EFFECTS OF PRE-SCHOOL READING INTERVENTION ON FIRST GRADE READERS
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Abstract

Reading intervention before a student even reaches the first grade is important. If an at-risk reader can receive help through a well-organized reading intervention program, there is a great chance that they will be reading at grade level by the end of the first grade. Early intervention could significantly improve the reading outcomes of children at-risk for reading disabilities (Denton & Mathes, 2003; Foorman, Francis, Fletcher, Schatschneider & Mehta, 1998; O’Connor, Fulmer, Harty, & Bell, 2005; Simmonset, 2008). Intervention is needed to help the at-risk reader achieve at grade-level early. It is clear that districts can intervene early enough, with the at-risk reader, to help them perform at grade level by the end of the first grade, in a setting with high levels of poverty and limited resources. Providing students with the building blocks to succeed in reading should be the fundamental responsibility of the early education system.
Chapter One: Introduction

Background of Problem

Educators should be held accountable for the yearly academic growth of students. Measures of teacher effectiveness should take into account the overall student achievement in the building(s) in which those teachers teach (Michigan Department of Education, 2010). Michigan State Superintendant Mike Flanagan noted that even though Michigan's curriculum standards are among the best and most rigorous in the country, its state tests are scored at a scale lower than international standards. He expects those scoring scales to be increased to reflect the level of proficiency Michigan kids need to compete at global levels. Independent studies have conducted showing that Michigan test scores rate at the national average among all states, while globally, the United States rates lower than a lot of other nations. Adequate Yearly Progress (AYP), as defined by the Michigan Department of Education and the No Child Left Behind Act of 2001, is the measure used to hold schools and districts responsible for student achievement in English language arts and mathematics. AYP is based on Michigan Educational Assessment Program (MEAP) test results, participation rates in MEAP testing, and attendance or graduation rates. The annual state objectives will increase gradually until student scores reach 100% in 2014 (Michigan Department of Education, 2010). Adequate yearly progress will ensure that every child can read at grade level or above by the end of third grade through the implementation of instructional programs and materials, assessments, and professional development grounded in scientifically based reading research (U.S Department of Education, 2010).

“Every Child”, “100 %”, and “ALL children” are words commonly used in
today’s educational expectation legislation. These types of statements are designed to raise the level of education in the United States of America, but these statements are not realistic. However, it is possible for educators to intervene early enough with at-risk readers to help students perform at grade level by the end of the first grade. Early intervention delivered within a specific window of time might be enough to help children who are at-risk of reading disabilities (Coyne, 2004). Cunningham and Stanovich (1998) noted that students who slip behind in early elementary grades have more difficulty bridging the gap between them and their classmates over time. Specific examples will be shown to demonstrate how the use of DIBELS assessment, early intervention, and response to intervention, influences at-risk readers’ chances of meeting oral reading proficiency by the end of the first grade.

Early intervention could significantly improve the reading outcomes of children at-risk for reading disabilities (Denton & Mathes, 2003; Foorman, Francis, Fletcher, Schatschneider & Mehta, 1998; O’Connor, Fulmer, Harty, & Bell, 2005; Simmonset, 2008). Correct identification of children at-risk for reading difficulty (RD) in kindergarten and first grade can trigger early intervention prior to the onset of significant problems, which, in turn, could place children on the path of normal reading development.

Universal screening is a principal means of identifying at-risk children (Glover & Albers, 2007). The success of prevention models, such as responsiveness to intervention, hinge on an accurate determination of which children are at-risk for future difficulty (Compton, Fuchs, Fuchs, & Bryant, 2006; Fuchs & Fuchs, 2007; Good, Simmons, & Kame‘enui, 2001; McCordle, Scarborough, & Catts, 2001; VanDerHeyden, Witt, &
Theoretical Foundation

According to Coyne (2004), examining the subsequent reading progress of students who take part in beginning reading interventions and determining if students who caught up during intervention were able to continue to make progress following intervention is very important. There are two primary hypotheses regarding the enduring effects of beginning reading intervention. The inoculation hypothesis is based upon the notion that carefully designed early intervention delivered within a specified window of time will be sufficient to identify and remediate children who are at-risk for RD. On the other hand, the insulin hypothesis holds that positive short-term effects gained through early intervention can only be maintained with continued intervention support. By intervening early, 75% to 100% of kindergartens at-risk for reading difficulties can catch up by the beginning of first grade with effective, comprehensive reading interventions (Coyne, 2004).

Research Question

Instruction in phonological blending and segmenting for early school-age children has resulted in positive treatment effects (O’Conner, 2000). To maximize the benefits from this intervention, children need to be identified early (Cavanaugh, Kim, Wanzek, & Vaughn, 2004; Torgesen, 2002; Torgesen et al., 1999; Vellutino, Scanlon, Small, & Fanuele, 2006). How early is too early to learn the skills needed to be a fluent reader?

Hart and Risley (2003) suggested that in professional families, children heard an average of 2,153 words per hour, while children in working class families heard an average of 1,251 words per hour, and children in welfare-recipient families heard an
average of 616 words per hour. Over the course of one year, children in professional families hear an average of 11 million words, while children in working class families heard an average of 6 million words, and children from a welfare-recipient family heard an average of 3 million words. By kindergarten, a child from a welfare-recipient family could have heard 32 million fewer words than a classmate from a professional family.

Coyne’s (2004) research shows that early intervention delivered within a specific window of time would be enough to help children who are at-risk of reading disabilities. Specific examples will be shown to demonstrate how the use of DIBELS assessment, early intervention, and response to intervention provide support pillars to help all readers meet oral reading proficiency by the end of the first grade.

How can our district intervene early enough with at-risk readers to help them perform at grade level by the end of the first grade, in a setting with high levels of poverty and limited resources?

**Definition of Terms**

*Developmentally Delayed.* A developmental delay is a significant and ongoing delay in a child’s development. Developmental delays may occur in any or all of the major areas of child development: social, language, fine motor, gross-motor (Intervention Central, 2010, para. 1).

*Response to Intervention.* RTI embraces both general and special education by focusing on: (a) enabling the majority of children to make expected rates of progress by providing students a curriculum supported by evidence of effectiveness (Tier 1), (b) universal screening that identifies children not learning as expected and providing
additional, focused, intensive instruction and monitoring their progress (Tier 2), and (c) supporting the learning of students who have the greatest challenges learning the subject matter (e.g., students for whom Tier 2 instruction has failed, and who need an even more intensive intervention [Tier 3]). RtI is the practice of providing *high quality instruction* and interventions matched to student need, *monitoring progress* frequently to make decisions about changes in instruction or goals and *applying child response data* to important educational decisions (Batsche, et al., 2006).

**Early Reading Intervention.** Services provided to children who fail to grow in literacy-related skills and exhibit deficits that put them at-risk of developmental delay (Foorman, 1997).

**Oral Reading Fluency (ORF)** is a standardized, individually administered test of accuracy and fluency with connected text. The ORF passages and procedures are based on a program of research and development of Curriculum-Based Measurement (Deno 1989). Using a standardized set of passages and administration procedures designed to (a) identify children who may need additional instructional support, and (b) monitor progress toward instructional goals. The passages are calibrated for the goal level of reading for each grade level. Student performance is measured by having students read a passage aloud for one minute. Words omitted, substituted, and hesitations of more than three seconds are scored as errors. Words self-corrected within three seconds are scored as accurate. The number of correct words per minute from the passage is the oral reading fluency score. DIBELS ORF includes both benchmark passages to be used as screening assessments across the school year as well as 20 alternate forms for monitoring progress.
**DIBLES.** The Dynamic Indicators of Basic Early Literacy Skills (DIBELS) are a set of procedures and measures for assessing the acquisition of early literacy skills from kindergarten through sixth grade. DIBELS tests are designed to be short (one minute) fluency measures used to monitor the development of early literacy and early reading skills (University of Oregon, 2010)

**Summary**

Today’s educators face many challenges. The intervention toolbox provides help for readers placed at-risk who are fighting to catch up to their peers. Students should and can all read at the rate deemed grade appropriate. Educators can provide these tools to ensure young people receive the help needed to tackle this challenge. In this study learning and intervention strategies will be examined using data from research studies of early elementary readers to test the research done by Coyne on the effects of early intervention and reading success. The goal of this research is to explore a three-pronged approach to early intervention through (1) the use of DIBELS assessments for recognizing and supporting early school aged readers, (2) the benefits of pre-school programs and all day kindergarten programs, and (3) Response to Intervention to help the reader placed at-risk meet oral reading proficiency by the end of the first grade. We will look at the positive affects of this early intervention and recognition as applies to the standardized test scores of some districts.

How can our district intervene early enough, with the at-risk reader, to help them perform at grade level by the end of the first grade, in a setting with high levels of poverty and limited resources?
Chapter Two: Literature Review

With the use of early intervention, researchers have seen strong gains in first-grade reading performance. Coyne examined two hypotheses to determine if beginning reading instruction is an “inoculation or insulin” for first-graders exposed to strong kindergarten intervention. The ability exists for a kindergarten student to catch up during early reading intervention and to continue to make progress when the intervention has been discontinued. The inoculation hypothesis was based upon the notion that early intervention delivered within a specific window of time will be enough to help children who are at-risk of reading disabilities. (Coyne, Kame’enui, Simmons, & Harn, 2004). In contrast, Coyne’s insulin hypothesis claims that gains will only be maintained through continued intervention support.

Kindergarten Intervention

Students who fall behind experience progressively experience more difficulty bridging the gap between them and their classmates, and may ultimately develop a reading disorder (Cunningham & Stanovich, 1997). Coyne studied 112 Kindergarten students who were identified as at-risk and randomly assigned to one of three intervention groups. An experiment was designed with participants randomly assigned to experimental groups and a control groups. After completion of kindergarten, these sample at-risk students were screened in October of the first-grade, and again in February, with measures including nonsense work fluency, oral reading fluency, work attack skills, word identification skills and passage comprehension. The 112 at risk-readers were screened throughout their kindergarten year, based on the (1) student factors (e.g., phonological awareness deficits, rapid naming deficits, experiential/instructional
deficits); (2) instructional factors (e.g., nature of the intervention, time of initiation, nature of post-intervention instruction); and (3) methodological factors (e.g., reading outcomes measured, follow-up analyses, time of follow-up), Coyne (2004) was able to study how the provided intervention aided in determining if the pupils who caught up during intervention could continue to make progress following intervention. Support for Coyne’s inoculation hypothesis, which is based upon the notion that carefully designed early intervention delivered within a specified window of time will be sufficient to identify and remediate children who are at-risk for reading disabilities is duplicated. As the early intervention continued a direct correlation was seen in future academic performance. Schools were finding that assessments to evaluate their first-year efforts to improve early literacy and beginning-reading outcomes. These results were shown to provide positive results. Kindergarten students’ phonemic-awareness skills increased substantially over the course of the school year intervention study. At the beginning of the year only 23% of students were considered to be at low risk based on their entry-level skill, by June, 60% of kindergarten students had met the benchmark goal for phonemic awareness. At the same time, although 25% of students were considered to be at high risk in September, that number dropped to 15% by June. Educators can intervene early enough with pre-school aged children, in most cases to avoid, future reading difficulties. Seventy-five to one hundred percent of kindergartens at-risk for reading difficulties were up by the beginning of first grade with effective, and comprehensive, reading interventions. The research also showed that students could make acceptable reading progress through February of first grade without additional intervention. (Coyne 2004)
Early Literacy Skills and Future Success

The effects of preventative screening for early readers are a very important concern to educators. Helping the early pre-school-age child gain appropriate reading skills is one of the educators’ most fundamental concerns. Illiteracy not only limits school achievement and success throughout the life span (Deno, 1989), but also is associated with numerous social problems, including high school dropout (Juel, 1995), incarceration (Sarkees-Wircenski & Wircenski, 1994), and homelessness (McGill-Franzen, 1987). Poor learning outcomes are prevalent for students lacking early literacy skills. Reliable and valid detection of at-risk students through regular screening and progress monitoring is imperative. Goffreda tested the utility of the DIBELS first grade indicators for predicting reading proficiency on achievement tests. A total of 67 first-grade students from a rural, central Pennsylvania school district participated in the project. Seventy-eight percent of the students were White, 10% were Hispanic or Latino, 2% were Black, 1% were Asian American, and 9% belonged to an unknown racial or ethnic group. Eleven percent of the students qualified for special education or remedial services, and 21 students received Title 1 services. This study employed a non experimental design. Goffreda used binary logistic regression analysis to determine the predictive validity of first graders’ winter DIBELS indicator risk categories with TerraNova proficiency by Grade 2. Similarly, logistic regression analysis was used to study the predictive validity of first-grade DIBELS indicator risk categories with PSSA proficiency attainment in Grade 3. To determine the best predictor of later proficiency, the winter benchmark was selected because it is the first assessment to include ORF.
For the first analyses, the predictor variables were the four DIBELS indicators. Risk categories for each indicator were coded: at-risk, some risk, and low risk. Reading proficiency attainment on the TerraNova or PSSA, respectively, served as the dependent variable for each equation. Students’ TerraNova and PSSA scores were coded as non-proficiency (i.e., below basic or basic) or proficiency level (i.e., advanced or proficient). Statistical significance was calculated at the \( p \leq .05 \) level. The DIBELS classification accuracy was calculated, including sensitivity (the proportion of students correctly identified by the DIBELS as failing to meet proficiency relative to the total number of students who failed to meet proficiency) and specificity. Sensitivity and specificity levels for each measure are determined by inspecting the area under the curve (AUC; Strik, Honig, Lousberg, & Denollet, 2001). Simon (1999) suggested the following interpretation of AUC values: 0.50–0.75 (fair); 0.75–0.92 (good); 0.92–0.97 (very good); 0.97–1.00 (excellent). Values are compared to a null hypothesis of a “true area” equivalent to 0.50. Thus, AUC significance indicates that sensitivity and specificity values (i.e., predictive utility) statistically differ from random assignment. Optimal cutoff scores were compared to the DIBELS cutoff scores recommended by Good and Kaminski (2002) to determine if sensitivity and specificity levels were comparable. Results suggest that students’ first-grade DIBELS decision category scores significantly predicted future reading proficiency on both the TerraNova and PSSA. Students’ first grade Oral Reading Fluency (ORF) DIBELS risk category scores were the only significant predictor of future reading proficiency (Goffreda’s, 2009).

**Time and Intensity of Intervention**

By increasing the intensity of intervention in Kindergarten and first-grade reading
difficulties be addressed with significant improvement seen in both reading and comprehension. O’Conner (2000) indicated that children in each layer of intervention progressed better in target skills than children who did not receive interventions. Because the children were followed for two years, children were observed moving in and out of the high-risk classification. During his research, O’Connor (2000) conducted a series of reading interventions to see if they could reduce reading acquisition problems in kindergarten. In October of the kindergarten year, children were screened with measures of vocabulary, letter identification, short-term memory for sounds, rapid naming of animals, rhyme production, syllable deletion, phonological blending and segmenting, reading, and dictation. Children selected as at-risk named fewer than 15 letters in one minute, identified fewer than four segments in 10 three-phoneme words, and had standard scores below 86 on combined letter-word and dictation subtests of the Woodcock-Johnson.

O’Connor examined two additional issues: (1) the inclusion of children with disabilities and attention problems as participants and (2) providing a series of interventions over the first two years of school rather than a one-time intervention. Children with high-incidence disabilities were identified gradually over the course of intervention. Of the 14 children in the original sample eligible for special education services by the middle of second grade, all were included in the high-risk group identified in October of kindergarten. Researchers measured the progress of children in literacy at nine points across kindergarten and first grade to identify children who were not responding well to the activities in the general education classroom. At each measurement cycle, the average attainment of skills was identified, which was used to
structure more intense interventions. The progress of all kindergarten children in letter naming and segmentation was followed to identify children who were not responding well to whole-class activities. Literacy progress in phonological segmenting and blending continued to be monitored as well. Overall, 70% of the children with disabilities responded well to the specialized intervention, although most still did not “catch up” in reading. The slow reading progress of children with disabilities suggests that they will need additional support in second grade for acceptable progress to continue. Entry skill was not a good predictor of future response to treatment since some of the children who entered with poor literacy skills shifted out of the high-risk group. Ethnicity status, blending ability, and disability status were also not good predictors of response to treatment. Ten of the 12 most resistant learners were identified for special education. The most important implication is that much effort is necessary to maintain nearly normal progress for the children who had initial difficulty in reading. The proportion of children at-risk at the end of kindergarten who “caught up” in first grade without specialized intervention was only 1%. Within just a few months, most of the children with disabilities lost ground in comparison to children not at risk. Therefore, long-term interventions may be necessary to ensure continued growth in literacy skills of children at-risk (O’Connor, 2000).

**Selecting Readers for Intervention**

What is the process for selecting at-risk readers for early intervention? With the need for getting young readers help quickly, (Compton, 2010) looked at a selection of at-risk first-grade readers in need of early intervention. He wanted to test different diagnostic screening measures to help identify the children that are at highest...
risk. By definition, a diagnostic screening measure is a brief assessment that provides predictive information about a child’s development in a specific academic area. Its purpose is to identify any children who are at-risk so that these children can receive extra support through early intervention. The screening measure is given to all children and used to identify an initial risk pool of children suspected of being at-risk of developing reading disabilities. By examining children at-risk for reading difficulties in kindergarten and exploring the use of testing that would trigger them receiving early intervention prior to the development of significant reading problems Compton was able to look at how these screening procedures could be best administered to decrease the numbers of false positives. The participants of Compton’s study were 485 first grade students from 56 first-grade classrooms in 14 urban and suburban districts located in Tennessee. These children were screened and grouped using a prediction battery in the fall of first grade comprised phonemic awareness, rapid naming, and Oral Reading Fluency. At the same time, they administered word identification, word attack, sight word efficiency, and phonemic decoding efficiency to evaluate and measures the first step in the gated screening procedure. Also in the fall of first grade, they administered short-term progress monitoring for five consecutive weeks, each time with an alternate form. Additionally, running records were collected from children’s first-grade teachers during the fall semester. The results of these assessments helped researchers divide the students into the following: 310 low achievement student group, 83 average achievement student group, and 92 high achievement student group. This study was looking at ways to improve first-grade screening procedures for reading difficulties and decrease the amount of false positives, while making universal screening more efficient. The students were
administered the first-grade prediction battery for designating risk for reading difficulties. This test included rapid digit naming, phonemic awareness, oral vocabulary, various progress monitoring tasks, dynamic assessments, running records, and oral reading fluency. Throughout the course of the first grade, the screening was administered consisting of two word reading tasks, two non-word reading tasks, and a reading comprehension measure. The students were scored and cut off points for at-risk readers, and non-risk readers were established. After establishing cut off points for the various first grade reading difficulty measures, Compton was able to create means, standard deviation, and correlations among the first grade screening measures and the composite reading outcomes. All correlations, except those involving word identification fluency, were statistically significant (p < .05), meaning that word identification fluency is less important in recognizing an at-risk reader then the other components of the battery. The authors concluded that measures designed to assess classroom instruction add significantly to prediction of reading problems as opposed to children’s ability to read random passages. It was stressed in this study that the teacher preparation of the lessons accompanied with the ability to teach and present the reading skill is a very important component of success.

**Meaningful Assessment**

Being able to promote beginning reading success through meaningful assessment of early literacy skills has become evermore important. In research into the advances in early literacy assessment, schools have been provided with access to critical information about students’ foundational beginning reading skills. To *prevent* the occurrence of reading failure and ensure school success for all children, we need to do more than
simply prepare children to be ready for school. If we are to maintain the gains made by families and early childhood programs in preparing children for school, we need a dynamic, prevention-oriented, school-based assessment and intervention system designed to monitor the growth and development of children through the critical early school years. Such a system can preempt early academic and social difficulties and enable children to maintain gains and progress step-by-step toward outcomes that will result in school success. For a prevention-oriented, school-based system of assessment to be effective, it must reliably (a) measure growth on foundational reading skills on a frequent and ongoing basis, (b) predict success or failure on criterion measures of performance (i.e., high-stakes tests), and (c) provide an instructional goal that, if met, will prevent reading failure and promote reading success. (Good, Simmons, & Kame’enui, 2001)

Assessment of early literacy skills can assist schools in promoting beginning reading success for their students. By identifying key skills in early literacy and focusing on a comprehensive assessment system, *Dynamic Indicators of Basic Early Literacy Skills* (DIBELS), was created to test building blocks needed for the beginning reader. A demonstration of a framework of thinking about early literacy assessment begins to form. These foundational blocks each serve a distinct purpose: (a) screening, (b) diagnosis, (c) progress monitoring, and (d) student outcomes. Real-world examples are offered that show how DIBELS can be used to test students’ early literacy skills across each of these four foundational blocks and assist educational stakeholders in making instructional decisions. Ongoing formative assessments reinforce teachers’ efforts as they see tangible evidence of student progress and, as a result, increase the social validity and perceived importance of systematic reading instruction and intervention (Coyne, 2006).
The Pre-School Reader

By examining the effects of schooling during children’s first and second years of preschool as compared to children who had different amounts of preschool (i.e., one or zero years) but who were essentially the same chronological age, researchers can begin to compare how much of the students reading gain come from exposure to early education. Skibbe (2010) suggested that the first and second years of preschool are both systematically associated with decoding and letter knowledge gains, and the effects are cumulative (two years predicted greater gains overall than did one year of preschool). She found that children’s chronological age, and not whether they experienced one versus two years of preschool, predicted children’s vocabulary and self-regulation outcomes. Implications for preschool curricula and instruction are discussed, including the increasing emphasis on literacy learning prior to kindergarten entry and the need to address self-regulation development along with academic learning. Skibbe (2010) tested 76 students in the fall and spring of the school year using measures of decoding, letter knowledge, and vocabulary. After examining the results of these tests (decoding and letter knowledge), Skibbe found that children finishing their second year of preschool had higher scores, even though each groups of children grew similarly during the school year. The preschool curricula, instruction given, and the increased intensity level given to literacy learning prior to the start of kindergarten significantly influences kindergarten reading success (Skibbe, 2010).

Oral Reading Fluency

Using a set of increasingly challenging reading passages Oral reading fluency measures fluency and accuracy of readers in first through sixth (Good & Kaminski,
Depending on the number of words read correctly per minute, students’ skills can then be classified into three risk categories: low risk, some risk, and at-risk. Multiple investigations (e.g., Barger, 2003; Buck & Torgesen, 2003; Hintze, Ryan, & Stoner, 2003; Shaw & Shaw, 2002; Vander Meer, Lentz, & Stollar, 2005; Wilson, 2005) have yielded strong concurrent and predictive validity coefficients, as well as excellent sensitivity and specificity levels (i.e., ≥ 80 %) of reading subtest proficiency on end-of-year district and state standardized assessments. ORF risk categories were the only significant predictor of future TerraNova and PSSA reading proficiency (Goffreda, 2009).

Support for ORF’s concurrent and predictive criterion-related validity with similar district and state standardized assessments is consistent with previous investigations (e.g., Barger, 2003; Buck & Torgesen, 2003; Hintze et al., 2003; Shaw & Shaw, 2002; Vander Meer et al., 2005; Wilson, 2005). In addition to the substantial empirical base supporting ORF use, a growing body of evidence from technical reports supports DIBELS ORF as a progress monitoring assessment. Correlations of .65 - .80 were found between DIBELS ORF and several state assessments of reading. Wilson (2005) supplemented the extensive third-grade ORF evidence by comparing student scores (N = 241) to the Arizona Instrument to Measure Standards (AIMS). Similar to other statewide standardized assessment measures, AIMS strongly correlated with ORF performance (r = .74). Sensitivity (93%) and specificity (81.9%) results mirrored those of earlier investigations. Furthermore, ORF was equally accurate in predicting AIMS proficiency across demographic subgroups. (Wilson, 2005) It was also hypothesized that first-grade DIBELS risk category scores predict future reading proficiency on both the TerraNova and PSSA, with ORF risk categories predicting the majority of indicator variance.
Previous studies support the concurrent and predictive validity of DIBELS indicators in identifying future reading proficiency, particularly on end-of-year district and state standardized assessments (Barger, 2003; Buck & Torgesen, 2003; Hintze et al., 2003; Shaw & Shaw, 2002; Vander Meer et al., Wilson, 2005).

Response to Intervention

Can positive short-term effects gained through early intervention only be maintained with continued intervention support? The effects of increased intensity of interventions show that children exposed to intervention progressed better in target skills than children who did not receive interventions. The Children were followed for two years, and were observed moving in and out of the high-risk classification. Children with high-incidence disabilities were identified gradually over the course of the layers of intervention. Of the 14 children in the original sample eligible for special education services by the middle of second grade, all were included in the high-risk group identified in October of Kindergarten. Overall, 70% of the children with disabilities responded well to 4 different levels of specialized intervention compared to students that did not receive the intervention, although most still did not “catch up” in reading. The slow reading progress of children with disabilities suggests that they will need additional support in second grade for acceptable progress to continue. Ten of the 12 most resistant learners were identified for special education.

Effort is necessary to maintain nearly normal progress for the children who had initial difficulty in reading. The proportion of children at-risk at the end of kindergarten who “caught up” in first grade without specialized intervention was only 1%. Within just a few months, most of the children with disabilities lost ground in comparison to children
not at-risk. Therefore, long-term interventions may be necessary to ensure continued growth in literacy skills of readers placed at-risk (O’Conner, 2000).

Reinforcing teachers’ efforts with student progress increases the social validity and perceived importance of systematic reading instruction and intervention. Recent scientific advances in early literacy assessment have provided schools with access to critical information about students' foundational beginning reading skills. Coyne (2006) describe how assessment of early literacy skills can help school psychologists promote beginning reading success for all children. First, he identified key skills in early literacy and described a comprehensive assessment system, "Dynamic Indicators of Basic Early Literacy Skills" (DIBELS), developed to assess essential beginning reading skills. Next, he presented a conceptual framework for thinking about early literacy assessment across four distinct purposes: (a) screening, (b) diagnosis, (c) progress monitoring, and (d) student outcomes. Finally, he provide school-based examples that illustrate how DIBELS can be used to assess students' early literacy skills across each of these four purposes and facilitate informed and ongoing instructional decision making. By completing the link between assessment and instruction, schools can dramatically increase the number of students who become successful readers in the primary grades (Coyne, 2006).
Chapter Three: Results and Analysis Relative to Problem

Researchers have identified several factors that influence how the at-risk readers can, with proper intervention, achieve at a level of their peers by the end of the first grade. Hart and Risley (2003) suggested that in professional families, children heard an average of 2,153 words per hour, while children in working class families heard an average of 1,251 words per hour, and children in welfare-recipient families heard an average of 616 words per hour. In one year children in professional families heard an average of 11 million words, while children in working class families heard an average of 6 million words and children from a welfare-recipient family heard an average of 3 million words. By age 5, a student from a low income home could have heard 32 million words less than a peer from a high income family. This factor of limited exposure to the most fundamental language building blocks creates a large demographic of at-risk readers. The need for schools to intervene with these students in an area that is economically challenged becomes clearly evident.

Researchers have found that instruction in phonological blending and segmenting for young children has resulted in positive treatment effects (O’Conner 2000). Programmatic research over the past decade has demonstrated that early intervention can significantly improve the reading outcomes of children at risk for reading disabilities (Denton & Mathes, 2003; Foorman, Francis, Fletcher, Schatschneider & Mehta, 1998; O’Connor, Fulmer, Harty, & Bell, 2005; Simmons et al., 2008). To benefit maximally from this intervention, children need to be identified early (Cavanaugh, Kim, Wanzek, & Vaughn, 2004; Torgesen, 2002; Torgesen et al., 1999; Vellutino, Scanlon, Small, & Fanuele, 2006). Correct identification of children at-risk for reading difficulty (RD) in
kindergarten and first grade can trigger early intervention prior to the onset of significant problems, which, in turn, can place children on the path of normal reading development. Universal screening is a principal means of identifying at-risk children (Glover & Albers, 2007). The success of prevention models, such as responsiveness to intervention, hinges on an accurate determination of which children are at-risk for future difficulty (Compton, Fuchs, Fuchs, & Bryant, 2006; Fuchs & Fuchs, 2007; Good, Simmons, & Kame’enui, 2001; McCardle, Scarborough, & Catts, 2001; VanDerHeyden, Witt, & Gilbertson, 2007). Programs to identify, and intervene with at-risk readers, as soon as they reach our district, have become ever increasingly clear.
Chapter Four: Recommendations and Conclusion

Recommendation

A number of recommendations can be provided so our district can effectively intervene early with the at-risk readers to help them perform at grade level by the end of the first grade, even with high levels of poverty and limited resources. Early detection of risk factors, coupled with data collection (Response to intervention), have provided the most effective tools for helping readers at risk. Fixing the at-risk reader early in their educational experience provides numerous benefits to our district. By identifying students early, that show signs for reading disabilities, through screening and teacher observations, intervening by providing students with the tools they need to be quality readers, and collecting quality DIBLES, MLPP, and student intervention review data, our district can make significant gains with the developing reader before they reach the end of the first grade. It is important to understand that even though these types of programs do not appear to have a positive financial impact on the district, identifying and helping the at-risk reader early can provide major benefits in the long term. The benefits include lower numbers of special education students, higher scores on the MEAP or other standardized state tests, and the overall well being of the at-risk reader. There is strong support for the insulin hypothesis stating that positive short-term effects gained through early intervention can be maintained with continued intervention support. By intervening early, 75 % to 100 % of kindergartens at-risk for reading difficulties can catch up by the beginning of first grade with effective, comprehensive reading interventions (Coyne, 2004). By addressing reading difficulties early, the gap in achievement remains relatively small, and is often easily closed with limited amounts of intervention. This
reflects in the at-risk reader learning the basics, before they are expected to learn the basics with additional content added.

By putting together an intervention program that is focused on the emerging readers, such as an Early Childhood Developmentally Delayed program, Child Study Teams, and Pre-school literacy groups, teachers can identify and offer assistance to the at-risk reader, before they reach kindergarten. As these students enter first grade the tiers of intervention can begin to be removed, and as stated in the inoculation hypothesis if carefully designed early intervention has been delivered within a specified window of time students that are at-risk for reading difficulties get the help they need and avoid delays in their reading development.

Due to declining enrollment numbers and the rise in poverty our district should take the lead in providing these early intervention services for our community. Through the development of a free pre-school literacy intervention program the district could provide, track and offer intervention, that would benefit young readers, promote our districts commitment to quality education, and address the need for producing quality readers. Our district will begin to see the results of our early interventions on the district’s MEAP test as well as the numbers of students qualifying for our special education program. As Coyne (2004) states, seventy five to one hundred percent of the students receiving intervention services will be performing at grade level by the end of the first grade,

**Areas for Further Research**

As of 2007 data have been collected from the Munising Public School first grade readers. During this time, different pillars for early reading intervention have been added
by the district. The impact on students with reading problems and grade level readers has been tracked. The results to date show that with each tier of intervention provided, the oral reading fluency scores (Appendix A), as well as the number of students testing out of special education has increased each year (Appendix B). During this period the Oral Reading Fluency Scores of the at-risk readers have improved substantially, and the numbers of at-risk readers has declined. The district is now just beginning to have students that were offered the first pillar of early reading intervention that will be taking the third-grade MEAP tests. The study of these scores will provide an indication as to the effectiveness of these early reading programs. By sampling students that had participated in our ECDD program, and have been provided multiple levels of intervention, we can compare their scores on standardized tests, to see the effectiveness of our program. Over the next few years the results of these programs should correlate with the districts MEAP results and an increase in the number of low achieving students should become apparent. As the data becomes available the district will have the opportunity to assess the benefits of the early intervention programs.

- The subjects for this study are identified as the at-risk readers that had been identified in our ECCD programs, and through our pre-school screenings.
- Method: By comparing the 2011-2015 MEAP results of these students, we should be able to link their improvement to the amount of intervention they received early in their education.
- Data: By comparing their DIBLES testing (K-3rd Grade), The ORF assessment data, with the 3rd Grade MEAP results, the district should be able to formulate conclusions as to the effectiveness of early intervention.
By comparing the at-risk readers from each of the previous three years to the at-risk readers of the coming years we should be able to definitively show that our district can intervene early enough, with the at-risk reader, to help them perform at grade level by the end of the first grade, in a setting with high levels of poverty and limited resources.

**Summary and Conclusion**

Reading intervention before a student even reaches the first grade is important. If an at-risk reader can receive help through a well organized reading intervention program, the chances that they will be reading at grade level by the end of the first grade are great. Early intervention could significantly improve the reading outcomes of children at-risk for reading disabilities (Denton & Mathes, 2003; Foorman, Francis, Fletcher, Schatschneider & Mehta, 1998; O’Connor, Fulmer, Harty, & Bell, 2005; Simmonset, 2008). Providing students with the building blocks to succeed in reading should be the fundamental responsibility of the early education system. A child that cannot read and comprehend will never be a strong student, and therefore, will always struggle. It is the responsibility of the school to provide these at-risk students with exposure to the skills that will make them better readers. Two hypotheses regarding the enduring effects of beginning reading intervention exist. Coyne (2004) suggested that by intervening early, 75-100% of kindergartens at-risk for reading difficulties can catch up by the beginning of first grade, with effective, comprehensive reading interventions (Coyne, 2004). Educators can help kids read, and succeed in their educational pursuits and the earlier they can be identified, and provided intervention, the better off they will be.
References:


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Eugene, OR: University of Oregon. https://dibels.uoregon.edu

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Appendix A: (Shows how ORF scores have increased for our at-risk readers as different tiers of intervention have been provided)

Chart 1: At-risk readers with little to no intervention pillars.

Chart 2: At-risk readers with ECDD offered before Kindergarten.

Chart 3: At-risk readers with ECDD and all day every day Kindergarten.

Chart 4: At-risk readers with ECDD, all day Kindergarten, and Child Study.
Appendix B: (Provided Tiers of intervention at Mather Elementary School compared to the number of students receiving special education services)

Current 4th Grade

4 Students with Special Needs Identified between K - 1st grade

- 0 Students Tested Out of Special Education
- 3 Students Receiving Special Education Service

Current 3rd Grade

6 Students with Special Needs ECDD Program

- 3 Students Tested Out of Special Education
- 3 Students MOVED
Current 2nd Grade

- 8 Students with Special Needs
  - ECDD Program
  - All Day - Everyday Kindergarten

- 7 Students Tested Out of Special Education
- 1 Student Receiving Special Education Services

Current 1st Grade

- 5 Students with Special Needs
  - ECDD Program
  - All Day - Everyday Kindergarten

- 3 Students Tested Out of Special Education
- 2 Students Receiving Special Education Services