focused on a specific type of intervention called Reading Rescue, which has served as a model for struggling readers who are language minority students. The participants 186 first grade students, divided into a control group and an experimental group which received the intervention. About 90% of the students were indicated to be native Spanish speakers. A majority of the students also came from families who were classified with low socioeconomic status. All of the five areas of reading were emphasized in the Reading Rescue model. RES trained staff members delivered the instruction to students during school hours meeting twice a week for a total of 24 weeks. There was both on-on-one tutoring as well as small group tutoring with 3 through 6 students. Standardized testing was utilized to measure effectiveness of the intervention by administering exams at the beginning and end of the intervention. When comparing test scores, it was revealed that students who received the indicated intervention displayed significant improvement in their overall reading skills compared to the students who did not receive the Reading Rescue intervention. A majority of the intervention students achieved reading levels that were considered averaged for their grade. Improvements were made in all the five areas and, demonstrating how effective this method was.

The results also indicated that one-on-one tutoring made significant gains for these language minority students.

In Foorman's 2018 study the alignment of Tier 2 interventions with classroom core materials was analyzed to determine the effectiveness on student reading skills. Tier 2 intervention refers to a type of intervention that is targeted to a specific group of students, such as English learners, who may need additional support than their peers. Trained interventionists ran the small group sessions of about 4 to 5 students in a classroom setting. The participants included 1157 students in the grades of Kindergarten through second. Students met 5 times a week, each session lasting 45 minutes, for a total intervention time of 27 weeks. Phonemic awareness, phonics, vocabulary, fluency, and reading comprehension were all part of the intervention provided to students. Reading outcomes for students were measured using standardized testing at the start and end of the intervention. The intervention consisted of using reading materials that aligned with the core reading materials used in their classroom. Instead of the intervention materials being unrelated and random, they were connected to what they were already learning. Researchers found that there was a significant improvement in the reading outcomes in the five areas of reading when the presented reading materials were connected. The study demonstrated that struggling readers can benefit from this alignment due to consistency and coordination.

Baker et al. (2016) explored the effect of supplemental instruction on students who are Spanish speaking English learners. Researchers attempted to see whether the supplemental instruction actually supported these students' transitions into English. 78 first graders who were classified as ELLs and at risk for reading difficulties were separated into either an experimental or control group. The experimental group received additional instruction in all five components

of reading instruction, however not much of an emphasis was placed on fluency. Bilingual certified teachers conducted the supplemental instruction to small groups of students five times a week. Instruction lasted 30 minutes each session, lasting 12 weeks. The instruction occurred in addition to regular classroom instruction, and also took place after school. Reading assessments in English and Spanish were given to these students to test whether there was significant improvement or not. The assessments given at the end of the intervention indicated that the targeted supplemental instruction was beneficial for these ELLs. By providing further assistance to students aside from their designated class time, a majority of students were able to successfully transition from Spanish to English reading.

Lastly, in Gunn et al. (2000) the emphasis was placed on the effectiveness of supplemental instruction in both Hispanic and non-Hispanic students. Although both groups were taken into consideration, the Hispanic group of students, who also spoke Spanish, were the majority at 62%. The supplemental instruction consisted of instruction in decoding skills, with only three areas of reading observed: phonemic awareness, phonics, and fluency. Teachers were the instructors for both the small group and one-on-one sessions. The instruction took place in school three days a week for 30 minutes each session. 256 K-3 students participated in the study, assigned to either the supplemental instruction group or the control group. Both the Hispanic and non-Hispanic students who did receive the supplemental instruction showed comparable improvements in decoding words and reading accurately at an appropriate rate, compared to the control group. This was measured through comparison of standardized assessments. The control group did not receive any additional support aside from normal classroom instruction. The results show how supplemental instruction can greatly enhance reading skills in the primary grades.

Next Steps

Next steps for this synthesis include calculating effect sizes for phonemic awareness, phonics, fluency, vocabulary, and comprehension for all five studies examined. This can be achieved by using an online effect size calculator. The effect sizes would allow for a standardized measurement of the interventions, which provides for effective comparison between the five studies. Because the studies include varying components, it is essential to calculate to what extent the interventions were effective.

LIMITATIONS

There were several limitations to this review that should be considered. One limitation was that the literature search was confined to only articles published between 2000 and 2018. Studies from years outside of this time frame were not analyzed, which may have resulted in a loss of valuable data. This data could have provided additional key information into the understanding of the best implications of reading interventions for the targeted population of students. Additionally, only studies published in English were considered, which excluded relevant studies from other countries written in another language. As a result of this, the results may not be generalizable to students of other countries. This could be a possible direction for future research, comparing reading interventions for English language learners worldwide. Moreover, the sample population included only students between the grades K-3, leaving out the rest of the grades in elementary school as well as middle and high school. There was a greater representation of students in Grade 1 compared to Kindergarten, Second, and Third Grade.

Another limitation is due to the nature of a systematic review. Because different studies were utilized, it was difficult to have control over how the studies were conducted. The only

information that could be collected was found only in that article itself. Since the studies had different methodologies, comparing the effectiveness of the reading interventions provided some challenges. Adding to this, only five studies were used for the systematic review so more data may be needed to further prove the results. There may also be some bias in the data selection processes, which can be reduced by having additional people screen and select articles. Lastly, additional calculations also have to be analyzed for a complete synthesis of the studies. Effect sizes should be calculated in the future to aid in study comparison. Nevertheless, this systematic review addresses the gap in literature of ELLs and bilingual students.

FUTURE RESEARCH DIRECTIONS

The limitations mentioned can help guide future research on reading interventions. This includes expanding the search for studies published in previous decades and perhaps including studies from other countries and languages. Adding to this, it might be interesting to analyze the effects of reading interventions across different demographics and socio-economic classes (Solari, 2022). A potential research question could address how to improve reading scores of children in these diverse settings. Perhaps including studies from children with varying educational backgrounds can have some valuable insights on how to better improve reading interventions for ELLs and bilingual students. It can also be beneficial to research other factors outside of the classroom that can contribute to an improvement in literacy.

Lastly, future directions should aim to transform the researching findings into practical reading interventions at the classroom level that can directly improve reading skills. Educators can then implement the research-based interventions. As more research is conducted, changes to

the school curriculum can be made to reflect the changing student population. By addressing this issue, it can be possible to improve literacy rates across the nation for ELLs/bilingual students.

CONCLUSION

This preliminary research synthesis provides valuable knowledge on reading interventions for K-3 English language learners from culturally diverse backgrounds who speak other languages, such as Spanish. Previous findings confirmed the need for effective reading interventions for these students who often fall through the cracks (Solari, 2022). To ensure their success and lifelong learning, reading difficulties must be addressed early on, typically in the primary grades (Gyovai, 2009). Many studies were reviewed to obtain information on what sort of interventions might improve reading skills for this student population. Five studies that fit the inclusion criteria were selected for analysis.

The selected studies focused on most, if not all of the areas of reading which include phonemic awareness, phonics, vocabulary, fluency, and reading comprehension. Instruction in all of these areas proved critical in reaching average or above average reading scores. Overall, it can be inferred that targeted interventions for ELLs that are supplemental to their normal classroom instruction help improve reading, as demonstrated by standardized tests. Even the interventions that combined both languages, English and Spanish, resulted in reading improvements in English (Baker, 2016). Additionally, aligning intervention materials with core classroom materials produced increased reading skills. All of the studies conducted the interventions in small groups or one-on-one with trained teachers or professionals. One-on-one sessions in particular also showed significant improvement in reading outcomes.

The findings of the studies discussed highlight the importance of targeted reading interventions. Students learning English need additional forms of support that are tailored to their specific needs. Acknowledging that ELLs may have unique challenges that influence their reading, allows for the inclusion of these evidence-based interventions. Educators can implement the interventions to better aid ELLs in their overall learning. Nationwide support and further research are all necessary to reduce alarming literacy rates.

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